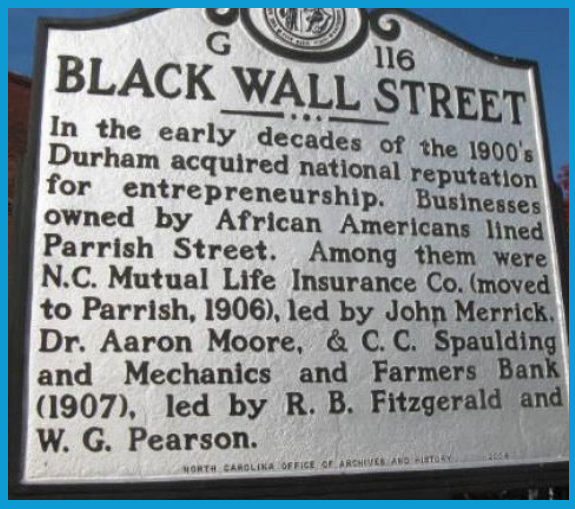
Durham County



2023 Community Health Assessment

DukeHealth

DURHAM COUNTY DCO HC 1881 Public Health

NORTH CAROLINA Accredited Health Department With Honors 2022-2027 Public Health Department Accreditation Board

Partnership for a Healthy Durham

Photos courtesy of Discover Durham

Table of Contents

DEDICATION

This document is dedicated to the residents of Durham County, NC.

Thank you to all Durham County residents for your attentiveness to the community's health strengths and needs, and for your willingness to share your thoughts, opinions, and experiences. It is our intention for the ideas, policies, and solutions that emerge from this process to be shaped collaboratively, in partnership with the members of the Durham County community.

ACKNOWLEDGEMENTS

This assessment would not have been possible without the invaluable help and support of numerous individuals and groups of people who live and work in Durham County. The Durham County Department of Public Health, Duke Health, and the Partnership for a Healthy Durham extend our gratitude to the following individuals and groups for their assistance during the course of this assessment:

- The Community Health Assessment Leadership Team members, Durham County Department of Public Health staff, Duke University and Health System faculty and staff, and the Partnership for a Healthy Durham partners and member agencies for their dedication and guidance in making this a true community assessment.
- Duke Health for financially supporting the Community Health Assessment.
- Rod Jenkins, Health Director, Kristen Patterson, Deputy Health Director, and Liz Stevens, Deputy Health Director at Durham County Department of Public Health Department for supporting the involvement of health department staff in the Community Health Assessment process.
- Marissa Mortiboy, Population Health Division Director at Durham County Department of Public Health for guiding the Community Health Assessment process.
- Savannah Carrico, Epidemiologist with Durham County Department of Public Health for leading the Community Health Assessment survey process by creating the surveys, designing survey samples, and training and coordinating volunteers and contracted staff.
- John-Paul Zitta, Data Scientist with Durham County Department of Public Health for building the Community Health Assessment trend data dashboards, mapping and designing survey samples, and co-designing surveys.

- Isa Granados, former contractor with Durham County Department of Public Health for recruiting, training, and coordinating Comunidad Latina survey contractors.
- Catrina Lloyd, contractor with Durham County Department of Public Health for coordinating health prioritization listening session in English.
- El Centro Hispano for hosting health issue prioritization listening session in Spanish.
- Libby McClure, formerly with DataWorks NC, for assisting with the Community Health Assessment Writers' Training.
- Durham Children's Initiative for providing space for Community Health Assessment survey operations.
- The many volunteers who helped conduct the Community Health Assessment surveys.
- The contractors who managed the phone bank during the county-wide survey collection and conducted the Comunidad Latina Community Health Assessment surveys.
- The community members who agreed to be surveyed and provided valuable information about their health-related experiences and the health of Durham County.
- The Durham County Board of Health for their support.
- DataWorks NC for support with survey operations.
- The North Carolina Institute for Public Health for providing expertise and technical assistance in carrying out the Community Health Assessment survey.
- Duke University and North Carolina Central University for their assistance throughout the process.

The Community Health Assessment process was led by Bria Miller, Partnership for a Healthy Durham Coordinator with Durham County Department of Public Health. The following individuals were instrumental in editing this document:

EDITORS

- Benay Hicks, MTS
- Bria Miller, BA
- Marissa Mortiboy, MPH
- John-Paul Zitta, MS
- Savannah Carrico, MPH

REVIEWERS

- Rod Jenkins, DrPH(c), MHA
- Michelle J. Lyn, MBA, MHA

Writing Contributors

There were 86 individuals who contributed to this document, many of whom wrote more than one section. Thank you to the writers who put in many hours developing this document for the Durham County community.

The names of writing team leads in the table below are listed in bold.

1.0 Introduction

Name, Credentials	Affiliation
Bria Miller, BS, Partnership for a Healthy Durham Coordinator	Durham County Department of Public Health

2.0 Community Priorities

Name, Credentials	Affiliation
Savannah Carrico, MPH, Public Health Epidemiologist	Durham County Department of Public Health

3.01 Community Profile- Durham Facts and History

Name, Credentials	Affiliation
Marissa Mortiboy, MPH, Population Health Director	Durham County Department of Public Health
Jo Overstreet, MSLS	Community Member

3.02 Community Profile- Demographics

Name, Credentials	Affiliation
Savannah Carrico, MPH, Public Health Epidemiologist	Durham County Department of Public Health

3.03 Community Profile- Health Inequities

Name, Credentials	Affiliation
Maya Wilson, MSc-GH, PhD Student, Health Policy and Management	Gillings School of Public Health, University of North Carolina at Chapel Hill
Marissa Mortiboy, MPH Population Health Division	Durham County Department of Public Health

3.04 Community Profile- Parks and Recreation

Name, Credentials	Affiliation
Andre' White, Recreation Operations Supervisor	Durham Parks and Recreation, City of Durham

4.01 Determinants of Health- Housing and Homelessness

Name, Credentials	Affiliation
Don Bradley, MD, MHS-CL, Consulting Professor, Core Faculty	Duke University School of Medicine Duke Margolis Institute for Health Policy
Trisha Dalapati, Graduate Student	Duke University
Skye Tracey, Graduate Student	Duke University
Maya Wilson, Graduate Student	Duke University

4.02 Determinants of Health- Education

Name, Credentials	Affiliation
LaManda Chestnut- Pryor, M.Ed, Owner, Lead Educational Consultant	Pryor 2 Consulting, LLC
Shelisa Howard, MPA, ERHD, Executive Director	Aging Well Durham

4.03 Determinants of Health- Access to Healthcare, Insurance, and Information

Name, Credentials	Affiliation
Angel Romero, MMC, CNM, Program Coordinator	Duke Population Health Management Office
Shelisa Howard Martinez, MPA, ERHD, Executive Director	Aging Well Durham
Deborah Dolan, Senior Community Advocate	WellCare of NC

4.04 Determinants of Health- Crime and Safety

Name, Credentials	Affiliation
Katie Conyers, Grant Administrator	Durham County Justice Services Department

5.01 Health Promotion- Physical Activity

Name, Credentials	Affiliation
Krista Kicsak, MPH, CPH, Physical Activity, Nutrition, and Food Access Specialist	Durham County Department of Public Health
Amber Taylor, MS	Durham County Department of Public Health

5.02 Health Promotion- Nutrition and Access to Healthy Food

Name, Credentials	Affiliation
Meghan Brown, MHS, RD, LDN, Nutrition Specialist	Durham County Department of Public Health
Deborah Hill, Strategist	Duke World Food Policy Center, Duke University
Kelly Warnock, MPH, RD, LDN Nutrition Program Manager	Durham County Department of Public Health
Raina Goldstein Bunnag, MPH, RD, LDN, Nutrition Specialist	Durham County Department of Public Health
Ileana Vink, MPH, RD, LDN, Nutrition Specialist	Durham County Department of Public Health
Jessica Davidson, Student	University of North Carolina at Chapel Hill

5.03 Health Promotion- Resilience and Protective Factors

Name, Credentials	Affiliation
Jess Bousquette, MPH, Adverse Childhood Experiences and Resilience Coordinator	Durham County Department of Public Health
Charlene Reiss, PhD, MPA, Consultant	Partners for Impact
Wanda Boone, PhD, Founder and CEO	Together for Resilient Youth

6.01 Chronic Disease- Cancer

Name, Credentials	Affiliation
Miran Bhima, Student	Duke University
Kearston Ingraham, MPH, Assistant Director	Duke Cancer Institute Office of Health Equity

6.02 Chronic Disease- Diabetes

Name, Credentials	Affiliation
Blanca Iris Padilla, PhD, MBA, MSN, APRN, FNP-BC, FAANP, Associate Professor	Duke University School of Nursing
Katie-Rose Crater, Director	American Diabetes Association
Yvonne Reza, BS, MBA, Public Health Education Specialist	Durham County Department of Public Health

6.03 Chronic Disease- Heart Disease and Stroke

Name, Credentials	Affiliation
Jeffrey Jenks, MD, MPH, Medical and Laboratory Director	Durham County Department of Public Health

6.04 Chronic Disease- Obesity and Weight Bias

Name, Credentials	Affiliation
Ileana Vink, Ileana Vink, MPH, RDN, LDN, Nutrition Specialist	Durham County Department of Public Health
Kia Campbell, MSED, MS, RD, LDN, Nutritionist	Durham County Department of Public Health
Kamaria Mason, MS, MPH, RD, LDN Nutrition Specialist	Durham County Department of Public Health
Jasmine St. Denny, MS, RD, LDN, Nutrition Specialist	Durham County Department of Public Health
Annie Scott, MPH, RD, LDN, Nutritionist	Durham County Department of Public Health
Dani MacKinnon, MS, RD, LDN, Nutritionist	Durham County Department of Public Health

6.05 Chronic Disease- Mental Health and Substance Use Disorder

Name, Credentials	Affiliation
Elana Horwitz, MD, Internal Medicine-Psychiatry Resident	Duke Health
Dr. Wanda Boone, PhD, Founder and CEO	Together for Resilient Youth

6.06 Chronic Disease- Tobacco Use

Name, Credentials	Affiliation
Natalie Thompson, MPH, TTS, Region 5 Tobacco Prevention Manager	Durham County Department of Public Health
Olivia Cunningham, Public Health Education Specialist	Durham County Department of Public Health

7.01 Reproductive Health- Pregnancy, Fertility, and Abortion

Name, Credentials	Affiliation
Allison Chu, Medical Student	Duke University School of Medicine
Shakeya Brevard, CHES, Public Health Education Specialist	Durham County Department of Public Health
Eleanor H.J. Rhee, MD, Assistant Professor	Duke University Obstetrics and Gynecology

8.01 Vaccine-Preventable Diseases

Name, Credentials	Affiliation
Savannah Carrico, MPH, Public Health Epidemiologist	Durham County Department of Public Health

8.02 Vaccine-Preventable Diseases

Name, Credentials	Affiliation
Dennis Hamlet, MPH, MCHES, Public Health Education Program Manager	Durham County Department of Public Health
Randy C. Rogers, MS, BSSW, Fast Track Cities Durham Coordinator	Durham County Department of Public Health
Ashley M. Bueno, MPA, ITTS/Jail Public Health Education Specialist	Durham County Department of Public Health
Jennie Dougherty, MSN, RN, CPNP, Pediatric Nurse Practitioner	Duke Pediatric Infectious Diseases

9.01 Injury and Violence- Intimate Partner Violence

Name, Credentials	Affiliation
Tatiana Aguilar, Graduate Student	University of North Carolina at Chapel Hill Gillings School of Global Public Health

9.02 Injury and Violence- Child Maltreatment

Name, Credentials	Affiliation
Gwendolyn McNeil, MPH, Intern	Population Health Division of Durham County Department of Public Health

9.03 Injury and Violence- Gun Violence

Name, Credentials	Affiliation
Donna Bass Rosser, MPH., Injury Prevention Public Health Education Specialist	Durham County Department of Public Health DCo Firearm Injury Prevention Partnership
Javonna Rozario, MPH. Comprehensive Suicide Prevention Coordinator	Durham County Department of Public Health DCo Firearm Injury Prevention Partnership
Cheryl Brewer, Ph.D., MSN, RN	Durham County Department of Public Health DCo Firearm Injury Prevention Partnership
Jackie Kaufman, ANP, MS, RN	DCo Firearm Injury Prevention Partnership Member

10.01 Oral Health in Adults and Children

Name, Credentials	Affiliation
Chitrakala Jagadeesan, DDS, Dental Practice Administrator	Durham County Department of Public Health
Brandie Carter, MS, RDH, Public Health Dental Hygienist	Durham County Department of Public Health

11.01 Environmental Health - Lead

Name, Credentials	Affiliation
Jeffrey Jenks, MD, MPH, Medical and Laboratory Director	Durham County Department of Public Health
Chris Salter, Environmental Health Division Director	Durham County Department of Public Health
Lakieta Sanders, Public Health Education Specialist	Durham County Department of Public Health
Chelsea Wooten, REHS, Environmental Health Program Specialist	Durham County Department of Public Health

11.02 Environmental Health- Extreme Heat

Name, Credentials	Affiliation
Tobin Freid, Sustainability Manager	Durham County Engineering and Environmental Services Department
Tim Glotfelty, Research Scholar	State Climate Office of North Carolina
Max Cawley, Director of Climate Research and Engagement	NC Museum of Life and Science
Megan Pendell, Sustainability Specialist	Durham County Engineering and Environmental Services Department
Corey Morris, MS, REHS, Public Health Preparedness Coordinator	Durham County Department of Public Health
Ashley Ward, Ph.D., Heat Policy Innovation Hub Director	Duke University Nicholas Institute for Energy, Environment & Sustainability
Jordan Clark, Ph.D., Senior Policy Associate, Heat Policy and Innovation Hub	Duke University Nicholas Institute for Energy, Environment & Sustainability

11.03 Environmental Health- Wildfires

Name, Credentials	Affiliation
Tobin Freid, Sustainability Manager	Durham County Engineering and Environmental Services Department
Tim Glotfelty, Research Scholar	State Climate Office of North Carolina
Max Cawley, Director of Climate Research and Engagement	NC Museum of Life and Science
Megan Pendell, Sustainability Specialist	Durham County Engineering and Environmental Services Department
Kirsten Minor, MPH, CHES, Health Program Manager	CleanAIRE NC

11.04 Environmental Health- Severe Storms and Precipitation

Name, Credentials	Affiliation
Tobin Freid, Sustainability Manager	Durham County Engineering and Environmental Services Department
Tim Glotfelty, Research Scholar	State Climate Office of North Carolina
Max Cawley, Director of Climate Research and Engagement	NC Museum of Life and Science
Megan Pendell, Sustainability Specialist	Durham County Engineering and Environmental Services Department
Corey Morris, MS, REHS, Public Health Preparedness Coordinator	Durham County Department of Public Health

11.05 Public Health Emergency Preparedness

Name, Credentials	Affiliation
Corey Morris, MS, REHS, Public Health Preparedness Coordinator	Durham County Department of Public Health

12.01 Environmental Justice- Introduction and Water Access and Pollution

Name, Credentials	Affiliation
Kathleen Hunt, PhD, Director and Principal Researcher	Kathleen Hunt Research and Evaluation Consulting
Bonita Green, Executive Director	Merrick-Moore Community Development Corporation
Libby McClure, PhD, Epidemiologist	Union of Concerned Scientists
Annette Hiatt, Senior Staff Attorney	Land Loss Prevention Project
Lona Loudon, MPH, JD Candidate 2024, Campbell University School of Law	Land Loss Prevention Project

12.02 Environmental Justice- Land Access, Gentrification, and Displacement

Name, Credentials	Affiliation
Kathleen Hunt, PhD, Director and Principal Researcher	Kathleen Hunt Research and Evaluation Consulting
Bonita Green, Executive Director	Merrick-Moore Community Development Corporation
Libby McClure, PhD, Epidemiologist	Union of Concerned Scientists
Annette Hiatt, Senior Staff Attorney	Land Loss Prevention Project
Lona Loudon, MPH, JD Candidate 2024, Campbell University School of Law	Land Loss Prevention Project

13.01 Older Adults and Adults with Disabilities

Name, Credentials	Affiliation
Shelisa Howard Martinez, MPA, ERHD, Executive Director	Aging Well Durham
Esme Trahair, Medical Student	Duke School of Medicine
Kela Jeffries-Glover, Adult Medicaid Applications Leadworker	Durham County Social Services
Joyce Page, MSPH, MPH, Public Health Education Specialist	Durham County Department of Public Health

14.01 LGBTQ+ Issues- Barriers to Healthcare

Name, Credentials	Affiliation
T. Hunter, MA, MPH, Health Case Manager	LGBTQ Center
Dr. Tonia Poteat, PhD, PA-C, Professor, Program Co-Director	Duke University School of Nursing

14.02 LGBTQ+ Issues- Infectious Disease

Name, Credentials	Affiliation
Hayley Cunningham, MD, Infectious Disease Fellow	Duke University

14.03 LGBTQ+ Issues- Mental Health and Substance Use

Name, Credentials	Affiliation
Sarah Wilson, PhD. Assistant Professor	Duke University
Mariah Evans, BA, Clinical Research Coordinator	Duke University

15.01 COVID-19- COVID-19 Lived Experiences

Name, Credentials	Affiliation
Jaeson Smith, MPH, MBA, Program Manager	Durham County Department of Public Health
Lindsey Bickers Bock, MPH, Director of Health Education & Community Transformation	Durham County Department of Public Health
Kimberly Monroe, MPA, Program Manager	Duke Office of Durham and Community Affairs

15.02 COVID-19- COVID-19 Vaccinations

Name, Credentials	Affiliation
Lindsey Bickers Bock, MPH, Director of Health Education & Community Transformation	Durham County Department of Public Health
Dr. Viviana Martinez-Bianchi, MD	Duke Department of Family Medicine and Community Health
Dr. Cherise Harrington, PH.D, MPH	North Carolina Central University (NCCU
Savannah Carrico, MPH, Public Health Epidemiologist	Durham County Department of Public Health

15.03 Surviving COVID-19- COVID-19 Barriers

Name, Credentials	Affiliation
Lindsey Bickers Bock, MPH, Director of Health Education & Community Transformation	Durham County Department of Public Health
Dr. Tianduo Zhang, PH.D	North Carolina Central University (NCCU)
Edeia Lynch, BS, CHES	Durham County Department of Public Health
Dr. Bahby Banks, PH.D, MPH	Pillar Consulting

15.04 Surviving COVID-19- COVID-19 Community Resilience

Name, Credentials	Affiliation
Lindsey Bickers Bock, MPH, Director of Health Education & Community Transformation	Durham County Department of Public Health
Corey Morris, MS, REHS, Public Health Preparedness Coordinator	Durham County Department of Public Health
Leatrice Martin, MBA, CHES	Duke Clinical and Translational Science Institute
Dr. Alecia Smith, PH.D	Durham County Department of Public Health
Savannah Carrico, MPH, Public Health Epidemiologist	Durham County Department of Public Health

Executive Summary

Durham, known as the "Bull City" and "City of Medicine" is recognized for its history, arts, restaurants, parks and trails, education, and healthcare. Rich in culture, diversity, and civic engagement, Durham continues to honor its history while it embraces innovation.

A Community Health Assessment is a process of collecting, analyzing, and sharing information about community assets and needs. Community members and stakeholders gather and supply data to aid in understanding the health issues of the county. The process results in the selection of community health priorities.

Vision Statement

The Community Health Assessment is rooted in the community and uses high-quality, reliable data to provide a clear and detailed picture of the health, assets, and needs of Durham County residents in order to equitably guide decision-making, programs, and policies to improve health outcomes.

Photo Courtesy of Discover Durham

"True community is based upon equality, mutuality, and reciprocity [that] affirms the richness of individual diversity as well as the common human ties that bind us together."

-Pauli Murray

Leadership

The Community Health Assessment was a multi-sectoral effort, supported by the leadership of the following organizations:

- Michelle Lyn, Assistant Professor and Chief, Duke Division of Community Health in the Department of Family Medicine and Community Health, Duke Health
- Rod Jenkins, Public Health Director, Durham County Department of Public Health
- Marissa Mortiboy, Population Health Division Director, Durham County Department of Public Health

Partnerships/Collaborations

This document was created as a collaboration among the Partnership for a Healthy Durham, the Durham County Department of Public Health and Duke Health. Durham's community survey was carried out by 53 community volunteers, Partnership members and staff from the Durham County Department of Public Health and Duke University. This Community Health Assessment has 86 authors, some of whom also assisted with the survey. Volunteers and writers represent sectors such as local government, health care, housing, the environment, colleges and universities, community-based organizations, and non-profits in sectors of physical and mental health, substance use prevention, chronic disease, food access, and more. There were many involved in the Community Health Assessment who represent historically excluded populations such as Black or African Americans, Hispanic or Latina/o/x and LGBTQ+. The Durham County Department of Public Health also had support from three interns who assisted in different capacities throughout the cycle. See below for representatives involved with the Community Health Assessment process.

Organization	Number of Partners
Public Health Agency	9
Hospital/Health Care Systems	4
Behavioral and Mental Health	3
Community Organizations (including non-profits	8
Colleges and Universities	3
Community members	1
Interns	3

Contracted Services

The North Carolina Institute for Public Health was contracted to provide technical assistance during the survey implementation process. Local temp agencies, Westaff and the North Carolina Association of Public Health Agencies provided contracted services for the survey process. El Centro Hispano conducted listening sessions and town halls in Spanish on a contractual basis.

Theoretical Framework/Model

The Mobilizing for Action Through Planning and Partnerships model informed the Durham County Community Health Assessment. Facilitated by public health leaders, this framework

focuses on communities strategically thinking to prioritize public health issues and identify resources, including those in existence, to address them. This is an interactive process with the goal of improving the performance of health systems.

Key Findings

Key findings from the Community Health Assessment survey samples found:

- Racial and ethnic disparities exist across nearly all health outcomes.
- Structural racism and historical policies such as redlining, immigration laws and segregation are causes of health disparities.
- Issues are linked: for example, housing issues are also access to care and food insecurity issues.
- Most participants reported that their neighbors made their community a good place to live followed by the neighborhood being quiet and safe.

The data points below related to the top health priorities are included in the body of the 2023 Community Health Assessment document.

Affordable Housing

- The most common reason for having difficulty finding housing was affordability followed by the commute being too far.
- Over half the participants reported that housing impacts their health in a positive way followed by a good location. The third most common way housing impacts participant's health was living in poor housing conditions.
- Of participants who own their home, whites were three times more likely to own their home than Black or African Americans. This gap has expanded since the 2019 survey in which whites were only 0.68 times more likely to own their home.

Access to Healthcare and Health Insurance

- Most residents (80.4%) have someone they consider a personal healthcare provider (PCP). Fewer Black or African Americans have a PCP than whites (23.2%, 39.4% respectively). This difference is much smaller between those that responded they did not have a PCP.
- Many respondents (42.8%) said they visited a healthcare provider within the last 12 months followed by 2-4 weeks ago (25.6%).
- Most respondents (88.8%) reported not having a lapse in health insurance or coverage within the past year.

Community Safety and Wellbeing

- Neighborhood violence was a primary cause of stress for 12.2% of respondents.
- Participants named violent crime (18%), theft (4.7%), and gang activity (4.2%) when asked what has the greatest impact on quality of life.

Mental Health

- Most participants (67.1%) responded that they had fewer than six bad days in the past 30. There were too few respondents with 16-20 bad days to report. However, 9.3% reported having greater than 20 bad days in the past 30.
- Most residents (79.9%) felt they either always or usually have the social and/or emotional support they need.
- Financial stress was the most common reason for stress followed by work (30%) and personal relationships. Many people listed other reasons for stress including political environment and the social wellbeing of society. Interestingly, 12% of respondents reported not experiencing stress.
- Many participants (40%) reported their mental health worsened since March 2020.

Physical Activity, Nutrition, And Food Access

- Most participants reported walking as their primary form of exercise followed by lifting weights and gardening. These are the same top three forms of exercise as in 2019.
- The most common reason for not eating healthily all the time was not enough time followed by cost.
- Most respondents reported they have never worried that food would run out before they got money to buy more (83.1%).

Health Priorities

The new top five Durham County health priorities for 2023 are listed below. See chapter 2 for more information on the selection process.

Next Steps

The Partnership for a Healthy Durham, a community-wide health coalition dedicated to improving the health and wellbeing of Durham's residents using racial equity principles, celebrates its 20th anniversary in 2024.

The next steps are to:

- Allow a one-month period for Durham County residents to make comments on the substance of this report.
- Hold community listening sessions in spring 2024.
- Share findings with community members and organizations throughout Durham County.
- Develop Community Health Improvement Plans (CHIPs) to be submitted to the North Carolina Division of Public Health by September 2021.

Section 1.0 *Introduction*

Description of Durham County

Durham, affectionately known as the "Bull City", is a single-city county located in the Piedmont region of North Carolina. The area that now known as Durham is the traditional and ancestral land of the Eno, Shakori, Sissipahaw, Lumbee, Sharuhreh/Tuscarora, Cheraw, Occaneechi, and the Occaneechi Band of the Saponi Nation. The nearly 300 square-mile county is known for its history, arts, restaurants, parks and trails, education, and healthcare. Rich in culture, diversity, and civic engagement, Durham continues to honor its history while it embraces innovation.

The "City of Medicine" is home to Duke University, North Carolina Central University, and Durham Technical Community College. Once known for its tobacco and textile industries, Durham is now more closely associated with tech startups, art galleries, and healthcare.

Durham's vibrantly diverse community has a history of both faith-based and politically oriented community organizing, as well as ongoing multi-sector collaboration to improve health. The Partnership for a Healthy Durham grew out of a local government and community collaboration on health initiatives and was formally organized in 2004. It is now a coalition of hundreds of community members and representatives of health care systems, universities, local government, schools, non-profits, faith-based organizations, and community members. The Partnership for a Healthy Durham is responsible for the Community Health Assessment, sharing the results, and holding the discussions that set health priorities for the community.

Overview

A Community Health Assessment is a process of collecting, analyzing, and sharing information about community assets and needs. Community members and stakeholders gather and supply data to aid in understanding the health issues of the county. The process results in the selection of community health priorities.

Durham County administers the Community Health Assessment every three years as a part of the accreditation process for Durham County Department of Public Health (DCoDPH) and Affordable Care Act requirements for Duke Health. This assessment has been conducted collaboratively since 2010 by the Partnership for a Health Durham, DCoDPH, and Duke Health.

The 2023 assessment process included 205 county-wide surveys administered by more than 50 volunteers and 176 Comunidad Latina sample surveys administered by seven paid contractors. Listening sessions were conducted in 2023. Additional listening sessions are planned for spring of 2024. Community members, Partnership for a Healthy Durham members, staff from DCoDPH and Duke University, and contractors administered the surveys between September of 2022 and April of 2023. The next step in the Community Health Assessment process is to create three-year Community Health Improvement Plans (CHIPs) around Durham County's top health priorities. Data, community input, and information from this document will be used to develop the CHIPs.

The DCoDPH Population Health Division Director, Partnership for a Healthy Durham Coordinator, DCoDPH Epidemiologist, DCoDPH Data Scientist, and Durham County led all activities of the assessment. The Partnership Steering Committee and other various stakeholders in the Partnership and across the community guided the process. The Partnership for a Healthy Durham is the certified Healthy Carolinians program in Durham County and was the health workgroup of the Durham Results-

Based Accountability Initiative until this initiative ended in July 2011. In 2021, the Obesity, Diabetes, and Food Access Committee underwent a consensus-building process resulting in renaming it to Physical Activity, Nutrition, and Food Access Committee. This revised title was carefully chosen to spotlight the root causes of chronic illness and mitigate stigma. In 2023, the Partnership elevated the Racial Equity Task Force to a committee and renamed it the Systemic Equity Action Team (SEAT). Building upon the foundation of racial equity principles, SEAT now concentrates on identifying strategies to reduce health inequities and disparities. For more information on the Partnership for a Healthy Durham, please visit www.healthydurham.org, Twitter or Facebook.

The Community Health Assessment Writing Team, many of whom were Durham County Department of Public Health staff, Duke University faculty and staff, and community partners with expertise in specific areas, gathered and reviewed data and produced chapters for the Community Health Assessment report covering 15 areas:

1. Introduction	9. Injury and Violence
2. Community Priorities	10. Oral Health
3. Community Profile	11. Environmental Health and Climate Change
4. Determinants of Health	12. Environmental Justice
5. Health Promotion	13. Older Adults & Adults with Disabilities
6. Chronic Disease	14. LGBTQ+ Issues
7. Reproductive Health	15. COVID-19
8. Communicable Disease	

The many hours volunteered by the Community Health Assessment Team, Partnership for a Healthy Durham members, community members as well as the input from hundreds of Durham County residents have assured that this assessment presents an accurate picture of issues needing attention and prioritization. This report provides a solid basis for the CHIPs for the Durham County community over the next three years. This document also focuses on Durham's many assets and rich history.

Goals

The primary goal of the 2023 Community Health Assessment is to provide a comprehensive set of valid and reliable information about the health of the Durham community - and to do this in way to make it easy for members of the Durham community to access and understand the information. A secondary goal is to meet the standards related to Community Health Assessment established by (a) the North Carolina Local Health Department Accreditation Board. The March 2023 Durham County Community Health Assessment fulfills a requirement from the North Carolina State Division of Public Health to submit a comprehensive health assessment of the county every four years. The Durham County Department of Public Health is required to meet these standards to become an accredited Local Health Department. Another goal is to meet the requirements of the Federal Patient Protection and Affordable Care Act (ACA), one of which requires hospital systems

to conduct a Community Health Assessment every three years. The Partnership for a Healthy Durham, Durham County Department of Public Health, and the Duke University Health System, which includes Duke University Hospital and Duke Regional Hospital have collaborated to conduct the Community Health Assessment for years. To meet the federal requirements, this and future Community Health Assessments will be conducted every three years.

Organization of Document

There are 15 chapters, with a total of 42 topics. See the table of contents for a full listing of each topic covered in this Community Health Assessment.

In each chapter, several health indicators are presented to better understand the context of the issue. Wherever possible, disaggregated data or data specific to sub-populations within Durham County (often racial or ethnic groups, age groups or gender) is shown. This data is sometimes in the form of a percentage of the population with a certain characteristic or behavior, or a rate (i.e. the number of people per 1,000 persons who have that condition). Note: the method of measurement and scale used –are often different for each indicator. For more information about margin of error or actual raw numbers (rather than percentages or rates), please see the original data source. For context, Durham's rates are compared with those of the entire state of North Carolina. Most of the sections follow a template intended to make the document consistent and easy to follow. However, some sections may include additional information or exclude information based on the topic. In general, writers were asked to use an equity lens and provide an overview of the topic, the most critical and current primary and secondary data, disparities and context, gaps and emerging issues, recommended strategies to address the issue, and current initiatives and resources. References appear at the end of each chapter. Authors were asked to use the following template:

Overview of Topic
Brief overview or scope of the issue. Describe socioeconomic, educational, and environmental factors that affect health.

Primary Data
For the purposes of this document, the majority of primary data has been collected locally, mainly through original surveys, interviews and listening sessions.

Secondary Data
For the purposes of this document, secondary data has been collected by someone else.

- Durham County and North Carolina data (often racial and ethnic groups, age groups, or gender)
- Peer county data – in some sections
- Trends

Interpretations: Disparities, gaps, emerging issues

- Data interpretation
- Populations most impacted highlighted
- Context for disparities
- Causes of inequities
- Gaps, unmet needs, and emerging issues identified

Recommended Strategies
Evidence-based, in addition to recommended strategies from the perspective of the writers as first steps to address the root causes and issues most effectively.

Current Initiatives & Activities
This is meant to give the readers an idea of programs and initiatives locally available and how to find more information about local initiatives. The lists at the end of each section are not exhaustive. It is possible that some of the programs mentioned have changed since this report was compiled.

References
The authors of each section were asked to use reliable data sources and provide endnotes and references for each data point. This is to help the readers identify the data source and find the data that was used.

Health Data Sources

Data for this Community Health Assessment came from many sources, which are referenced in endnotes at the end of each section. This report provides a summary of the topics included but is not meant to be comprehensive. Readers are encouraged to visit the original source for more details on data cited in this publication and contact the authors with content specific questions. Both primary data and secondary data are presented in this report. Primary data are data collected using the Durham County Department of Public Health (DCoDPH) resources; secondary data are information collected and analyzed by other agencies. As an additional resource, the Partnership for a Healthy Durham keeps updated links to reports on Durham's health on a dedicated webpage (https://healthydurham.org/health-data).

Primary data came from the following sources:

1. County Community Health Assessment Survey: The anonymous county-wide survey, conducted between September and November 2022, used census data and Geospatial Information Systems (GIS) software to randomly select households in Durham County. Any household in Durham County was eligible to be selected in this sample. The Comunidad Latina sample was conducted at several Hispanic and Latina/o/x events in Durham County between February and April 2023. DCoDPH staff researched and contacted organizers of local events and organizations that could participate in survey administration. While attending events, contractors approached individuals either in their cars or while walking around. More details about the sampling methods are provided in Chapter two. In addition to the survey reports, writers also utilized CHA data trend dashboards for the county-wide and Comunidad Latina survey samples.

2. Youth Risk Behavior Survey (YRBS): This biannual survey is anonymous and includes a random sample of middle and high schools in the Durham Public School system. Schools are randomly selected to participate. Data from the 2021 survey is included in this document.

3. Community focus groups and listening sessions: Community listening sessions that occurred throughout Durham are cited in this report.

Secondary data came from the following sources:

The most common secondary data sources included in this document were the American Community Survey, a survey conducted through the U.S. Census, and the North Carolina State Center for Health Statistics (SCHS) of the North Carolina Division of Public Health. The NC SCHS website (http://www.schs.state.nc.us/data/) contains a compilation of many health data, including:

- Vital statistics (births, deaths, fetal deaths, pregnancies, marriage, and divorce)
- The Behavioral Risk Factor Surveillance Survey (health behaviors and risk factors and self-reported disease information)
- Basic Automated Birth Yearbook (BABY Book - summary of infant and maternal
- characteristics, such as prenatal visits and birth weight)
- Cancer surveillance data
- North Carolina Hospital Discharge Data

Community Health Assessment Strengths and Opportunities

The Community Health Assessment is an asset to DCoDPH and its partners as it provides an opportunity to engage multiple agencies and organizations, as well as community members in identifying and evaluating health issues across the county. The purpose of the assessment process is to continually assess the health of the community, identify key health priorities according to community members, develop action plans to address priority areas and ultimately improve the health of the community. We strive to make each assessment better than the last. This year, we are particularly proud of:

- The community involvement in our health assessment process throughout the entire cycle. The result was a survey and overall assessment that reflects the assets, wants, and needs of people living and working in Durham County.
  - Volunteers from Durham and surrounding communities dedicated their time to surveying selected households door-to-door.
  - Community members and organizations helped write the report. Rather than having one or two people write the assessment, 86 people contributed to this document, providing content expertise and a rich community perspective to health in Durham County.
  - Hiring contractors who are Spanish-speaking and familiar culturally to administer surveys ensured inclusivity and effective communication in this process.
- The Durham Facts and History section lays the foundation for this report. It establishes an important context for Durham's narrative.
- Connecting with people with disabilities who have stated they often feel excluded.
- Utilizing multiple data sources to determine the top health priorities- CHA, external data, and listening sessions in English and Spanish.
- Incorporating mapping in several sections enhances visualization and spatial understanding of the data.
- The ongoing commitment to equity throughout the CHA.
- The focus is on improving systems and building a healthy community.

- Abstracts summarizing our CHA processes have been crafted and accepted and symposiums and conferences to reach larger audiences.
- Building a CHA trend data dashboard for the county-wide and Comunidad Latina survey samples. The Comunidad Latina dashboard is accessible in English and Spanish. This inclusive approach ensures accessibility and understanding across diverse backgrounds.
- For the first time, we included an Environmental Justice chapter, acknowledging the intersectionality of environmental issues and social justice.
- Introducing a dedicated chapter on COVID-19 that captures lived experiences in addition to data. These stories acknowledge and document the profound impact of the pandemic on individuals and the community.

Too often communities make critical decisions without adequate information and input. This Community Health Assessment provides insights into the state of Durham's health and will contribute to an environment for change.

Section 2.0 *Community Priorities*

Survey Methods

Survey Development

The 2022 Durham County-wide Community Health Assessment survey process included members of the Durham County Department of Public Health (DCoDPH) Population Health Division and internal divisions within the health department such as Health Education and Community Transformation, Nutrition, and Environmental Health as well as external partners including LATIN-19, El Centro Hispano, the Partnership for a Health Durham, El Futuro, Duke Health, and the LGBTQ Center of Durham. The 2022 County-wide survey was modeled closely after the 2019 County-wide survey to ensure that trends between pre- and post- COVID-19 pandemic data could be comparable. The surveys were reviewed by partners whose feedback was incorporated into the final survey. The 2022 County-wide assessment places equity at the helm and the survey design process intentionally included culturally appropriate questions. Many drafts of the survey were developed and each time it improved to be as equitable and inclusive of as many of Durham County's residents as possible.

The 2023 Durham County Community Health Assessment Comunidad Latina survey process involved partners from El Centro Hispano, El Futuro, LATIN-19, Duke Health, and the Partnership for a Healthy Durham. Each organization reviewed the survey and added any suggestions or clarifications to make sure it was culturally appropriate and translated correctly into Spanish. The 2023 survey was modeled closely after the 2019 Comunidad Latina survey to maintain consistency. **Though the results are not comparable to previous surveys due to the different methodologies**, the results from the 2023 assessment provide invaluable data that can be used to benefit the Hispanic and Latino population in Durham County.

In the 2022 and 2023 surveys, an additional eight question survey was attached to the end that related directly to the resident's experience with COVID-19.

DCoDPH staff tested the survey in the lobby of the Durham County Health Department and its COVID-19 vaccine clinic. To ensure an equitable approach, individuals of different backgrounds and cultures were asked to take the survey.

Sampling Methods

The DCoDPH Population Health survey team partnered with the North Carolina Institute of Public Health (NCIPH). For the 2022 County-wide CHA, a scientific sample was utilized based on the Centers for Disease Control and Prevention (CDC) Community Assessment for Public Health Emergency Response (CASPER). A two-stage cluster model was used, and 75 clusters were randomly selected from census tracts in Durham County and seven unique homes were selected within each cluster. The goal was to have seven surveys completed from each cluster for a total of 525 surveys.

This 2023 Comunidad Latina CHA survey was conducted at several Hispanic and Latino events in Durham County. This is known as a convenience sample and therefore cannot be compared to scientific samples. DCoDPH staff researched local events and organizations that could participate

in survey collection. These organizations included local churches, Durham Green Flea Market, El Centro Hispano, La Semilla food drives, and LATIN-19 COVID-19.Events that were attended included food drives, health fairs, flea markets, the Venezuelan Market, and COVID-19 vaccination events. While attending events, contractors approached individuals either in their cars or while walking around.

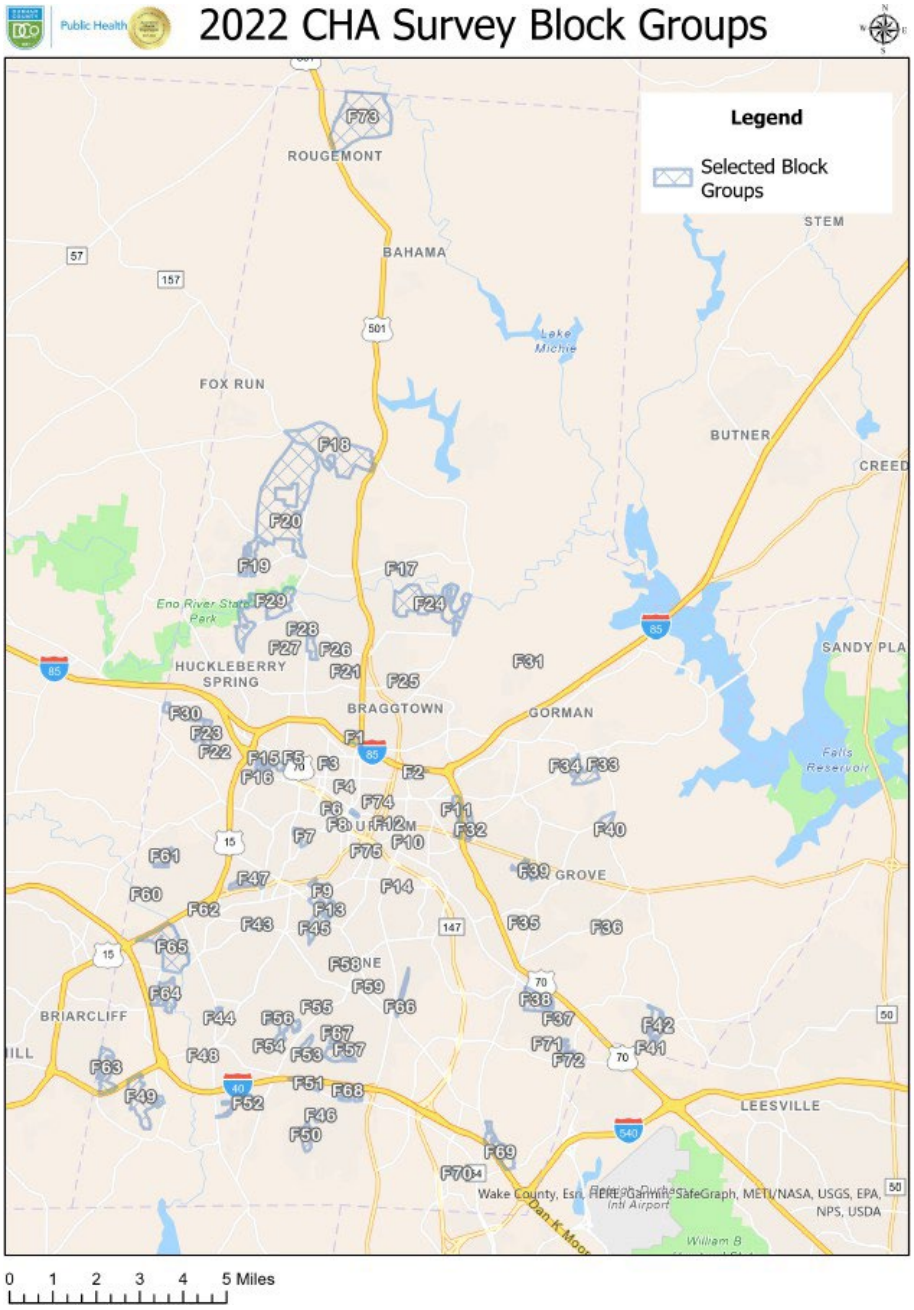


Figure 2.01 (a): Durham County map of 75 randomly selected census tract clusters identified for CHA county-wide survey administration. Map prepared by DCoDPH's data scientist.

Survey Administration

The 2022 Durham County-wide CHA survey team relied on volunteers from DCoDPH, Duke University, Duke Health, local organizations, and community members to go door-to-door to collect surveys. Over 50 volunteers administered surveys from September 24 to November 5, 2022.

For the first time, door hangers were left on the doors of the seven selected homes within each cluster if there was no answer. Included on the door hanger was the phone number to a call center with staff at the health department trained to administer the survey over the phone and a Quick Response (QR) code if the participant preferred to take the survey online. These new options were utilized to boost the likelihood that seven surveys would be collected from each cluster. Door hangers were not left at every unanswered door to avoid getting too many surveys in one cluster thus skewing the results and risking overrepresentation of a population.

For the 2023 CHA Comunidad Latina survey, DCoDPH hired seven bilingual contractors to administer the surveys. Contractors experienced more success when they spoke Spanish. Contractors used tablets to record surveys electronically at the beginning and end of the survey process. In the middle of survey collection, paper surveys were collected due to technical difficulties with the tablets. These results were later entered and translated by the contractors. In 2023, there was an option to complete the survey online. Contractors handed out flyers that included a QR code to take the survey online on the participant's own time if the person was not able to complete the survey at the event.

For both surveys, incentive bags were given to participants. These incentives included a tote bag, an insulated lunch bag, COVID-19 tests, and a personal hand sanitizer as well as several flyers and brochures advertising the many resources available in Durham County.

Eligibility Criteria

To participate in the 2022 County-wide CHA survey, the participant had to be 18 years old or older and lived at the home. To participate in the 2023 Comunidad Latina CHA survey, the participant had to be 18 years or older, live in Durham County, and identify as Hispanic or Latina/o/x.

Survey Results

Analysis

The survey data were analyzed by the DCoDPH epidemiologist using SAS 9.4. The 2022 County-wide CHA survey data was weighted and is representative of Durham County's population. The 2023 CHA Comunidad Latina survey data could not be weighted due to the convenience sample identified using the new methodology. Confidence intervals are provided for all results and should be used when interpreting the data. The confidence intervals represent a range of values that contain the true value in 95% of repeated samples.

There were 205 surveys completed in the 2022 County-wide CHA sample. Though this is less than the intended 525, this sample size still provides insight into the health needs of Durham County residents. Thirty county-wide surveys were completed either over the phone or online and 175

surveys were completed door-to-door. 176 surveys completed in the 2023 CHA Comunidad Latina sample.

A total of 176 surveys were collected from the Comunidad Latina CHA. This is 88% of the desired sample size of 200 which is a powerful sample. Eight surveys were collected through the online survey link. Six surveys were completed by going door-to-door in the Fall of 2022. However, due to low bilingual volunteer sign ups, the Comunidad Latina survey could not be completed using the door-to-door method during the Fall of 2022.

When the sample size was large enough in both surveys, (>10 responses) data was analyzed by race, gender, and age.

Due to the difference in sampling methods (door-to-door vs attending community events), previous Comunidad Latina survey results are not comparable to the 2023 survey results, and they cannot be compared to the County-wide sample.

Key findings: 2022 County-wide CHA survey

- Most participants reported that they felt their health was excellent or very good. More Black or African Americans reported their health was good or fair or poor than whites.
- The top three primary causes of stress were finances, work, and personal relationships. In 2019, the top three primary causes of stress were finances, work, and dealing with my own illness or disability.
- Most participants reported not experiencing any discrimination within the past 12 months. Those that did cited racism and sexism as the most common forms of discrimination.
- Most participants reported not smoking cigarettes or e-cigarettes.
- The most common reason for having difficulty finding housing was affordability followed by the commute being too far.
- Over half the participants reported that housing impacts their health in a positive way followed by a good location. The third most common way housing impacts participant's health was living in poor housing conditions.
- Of participants who own their home, whites were three times more likely to own their home than Black or African Americans.
- Most participants reported that their neighbors made their community a good place to live followed by the neighborhood being quiet and safe.
- Affordable housing and violent crime were the top issues that have the greatest effect on quality of life.
- COVID-19, mental health, and obesity were the top three diseases or conditions identified by participants.
- Many participants (40%) reported their mental health worsened since March 2020.
- More whites (25.3%) reported getting COVID-19 than Black or African Americans (10.5%).
- Most participants (93.9%) reported receiving at least one COVID-19 vaccine.

Key findings: 2023 Comunidad Latina CHA survey

- 41.9% of survey participants reported having a lapse in health insurance or coverage within the last 12 months. Those under 50 were more likely to have a lapse in health coverage.
- 34.3% of survey participants reported they'd rate their health as fair or poor.
- The top three stressors are work, finances, and parenting/childcare.
- 33.1% of survey participants reported being upset because of how they were treated based on their race/ethnicity.
- The most common types of discrimination experienced include language or English proficiency, racism, and physical appearance.
- 29.2% of survey respondents reported cutting or skipping meals some of the time because they were worried that they wouldn't have enough money to buy more.
- 21.9% of survey respondents reported owning their home.
- Nearly half of all participants reported their health was impacted by their housing in a good way.
- The common people, places, or things that make Durham County a good place to live include the neighborhood is quiet, safe, and having good neighbors.
- The top three issues affecting quality of life include drug and alcohol abuse, violent crime, and theft.
- 83.2% of survey respondents reported getting at least one dose of the COVID-19 vaccine.
- 37.2% of survey respondents reported their mental health worsened since March 2020.

Top Five Healthy Priorities

To identify the new top five health priorities in Durham County, data from three sources was used. In 2024, the 2022 and 2023 CHA survey responses were weighted to account for 50% of the decision for that priority. This 50% was the sum of the weights for the 2022 County-wide CHA survey and the unweighted 2023 CHA Comunidad Latina survey data were used. The 2022 County-wide data accounted for 75% of the 50% used in decision-making while the 2023 Comunidad Latina survey accounted for 25%. The uneven weights were used because the 2022 County-wide survey used a scientific sample unlike the 2023 Comunidad Latina survey results which used a convenience sample. The 2022 County-wide survey was weighted more because the data was representative of the general population. Then, 25% of the decision was determined by two listening sessions, one among people living with disabilities and one with the Spanish-speaking community. DCoDPH partnered with El Centro Hispano to conduct the Spanish-speaking listening sessions. The remaining 25% of the decision to add the priority was from external data sources like the US Census, County Health Rankings, and Durham Neighborhood Compass. Both quantitative and qualitative data were used in decision making. Below are the health rankings by the CHA surveys and the listening sessions:

	County-wide	Comunidad Latina	Listening sessions
1	Affordable Housing	Affordable Housing	Access to Care
2	Violent Crime	Access to Care	Mental Health
3	Access to Care	PANFA	Education
4	Poverty	Violent Crime	Violent Crime
5	Physical Activity, Nutrition, and Food Access (PANFA)	Mental Health	PANFA

Table 2.01 (a): The health priorities determined by the 2022 Countywide CHA survey, the 2023 Comunidad Latina CHA survey, and the listening sessions.

The top five Durham County health priorities for 2023 are listed below.

Tracking Progress

As Durham County will continue to work on these new priorities, progress will be tracked for accountability via committee meetings, results-based accountability initiatives, and community outreach to collect qualitative and quantitative data. Results from these events, surveys, and initiatives will help address public health issues at the individual, group, and organizational levels. Collaboration between divisions within DCoDPH and external partners are essential to pursue the wellbeing of Durham residents. The Durham County 2022-2024 Community Health Improvement Plans (CHIPs) identify goals and objectives that address the previous health priorities. Ways to measure progress include the Healthy North Carolina 2030, Healthy People 2030, and Robert Wood Johnson Foundation (RWJF) County Health Rankings targets. CHIPs can also be found at www.healthydurham.org. Following the 2023 Community Health Assessment, CHIPs will be created for 2024-2026 by the Partnership for a Healthy Durham.

Chapter 3

Community Profile

Photo Courtesy of Discover Durham

This chapter includes:

- Durham Facts and History
- Demographics
- Health Inequities
- Parks and Recreation

Section 3.01 *Durham Facts and History*

Durham Facts

Durham County, founded in 1881, is in the Piedmont region of North Carolina, approximately 150 miles from the coast to the east and 170 miles from the Appalachian Mountains to the west. Durham is a 286-square mile single-city county that is 25 miles long, 16 miles wide and 28 miles from end to end.[1; 2] With an estimated 2022 population of 291,928, Durham is the fourth largest city in North Carolina.[3]

Durham is known as the City of Medicine with healthcare, medical research, technology and education as major industries. "Approximately one-third of Durham's residents work in a health-related field."[4]

Durham is home to major educational institutions: Duke University and North Carolina Central University (NCCU). Additional institutes of learning in Durham include North Carolina School of Science & Math, Durham Technical Community College, many private schools, charter schools, and Durham Public Schools (DPS). During the 2022-2023 school year, DPS was one of the top 10 largest school district in the state with 31,124 students and 5,054 employees.[5]

Durham has two major corporate and research parks. Research Triangle Park (RTP) is a 7,000-acre global innovation center contained mainly in Durham.[6] Treyburn is a 5,300-acre corporate park, country club and residential area in northeast Durham that contains companies such as Merck, Corning and AW North Carolina.[7]

Durham has many positives including diversity, history of activism, political engagement, and innovation. Despite all of its financial successes, extensive racial and ethnic disparities in housing, education, wealth, income, employment, criminal justice and other sectors persist due to historical policies, practices, and laws since the City of Durham and Durham County's inception.

History of Durham

The City of Durham will celebrate its 155th anniversary in 2024.

Colonization and Slavery

Long before the Bull City was named for Dr. Bartlett Snipes Durham in the mid-1800s, Native people lived free on the land for thousands of years.[8] Durham County was home to a number of Indigenous tribes and communities, the most prominent in the area being the Eno, Shakori, and Occaneechi.[9] Other tribal nations that may have lived and hunted in the area include the Tuscarora, Cheraw, Lumbee, and Catawba peoples. The Eno and Shakori lived in a village called Adshusheer along the banks of the Eno River.[10] Additionally, the Great Indian Trading Path, which approximately followed what is now I-85, passed through Durham and Native Americans helped mold Durham by establishing settlement sites, transportation routes and environmentally friendly patterns of natural resource use.[11,12]

The 1700's saw an influx of European settlers consisting of Scots, Irish, and English colonists coming to Durham, and with their arrival Native Americans in the area were subjected to violence and forced removal. "White European colonialists used violence, terror, and a foreign legal system to claim Native homelands."[8] Prior to the arrival of colonists, private land ownership as currently known did not exist.[8] "In the Carolina colony, the British empire sold parcels of stolen Native land to European settlers. These were called land grants. With this legal document, all the land and its resources became private property."[8]

During the period between the Revolutionary and Civil Wars, white colonists enslaved Black Africans and forced them to labor in a number of ways, though there were free African Americans in the area, including several who fought in the Revolutionary War.

Enslaved people "were considered property and their worth was primarily valued by the amount of work they could do."[13] Most slave owners provided only basics for their slaves because any extras would cut into profits.[13] The average dwelling for those enslaved was usually a basic log, one-room house with dirt floors and fireplaces for heating and cooking.[13] There were some exceptions to this, such as the housing provided by Paul Cameron at Horton Grove on Stagville Plantation.[13] Life for enslaved Black Africans was very difficult. Workdays, especially for those in the field, lasted from sunrise to sunset with Sundays and infrequent holidays off.[14]

To maintain control of their labor force, slave owners often used whipping as a means of punishment and as a way to intimidate others to behave and work hard.[13] "Perhaps the most effective means for controlling the enslaved population was simply the threat of being "sold South.""[13] These sales broke up families, separating spouses from one another and children from their parents and siblings. These separations could take place at any time which made this one of the most difficult aspects of being enslaved. "Although slaves had no way to publicly or legally complain about unfair treatment and abuse, they developed other methods of resistance. Slaves could slow down, pretend to be sick, or sabotage their work as a way to object against long hours of backbreaking labor."[15]

In the Durham County area, enslaved labor predominantly included forced farm work in wheat, corn, rye, and tobacco fields, textile production, housework and child rearing of white children, and industrial work. Between 1771 to 1865, the Bennehan and Cameron families, the enslavers of Stagville Plantation, profited from the forced labor of enslaved Africans and African Americans at what is now known as Historic Stagville, a state historic site.[16] By the 1860s, the Cameron family heirs controlled over 30,000 acres of land and enslaved over 1,000 people, and was one of the largest sites of mass slavery in North Carolina.[16] The Bennehan and Cameron families were like many white farmers in the South who built wealth from stolen land using stolen people.[17]

"The politically powerful Cameron family lobbied the state for a local railroad stop to expand the market reach for their plantation's many products."[8] In 1849, Dr. Bartlett Snipes Durham offered the newly formed North Carolina Railroad a four-acre tract of his land to build a station in order to connect the eastern part of the state to the Piedmont," and the collection of houses and stores that sprang up around the station were known as "Durhamsville," eventually shortened to "Durham."[18, 19]

"When the Civil War began, nearly 1 out of every 3 people in Orange and Durham Counties was enslaved."[17] Due to disagreements and conflicting ideas about leaving, North Carolina was one of the last states to secede from the Union in May 1861.[13] Union and Confederate forces fought many battles in North Carolina between 1861 and 1865. Seventeen days after General Lee surrendered his army at Appomattox, Union General Sherman and Confederate General Johnston negotiated the largest surrender in April 1865 which ended the Civil War at Bennett Farm in Durham.[20]

Industry

Shortly after the Civil War, locals discovered Brightleaf tobacco. Washington Duke and his family took advantage of this discovery, spawning one of the world's largest corporations, which included companies such as American Tobacco, Liggett & Meyers, R.J. Reynolds, and P. Lorillard. Durham saw an economic boom. Tobacco also inspired other Durham developments such as the first mill to produce denim and what was at one point the world's largest hosiery maker.[21] Many white workers were employed in the tobacco industries and given skilled and supervisory positions while African American men were given the hardest manual labor work.[22] African American women were given the least desirable tobacco factory jobs such as "stemming."[22] They also worked longer hours for less pay without sick or maternity leave.[22]

The end of slavery and subsequently the Civil War led to a foundational period of migration from plantations like Stagville, Massey, and Rone toward and into Durham.[23] As freed Black or African American men and women moved into Durham equipped with skills in farming and textile labor, African American economy began to build and boom through a combination of vocational training, jobs, land and business ownership and community leadership. There were few opportunities for African Americans to obtain business or home financing. Because of this, the Black or African American community created their own institutions.[24] Still, the African American community in Durham faced many struggles due to racism and racially motivated laws.

Segregation laws known as "Jim Crow" were a formal system of racial apartheid, which began in the 1890s.[25] These laws dictated every aspect of life in the South (including Durham) to maintain segregation in schools, parks, government facilities, hospitals, drinking fountains, restrooms, restaurants, modes of transportation and more. Jim Crow laws also prohibited Black or African Americans adults from voting. In addition to these statutes, rules of etiquette reinforced the second-class citizenship of Black or African Americans, including that Black or African American men could not offer their hand (to shake hands) with a white man, white people were to be served first if they ate with Black or African American people, and white people did not use courtesy titles of respect like Mr. Mrs. or Miss when referring to Black or African American people.[26]

Despite the racism and the systems of oppression that limited educational and economic opportunities, African American communities in Durham were able to grow and thrive. This included the Hayti community and what became Black Wall Street, located just south of downtown. The area was comprised of residences, businesses, schools, a library, theatres, a hotel, and Lincoln Hospital. "Despite run down housing, working-class Black neighborhoods were close-knit communities and spaces of refuge from the indignities of Jim Crow."[27] By the early 20th century, Durham was home to dozens of African American businesses, including grocery stores,

training schools, fish and meat merchants, a haberdashery, shoe supply and repair store, theatres, and restaurants.[28]

The first two major Black-owned and operated institutions to open in Durham were the North Carolina Mutual Life Insurance Company (1898) and Mechanics and Farmers Bank (1907). Opened by local social leaders John Merrick, Dr. Aaron Moore, and C.C. Spaulding, NC Mutual served the local Black or African American community in all its insurance needs and was at one point one of the largest African American owned insurance companies in the country.[29] In 1906, the company moved to Parrish Street, establishing what would become a central feature of Hayti and Durham's Black business industry. Mechanics and Farmers Bank, a state-chartered commercial bank, opened on Parrish Street in 1907. The nine incorporators of M&F Bank were R. B. Fitzgerald, J. A. Dodson, J. R. Hawkins, John Merrick, Aaron M. Moore, W.G. Pearson, James E. Shepard, G. W. Stephens and Stanford L. Warren.[30] These men were involved with creating multiple other businesses and institutions in Durham. This Black business district on Parrish Street in downtown Durham "constituted what today would be called an enterprise zone, propelled by the Bull City's African American businessmen," and became famously known across the country as Black Wall Street.[31] North Carolina Mutual operated until October 31, 2022, and today, Mechanics and Farmers Bank is the second oldest minority-owned bank in the United States.[32, 33]

Author W.E.B. Du Bois noted a 1912 article, *The Upbuilding of Black Durham. The Success of the Negroes and Their Value to a Tolerant and Helpful Southern City*, "today there is a singular group in Durham where a black man may get up in the morning from a mattress made by black men, in a house which a black man built out of lumber which black men cut and planed; he may put on a suit which he bought at a colored haberdashery and socks knit at a colored mill; he may cook victuals from a colored grocery on a stove which black men fashioned; he may earn his living working for colored men, be sick in a colored hospital, and buried from a colored church; and the Negro insurance society will pay his widow enough to keep his children in a colored school. This is surely progress."[34]

Watts Hospital opened in 1895 as Durham's first hospital.[22] The facility, funded by George W. Watts, served city's white population regardless of ability to pay.[22] Lincoln Hospital opened in 1901 to serve Durham's Black or African American population. Financed by the Duke family and founded by John Merrick, Dr. Stanford L. Warren, and Dr. Aaron McDuffie Moore, Lincoln Hospital was an African American hospital in Durham staffed with Black or African American doctors and Black or African American nurses and offered residency, and nursing and surgery programs to Black or African American medical professionals.[35] Serving the Black or African American community with healthcare, health education programs, specialized clinics, and free medical care, Lincoln Hospital became one of the best Black or African American hospitals in the country due to support from Durham's African American leadership and The Duke Endowment.[22] Duke University Hospital opened in 1930 after funding from James B. Duke, whose goal was "to improve health care in the Carolinas, then a poor rural region lacking in hospitals and health care providers."[36] Eventually Watts and Lincoln Hospitals were both closed when Durham Regional Hospital opened in 1976.[22] The federally qualified health center, Lincoln Community Health Center opened next to the grounds of the former Lincoln Hospital in 1971. In 1998, Durham Regional began a partnership with the Duke University Health System.[37] In 2013, Durham Regional Hospital changed its name to Duke Regional Hospital.[37]

Research Triangle Park (RTP) was the brainchild of Robert Hanes, president of Wachovia Bank and Trust Company and Romeo Guest, a Greensboro contractor.[38] In the 1950s and 1960s, what is known as the world's largest university-related research park was created from Durham pinelands as a special Durham County tax district.[39] Research Triangle Park is bordered on three sides by the City of Durham with a small portion located in Wake County. RTP scientists have developed inventions such as Astroturf® and the HIV drug, AZT.[39] Researchers have won Nobel Prizes for this work as a result. There are more than 375 RTP major research and development companies, including Bayer, GlaxoSmithKline, IBM, Underwriters Laboratories and the EPA, employ more than 60,000 people.[6]

See section 4.03 for current data on access to care.

Education

Before the graded school system existed, students were placed in classrooms together regardless of age or knowledge. In 1878, the first petition for building a graded school in Durham was created, and in 1881, a bill to establish such a school was passed by the North Carolina General Assembly.[40, 41] The first white graded school in Durham – named the Durham Graded School – opened in 1882, and in 1899, due to an overgrowth in enrollment, the school was divided in two and became the Morehead School and the Fuller School. Black or African American students in Durham continued to be educated in non-graded public schools until 1887, when the first "Colored Graded School" opened, only the second graded school for Black or African American students in the state. In 1893, the school moved into a brick structure and was renamed The Whitted School, after the school's first principal, James A. Whitted.

In 1892, Trinity College opened for white men in Durham after its relocation from Randolph County. Washington Duke and Julian Carr donated money and land to facilitate the move.[42] The college began admitting white women in 1897 following a request from Washington Duke.[42] James Buchanan Duke established The Duke Endowment which provided funding to the college.[42] The trustees then changed the name of Trinity College to Duke University in remembrance of Buchanan Duke's father. Carr was honored with a building on campus named in his honor in 1930 due to his support for Trinity College.[42] His name was removed in 2018 because of his white supremacist beliefs and actions.[42] Duke University desegregated by admitting its first Black or African American graduate and professional students in 1961 and Black or African American undergraduates in 1963.[42]

Established in 1909 by Dr. James E. Shepard, the National Religious Training School and Chautauqua for the Colored Race opened on July 5, 1910 for "the development in young men and women of the character and sound academic training requisite for real service to the nation."[43] In 1925, the legislature changed the institution into the North Carolina College for Negroes, dedicated to liberal arts education and the preparation of teachers and principals, becoming the "first state-supported liberal arts college for African American students in North Carolina."[44] In 1969, the name was changed to North Carolina Central University. Three years later, NCCU became one of the 16 schools in the University of North Carolina System.[45]

As Durham's population grew, so too did its demand for schools. Throughout the century between the opening of the first graded schools and the school merger of the 1990s that established the Durham Public Schools system, dozens of schools were built, opened, closed, condemned, repurposed, and torn down. One major event which contributed to closing and expansion of schools was desegregation. Brown v. Board of Education passed in 1954, ruling that segregation of public schools based on race was unconstitutional.[46] By the early 1960s, however, only a handful of Black or African American students had integrated white schools. Beginning in 1960, local activists along with five NAACP lawyers in Durham began suing for desegregation in accordance with the law.[47] Wheeler v. Durham City Board of Education, first filed in 1960, accomplished the goal of total desegregation in Durham on December 11, 1969, when a judge in the Fourth Circuit Court of Appeals ruled that Durham must integrate by January 1970.[48] As Black or African American students began moving to white schools, and white students to Black or African American schools, the need for separate buildings lessened and many historic Black grade schools closed. Though the building has changed several times, the oldest historically Black or African American school in Durham today is Hillside High School, the fourth name iteration of the original Colored Graded School.

Durham City and County had separate school systems until the two merged in 1992. The city's school system was predominately Black or African American and had the "state's highest dropout rate and some of its lowest test scores."[49] The smaller tax base which included a vacant downtown made it difficult to raise enough revenue for the City school system. The County system was whiter and more suburban, including Research Triangle Park.[49] "The county spent twice as much per pupil on instructional materials, and had the test scores to show for it."[49]

Prior to joining the two systems, Durham's leaders formed a task force to plan the merger. The 41 members had to address issues such as racial equity and power sharing.[49] Through a variety of measures such as "magnet programs, equitable funding, new school construction and redistricting, urban planning and housing programs—the community successfully diversified most of its schools."[50] Over the next 30 years, inequities developed within the school system. To correct this, the Durham Public Schools board voted to implement the "Growing Together" plan on January 19, 2023, which is intended to "increase equity, access, and diversity across [the Durham] school district."[51] Durham Public officials say the plan "will expand access to special programs and courses, strengthen school infrastructure, and reduce overcrowding."[52] The initiative will take place during the 2024-25 school year, redraw elementary school boundaries and involve changes to the schools of thousands of elementary school students.[52]

See section 4.2 for current data on education.

Housing

In the late 1800s and early 1900s, the working-class white population mainly settled near the textile mills in west and east Durham.[22] Black or African American residents in Durham lived in five main areas: Hickstown, Walltown, West End, East End and Hayti.[22] More than half of the Black or African American population in Durham lived in the Hayti neighborhood.[22] Hayti extended along Fayetteville St, Pettigrew, and Pine Street. It had about 5,000 residents, including a large Black or African American middle class, many of whom attended N.C. Central University (at the

time called North Carolina College of Negros, 1925). Black or African American citizens boasted the highest rates of home ownership and per capita income in the nation.[53] Black or African American workers in racially segregated neighborhoods, however, dealt with some of the worst housing conditions in the city.[22]

Starting in 1933, the Home Owners Loan Corporation color-coded neighborhoods to indicate whether they were low to high risk for insuring mortgages. The U.S. Federal Housing Authority later adopted this for making decisions on approving home loans. The ratings were green for "Best, blue for "Still Desirable," yellow for "Definitely Declining," and red for "Hazardous." Neighborhoods that were 'characterized by detrimental influences in a pronounced degree,' including the presence of 'a lower grade population' (i.e. African Americans and poor people) were deemed hazardous to [mortgage] lenders and were graded D/red."[54] Middle class white neighborhoods were most often given a A/green rating. "The government's efforts were "primarily designed to provide housing to white, middle-class, lower-middle-class families."[55] African-Americans and other people of color were left out of the new suburban communities — and pushed instead into urban housing projects."[55] Greenlining advantaged white homebuyers by allowing them to build generational wealth, while Black or African American families were prohibited from this equity building opportunity.

Racial deed restrictions, which prevented use or purchase of property for people of a given race, ethnic origin and/or religion. This excluded Black or African American Durhamites from buying homes in certain neighborhoods in Durham, including Forest Hills, Duke Forest, Northgate Park and others. "Residential segregation prohibited African Americans from moving to neighborhoods where credit was more readily available, even if they could afford to do so. The denial of credit within redlined neighborhoods put homeownership, and all its security and wealth-building opportunities, out of reach for most residents."[54] The impact of segregation, redlining and racial deed restriction policies is seen in Durham neighborhoods today. Ninety years later, Durham still sees the impact of redlining with A neighborhoods remaining majority white and D neighborhoods majority people of color.

In the early 1960s, the City of Durham embarked on Urban Renewal, a program financed by the federal government for cities to raze "blighted" neighborhoods.[56] City officials were eager to receive funding from the federal government to develop private projects and increase the city's tax base.[57] The city promised the Black or African American community three things as a result of the project: 1) new housing; 2) new commercial development; 3) and major infrastructure improvements in Black or African American neighborhoods.[57] Because of the promises made, many Black or African American Durham residents supported Urban Renewal. Ultimately, these promises never came to fruition. "Black leaders and the Hayti.[57]

Highway 147 was a major part of the Urban Renewal project. The route cut through the middle of the African American Hayti community which extended along Fayetteville, Pettigrew and Pine streets.[58] Only Durham's Black elite knew of 147, with regular residents never being told their new homes would be temporary.[59] The City completed the first section of Highway 147 in the late 1960s, separating the community and business districts. During construction of the expressway and following completion, residency in Hayti fell as residents moved to find jobs and housing due being displaced. Between 1970 and 1980, the population of Hayti was nearly cut in half.[60] "In the

end, over 4,000 families and 500 businesses were displaced. The price tag for the destruction of Hayti was $300 million in today's dollars, three-quarters of which was paid for by the federal government."[57] Little remains today of the historic Hayti community, but its legacy continues.

See section 4.1 for current data on housing.

Activism

The Durham Committee on the Affairs of Black People organized in 1935 by C.C. Spaulding and Dr. James E. Shepard, Charles Clinton Spaulding, James E. Shepard, Rencher N. Harris, W.D. Hill, R.L. McDougald, J.T. Taylor and L.E. Austin, has been cited nationally for its role in the sit-in movements throughout the 1950s and 60s.[61] The committee also used its voting strength to push for social and economic rights for African Americans and other ethnic groups. In the late 1950s, Reverend Douglas Moore of Durham's Asbury Temple Methodist Church and other religious and community leaders, pioneered sit-ins across the state to protest discrimination at lunch counters that were whites only.[62] Within days of sit-ins at a Woolworth's counter in Greensboro, NC, Dr. Martin Luther King, Jr. met Reverend Moore in Durham. Dr. King coined his famous rallying cry of "Fill up the jails," during a speech at White Rock Baptist Church in 1960.[63]

Durham is also home to well-known civil rights activists such as Pauli Murray, Ann Atwater, Floyd McKissick and Virginia Williams. In 1957, the Royal Seven, a group of activists led by Reverend Douglas Moore of Asbury Temple United Methodist Church, protested at the Royal Ice Cream Parlor three years before the famous sit-in at the Woolworth's in Greensboro.[64] The sit-in was the first civil rights demonstration in Durham to result in arrests. Although the protest didn't gain national attention, it "nonetheless generated urgency among some Black or African American activists."[64] This spirit of activism and protest has continued over the years and into the summer of 2020 with Black Lives Matter protests across Durham.

Migration

"The Hispanic and Latino community in Durham has roots originating in 33 countries, each with distinct histories and languages."[65] In the 1990s, Durham's cultural landscape shifted once again as migrant farm workers from Mexico and Central America were drawn to the U.S. by seasonal agricultural work. By the early 2000s, construction became a driving force in the Durham economy.[66] According to a 2013 study, "undocumented migrants in Durham lack access to basic social services, family and friend networks, civic associations, and a mature immigrant community that is found in places like Los Angeles."[67] As more Latina/o/x or Hispanics were attracted by available jobs and called Durham home, local activists founded the Latino Community Credit Union.[68] The institution serves unbanked individuals and immigrant communities. "The rapid Latino population growth jolted Durham economically and socially."[69] Organizers pushed for services to support the growing Hispanic or Latina/o/x community such as Spanish language newspapers and church services, Spanish language signage in hospital and human services buildings and interpreters. El Centro Hispano was founded in 1992 as the Hispanic Resource Center. The original purpose was to "provide resources and support to the Hispanic community."[79] In its more than three decades in existence, El Centro has grown to become a leader in providing services, support, and advocacy for the Hispanic and Latina/o/x residents in Durham. Over time,

the Durham Public School system adapted to better meet the needs of increasing numbers of Hispanic or Latino/a students in the school system and their families. Neighborhoods in Durham that were once predominantly African American are now also home to large Hispanic populations.[69]

Many Latina/o/x or Hispanics in the area have limited English proficiency and a number do not have legal status. This results in an inability to gain access to services such as healthcare. Lack of a federal path to citizenship for undocumented immigrants and uneven enforcement of immigration laws creates the fear of deportation and family separation in these communities. Although this population faces challenges, "Latinos [have] helped Durham grow due to their contributions as entrepreneurs, community leaders, non-profit organizations, artists, and religious groups."[66]

In recent years, Durham has welcomed more refugees from around the globe. In 2022, the Church World Service (CWS) Durham welcomed 109 refugees from 14 countries.[70] Of that total, 69% were women and children, 56% from Africa and 26% from Latin America. After the Taliban took over the government in 2022, CWS Durham welcomed 306 Afghans.[70]

In 2019, The Durham County Department of Public Health saw 96 adult and 80 child refugees in their Refugee Health clinic. These numbers decreased during 2020 and 2021 due to reduced services during the COVID-19 pandemic. In 2022, these figures greatly increased to 360 adults and 247 children due to aiding Ukrainian refugees while assisting another county with their refugee health program.[71]

To support and assist immigrants and refugees to settle into life in Durham, the City and County partnered to create an Immigrant and Refugee Affairs Coordinator position. This role is responsible for partnering with local organizations to address the needs of individuals born outside of the U.S. Durham has more than 45,000 people who originate from other countries.[72]

Gentrification

Gentrification is taking place in the same Durham neighborhoods the U.S. government redlined in the 1930s. Gentrification is the process involving of incoming new, wealthier and whiter residents and the displacement of existing low-income and populations of color.[73]

Neighborhoods close to the city center that public and private sectors have divested from, become attractive to investors and gentrifiers due to affordable pricing, proximity to downtown, and being close to transit and services. "Some describe the current trend as reverse redlining: Communities historically disinvested in are becoming real estate hot zones increasingly inhabited by white, wealthier residents who move out of suburbs to be closer to the central city -- near amenities like that new coffee shop or a new brewery; walkable neighborhoods with interesting historical character."[74]

Historically Black Durham neighborhoods such as Cleveland-Holloway, West End and Old West Durham have been significantly impacted by gentrification. "And they are selling. Entire blocks of Black neighborhoods are now white: in East Durham, along Guthrie Street, on the 1100 block

of Dunstan Avenue in South Durham, Walltown to the north, and pretty much all of the south side along the edge of downtown."[75] As more wealthy and white residents move in changing the makeup of neighborhoods, this results in higher property values and taxes, increased policing, and new businesses that cater to white professionals. Walltown neighborhood resident Jackie Manns Hill stated in 2021, "We are now the minority. My taxes have tripled since I've been here with all the new housing that's gone up. We have a million dollar home going up around the corner that's right across from the home place."[75]

Once long-term homeowners can no longer afford to live in their neighborhood due to rising property taxes or rents, they are forced to sell their homes or are evicted. Since 2017, 88.6% of all eviction processes have happened in parts of Durham that are 50% or more Black or African American, Indigenous and People of Color while 2.6% of evictions have taken place in predominantly white census blocks.[23] This often means moving further out from the city center. "Even when Black and Brown members of the city's working-class garner pre-approved housing loans, they are easily outbid for homes in their neighborhoods by more affluent newcomers. As a result, realtors are increasingly directing them to towns like Graham, Mebane, Butner, and even Henderson, where they can purchase more home for their money."[75]

Duke professor Robert Korstad identified multiple causes for the decreasing Durham Black or African American population which includes increased housing prices, higher rents and that it's impossible for some to purchase homes.[76]

According to Redfin, Durham median home price in June 2018 was $255,000 rising to a peak of $426,500 in June 2022 and settling at $415,000 in June 2023. Home prices in June 2018 to June 2023, differ by 63%. [77] "The most remarkable thing about rent price trends shown here is that while rents have been steadily increasing for years, prices increased dramatically since the beginning of COVID in March 2020."[23] The median rent listing was approximately $1000 in January 2017, hitting about $1500 in May 2020 and settling around $1600 in June 2022.[23]

Durham's transition from a blue-collar town to white collar, bring economic benefits but at the loss of populations of color and long-term residents. Although efforts have been made to combat gentrification through the Durham County Tax Administration Office and the Durham County Department of Social Services Low-Income Homeowners Relief (LIHR) program, provisions in the 2019 $95 million City of Durham housing bond and grassroots organizing by community groups, the trend continues.

Looking Forward

Beginning in March 2020, the COVID-19 pandemic impacted all aspects of life in Durham County, the U.S. and the world. Vulnerable populations such as older adults, the immunocompromised and populations of color carried higher disease burden and worse health outcomes. Due to existing systemic barriers, Durham community members, nonprofits, institutions and local government worked together to ensure that those most impacted had access to housing, food, COVID-19 vaccines and testing throughout the emergency phase of the pandemic. See chapter 15 for more information on the COVID-19 pandemic in Durham County.

In 2020, Durham's landscape became more inclusive and diverse as residents elected two new commissioners, Nimasheena Burns and Nida Allam to the Board of County Commissioners. After being sworn in early 2021, they join Brenda Howerton, Wendy Jacobs and Heidi Carter making it the first time in the board's 139-year history that all seats were filled by women.[78] Elaine O'Neal became Durham's first Black or African American female mayor in 2021.

Durham is a vibrant, engaged, creative and entrepreneurial community built on a rich and complex history of Black excellence, civil rights, social justice, housing and income inequality, education reform, access to healthcare, health disparities and more. Like the bold and brilliant aspects of history that make Durham the place it is, the inequities that exist here today also have roots in our past. Populations including Black and African American, Hispanic and Latino, and LGBTQ+ have been systematically denied equitable access and opportunities over multiple generations, and these communities continue to face worse and worsening health outcomes. These outcomes can be seen throughout this 2023 Durham County Community Health Assessment report.

References

[1] Discover Durham. *Visitor FAQs About Durham*. https://www.discoverdurham.com/resources/durham-faqs/
[2] United States Census Bureau. (2023). *QuickFacts Durham City, North Carolina*. https://www.census.gov/quickfacts/durhamcountynorthcarolina
[3] United States Census Bureau. (2023). *QuickFacts Durham City, North Carolina Table*. https://www.census.gov/quickfacts/fact/table/durhamcitynorthcarolina,US/HCN010217
[4] Duke University Physician Assistant Program. (2022). *Living in Durham and Research Triangle Park*. Duke University School of Medicine. https://medschool.duke.edu/education/health-professions-education-programs/physician-assistant-program/student-life/living
[5] Durham Public Schools. *Facts & Figures about Durham Public Schools*. DPSNC. https://www.dpsnc.net/domain/78
[6] Research Triangle Park. (2023). *Where People and Ideas Converge*. https://www.rtp.org/
[7] Durham County Economic Development. *Durham County Economic Development*. Retrieved from Industrial Parks. https://www.dco-ed.com/why-dco/about-dco/industrial-parks
[8] Bull City 150. (2018). *Uneven Ground*. Bull City 150. https://www.bullcity150.org/uneven_ground/
[9] Lawson, J. (1709). *Archives* http://rla.unc.edu/Archives/accounts/Lawson/Lawson.html
[10] North Carolina Central University School of Law. (2022). *About Durham*. https://law.nccu.edu/about/about-durham/
[11] North Carolina Office of Archives & History, D. o. C. R. (2008). *North Carolina Department of Cultural Resources Marker 31*. https://ncmarkers.com/Markers.aspx?MarkerId=A-31
[12] Jr., R. S. D. (2006). Great Trading Path. In *Encyclopedia of North Carolina*. S. G. Library, Ed. https://www.ncpedia.org/great-trading-path
[13] North Carolina Historic Sites. *The Road to Secession*. https://historicsites.nc.gov/resources/north-carolina-civil-war/road-secession
[14] Curry, J. (2009). *The Life of a Slave* https://www.ncpedia.org/anchor/life-slave
[15] Women in History Blog. (2008). History Of Slavery In North Carolina. *History of American Women*. https://www.womenhistoryblog.com/2008/07/slavery-in-north-carolina-colony.html
[16] North Carolina Historic Sites. *Historic Stagville History*. https://historicsites.nc.gov/all-sites/historic-stagville/history
[17] Bull City 150. (2018). *Violence and Theft: Landowners Created Wealth Through Stolen Labor*. Bull City 150. https://www.bullcity150.org/uneven_ground/violence_theft/landowners/
[18] Museum of Durham History. *Historic Timeline*. https://www.museumofdurhamhistory.org/learn/historic-timeline/
[19] The Editors of Encyclopædia Britannica. (2023). Durham. In.
[20] Nganga, A. (2018). The Civil War ended there. What Bennett Place is fighting for now. *The News & Observer*. https://www.newsobserver.com/news/local/counties/durham-county/article213798774.html
[21] Schelp, J. (2015). Blue Durham, Blue Denim. https://www.museumofdurhamhistory.org/blog/blue-durham-blue-denim/
[22] Baker, J. (2019). Documenting Durham's health history: health disparities in the city of medicine. In. Trent Center for Bioethics, Humanities, and History of Medicine, Durham, North Carolina.
[23] Killeen, J. (2022). Who Owns Durham. In *Work Session*. DataWorks NC: City Council.
[24] North Carolina Mutual Life Insurance Company. (2017). *Since 1898 A Beacon on Black Wall Street*. https://www.ncmutuallife.com/wp-content/uploads/2017/08/grandest_compan_printer2016-002.pdf

[25] Public Broadcasting Service. *Jim Crow Laws*. WGBH Educational Foundation. https://www.pbs.org/wgbh/americanexperience/features/freedom-riders-jim-crow-laws/
[26] Pilgrim, D. D. (2000). *What Was Jim Crow*. Jim Crow Museum. https://jimcrowmuseum.ferris.edu/what.htm
[27] Bull City 150. (2018). *Segregation and Upbuilding*. Bull City 150. https://www.bullcity150.org/uneven_ground/segregation_upbuilding/
[28] Pashankar, S. (2022). 'A special space carved out here in Durham': The rise, fall and impact of Black Wall Street. *The Chronicle*. https://www.dukechronicle.com/article/2022/01/durham-black-wall-street-blackowned-businesses-construction-hotels-apartments
[29] North Carolina History Project. (2016). North Carolina Mutual Life. In: John Locke Foundation.
[30] M&F Bank. *Our History*. https://www.mfbonline.com/our-mission-2/#history
[31] Hill, M. (2003). Black Wall Street, Durham, North Carolina. In *Encyclopedia of North Carolina*.
[32] NC Department of Insurance. (2022). *Insurance Commissioner Causey announces court approved liquidation of NC Mutual* https://www.ncdoi.gov/news/press-releases/2022/10/13/insurance-commissioner-causey-announces-court-approved-liquidation-nc-mutual
[33] Michaels, W. (2022). Black-owned bank in Durham to get $80M from U.S. Treasury. *WUNC*. https://www.wunc.org/business-economy/2022-06-23/black-owned-bank-durham-80-million-us-treasury
[34] Bois, W. E. B. D. (1912). The Upbuilding of Black Durham. The Success of the Negroes and Their Value to a Tolerant and Helpful Southern City. In *The World's Work* (Vol. 23, pp. 334-338).
[35] Watts, C. D., & Scott, F. W. (1965). Lincoln Hospital of Durham, North Carolina. A short history. *Journal of the National Medical Association*, *57*(2), 177–183. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2610830/
[36] Duke University Hospital History. DukeHealth. https://corporate.dukehealth.org/duke-university-hospital-history
[37] *Duke Regional Hospital History*. DukeHealth. https://corporate.dukehealth.org/duke-regional-hospital-history
[38] North Carolina History Project. (2016). Research Triangle Park. In: John Locke Foundation.
[39] Lewis, J. D. (2019). *A History of Durham, North Carolina*. https://www.carolana.com/NC/Towns/Durham_NC.html
[40] Green, C. B. (1878, November 5). The Graded School. *The Tobacco Plant*.
[41] An Act to Establish a Graded School in the Town of Durham., 433-435 (1881). https://www.carolana.com/NC/Education/1881_03_09_Act_to_Establish_a_Graded_School_in_Durham.html
[42] Duke University Libraries. (2020). *Duke University: A Brief Narrative History* University Archives. https://library.duke.edu/rubenstein/uarchives/history/articles/narrative-history
[43] North Carolina Central University. *Our Heritage: A Tradition of Growth*. https://www.nccu.edu/we-are-nc-central/our-heritage
[44] Wadelington, C. W. (2006). North Carolina Central University. In W. S. Powell (Ed.), *Encyclopedia of North Carolina*: University of North Carolina Press.
[45] North Carolina Central University. (2020). *NCCU Celebrates 110 Years*. https://www.nccu.edu/weare110
[46] Brown v. Board of Education, 347 U.S. 483 (1954).
[47] Neal, P. (1989, June 6). *Oral History Interview with Patricia Neal* [Interview]. Southern Historical Collection, Wilson Library, University of North Carolina at Chapel Hill;
[48] Wheeler v. Durham City Board of Education, 379 F. Supp. 1352 (M.D.N.C. 1974).
[49] Yeoman, B. (2018, February 19). How Dividing County School Districts Can Lead to De Facto Segregation. *Pacific Standard*. https://psmag.com/social-justice/county-school-divisions-lead-to-segregation

[50] Ed Post Staff. (2016, August 12). Choice and Segregation in Durham, North Carolina. *Ed Post*. https://www.edpost.com/stories/why-durham-public-schools-need-integration
[51] Kaplan, A. P. a. Y. (2023, February 5). Durham Public Schools redistricting plan looks to increase equity, will affect thousands of elementary students. *The Duke Chronicle*. https://www.dukechronicle.com/article/2023/02/durham-public-schools-new-redistricting-plan-looks-to-increase-equity-will-affect-thousands-of-elementary-students
[52] Kramon, C. (2023, February 21). Anxious Parents Seek Answers About New Redistricting Plan. *INDY Week*. https://indyweek.com/news/durham/anxious-parents-seek-answers-about-new-redistricting-plan/
[53] *Durham Home to Original 'Black Wall Street'*. (2006). WRAL News. https://www.wral.com/story/139037/
[54] Hunt, A. D. M. a. H. (2018). *Racial Inequality, Poverty and Gentrification in Durham, North Carolina*. https://fpg.unc.edu/sites/fpg.unc.edu/files/resource-files/durham_final_web.pdf
[55] Gross, T. (2017, May 3). Fresh Air In *NPR WUNC*. https://www.npr.org/2017/05/03/526655831/a-forgotten-history-of-how-the-u-s-government-segregated-america'
[56] Wilm, J. *Renewing Inequality: Urban Renewal, Family Displacements, and Race 1950-1966*. Digital Scholarship Lab. https://dsl.richmond.edu/panorama/renewal/#view=0/0/1&viz=cartogram
[57] Bull City 150. (2018). *Dismantling Hayti: Who Caused All This?* Bull City 150. https://www.bullcity150.org/uneven_ground/dismantling_hayti/who_caused_this/
[58] Smith, A. (2017, February 2). *'Promises Made,' the legacy of urban renewal in Durham*. Campus Echo Online. https://campusecho.com/video-promises-made-the-legacy-of-urban-renewal-in-durham/
[59] Ridgle, L. (1999, June 3). *Oral History Interview with Lawrence Ridgle* [Interview]. Southern Historical Collection, Wilson Library, University of North Carolina at Chapel Hill;
[60] Ehrsam, F. E. (2010). *The downfall of Durham's historic Hayti: Propagated or preempted by urban renewal?* Duke University. https://sites.duke.edu/djepapers/files/2016/10/Ehrsam-Fred_DJE.pdf
[61] Durham Committee on the Affairs of Black People. *Who We Are*. https://www.dcabp.org/who-we-are
[62] Museum of Durham History. (2023). *Learn - Overview of Durham History: Civil Rights*. https://www.museumofdurhamhistory.org/learn/overview-of-durham-history/
[63] Visit NC. *Attraction: White Rock Baptist Church*. https://www.visitnc.com/listing/dwdB/white-rock-baptist-church
[64] Bouloubasis, V. (2017, June 28). Before Greensboro's Famous Lunch Counter Protest, Durham's Royal Ice Cream Sit-In Quietly Sparked a Movement. *INDY Week*. https://indyweek.com/food-and-drink/greensboro-s-famous-lunch-counter-protest-durham-s-royal-ice-cream-sit-in-quietly-sparked-movement/
[65] Discover Durham. *Hispanic & Latino*. https://www.discoverdurham.com/community-culture/hispanic-and-latino/
[66] *Latino Life in Durham*. Duke University.
[67] Johnson, G. (2013, April 18). Hispanic migration in Durham, N.C. *Penn Today*.
[68] Cooperativa Latino Credit Union. *Our History*. https://latinoccu.org/about-us/our-history/
[69] Gamboa, S. (2014). From Tobacco to Tortillas: Latinos Remake Durham, North Carolina. *NBC News*. https://www.nbcnews.com/storyline/hispanic-heritage-month/tobacco-tortillas-latinos-remake-durham-north-carolina-n203276
[70] Church World Service (CWS) Durham. (2022). *2022 Impact Report*. https://cwsdurham.org/impact/
[71] Durham County Department of Public Health. (2022). In.

[72] Nayo, D. R. a. K. (2023). *City/County Immigrant & Refugee Affairs*. Durham County Center of N.C. Cooperative Extension. https://durham.ces.ncsu.edu/community-capacity-building/city-county-immigrant-refugee-affairs/

[73] Caldwell, H. S. a. J. (2021). Dirty Durham's Dilemma: Reclaim! Revitalize! Gentrify? In.

[74] Brown, J. (2021, February 26). Redlining in reverse: Gentrification's impact on Triangle's historically Black neighborhoods. *ABC 11*. https://abc11.com/redlining-gentrification-black-neighborhoods-triangle/10373290/

[75] McDonald, T. (2020). To Understand How Gentrification in Durham Works, Just Read the Signs. *INDY Week*. https://indyweek.com/news/durham/gentrification-durham-signs/

[76] Pashankar, S. (2021). How Durham's population has changed in the last decade, according to U.S. Census data. *The Chronicle*. https://www.dukechronicle.com/article/2021/10/north-carolina-united-states-census-data-2020-american-community-survey-duke-university-visualization

[77] Redfin. (2023). *Durham Housing Market*. Retrieved August 11 from https://www.redfin.com/city/4909/NC/Durham/housing-market

[78] Pulliam, T. (2020, December 7). First all-female Durham County Commission sworn into office. *ABC 11*. https://abc11.com/durham-county-women-board-of-commissioners-all-female/8582304/

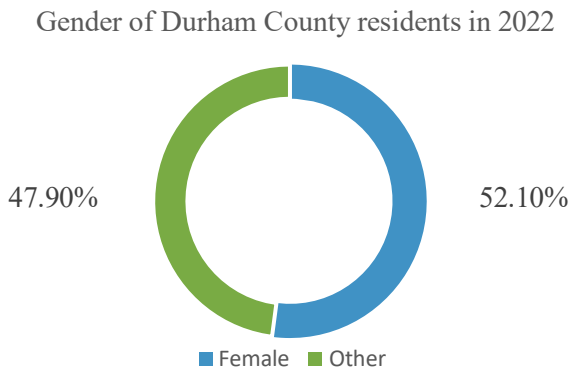
79. El Centro Hispano. (n.d.) *History.* https://elcentronc.org/history/#cook

Section 3.02 *Demographics*

Overview

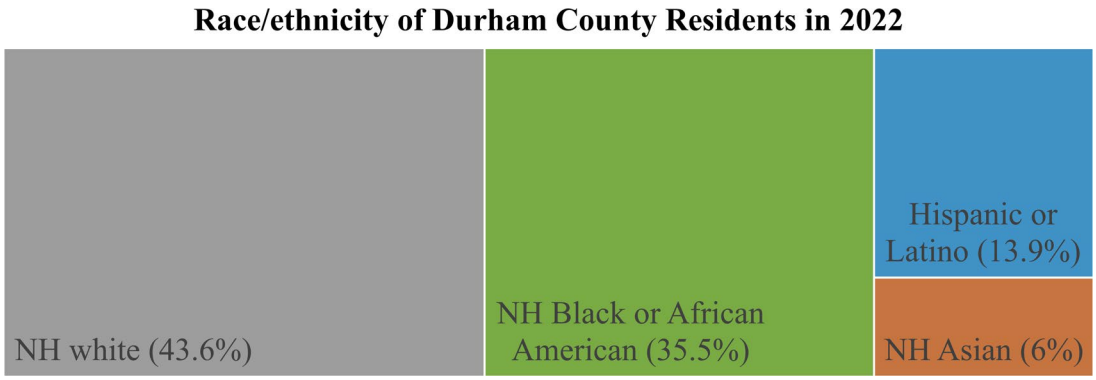
In 2022, Durham County's estimated population was 322,680 residents.[1] Since 2013, Durham County's population has increased by 12.5% compared to North Carolina's population which increased by 8.7%.[2;3] Durham County's rapid expansion is caused by multiple factors. First, Durham County was initially an agricultural and manufacturing area that has now been revitalized as a central and growing hub made up of research, medicine, and technology.[4] With the renowned Research Triangle Park (RTP) situated within its boundaries, the area provides employment for approximately 33,000 people. Community improvements include supporting Durham Public Schools to renovate and improve school buildings, building a northern campus for Durham Technical Community College, the Museum of Life and Science, and an expansion and renovation of the downtown Main Library. Ballets, operas, Broadway musicals, and more are routinely featured at Durham's Performing Arts Center (DPAC).[5] In 2022, DPAC ranked #1 for tickets sold and ticket revenues in the United States by VenuesNow. In addition to entertainment and employment, Durham is known as a foodie capital.[6] With a farm-to-table approach to food, Durham offers local and traditional food as well as secret recipes passed down from generations and new food fusion restaurants. These features attract people from different backgrounds and cultures to the area making Durham County a diverse and unique place to make home.

Race, ethnicity, gender, age



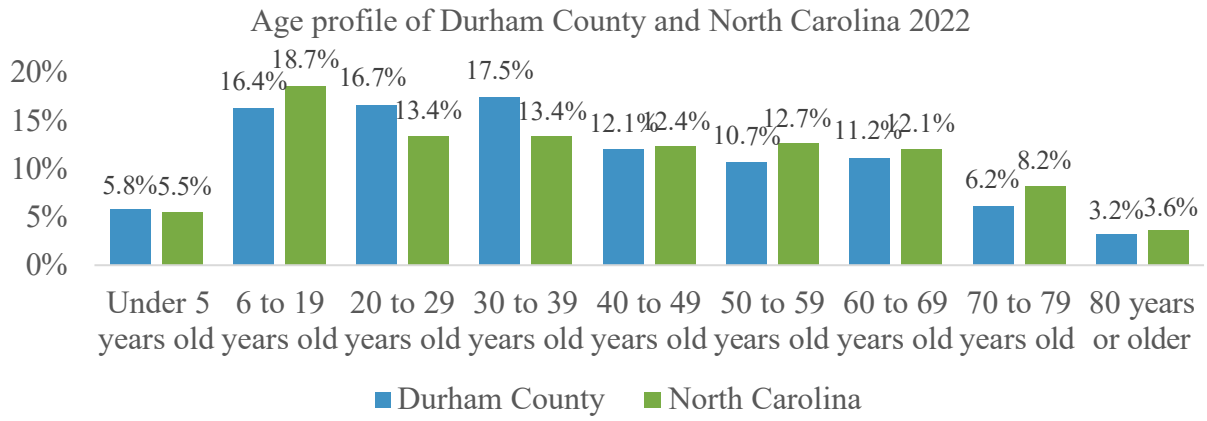
3.01 (a) Durham County genders of population in 2022.[1]

The US Census captures the percentage of females in the population but does not specify males or other genders in the remainder.[1] For this purpose, the other genders are labeled 'other'. Of the working population, 65.7% of females are employed. For people ages 16 and older, 67.3% of the population is employed.[1] In 2023, all of the Board of County Commissioners are female.[7]



3.02 (b) Durham County race and ethnic percentages of population in 2022.[1]

Durham County is one of the most diverse counties in North Carolina, scoring 95 out of 100 on the diversity score. Peer counties, Guilford and Forsyth scored a 94/100 and a 91/100 respectively.[8]

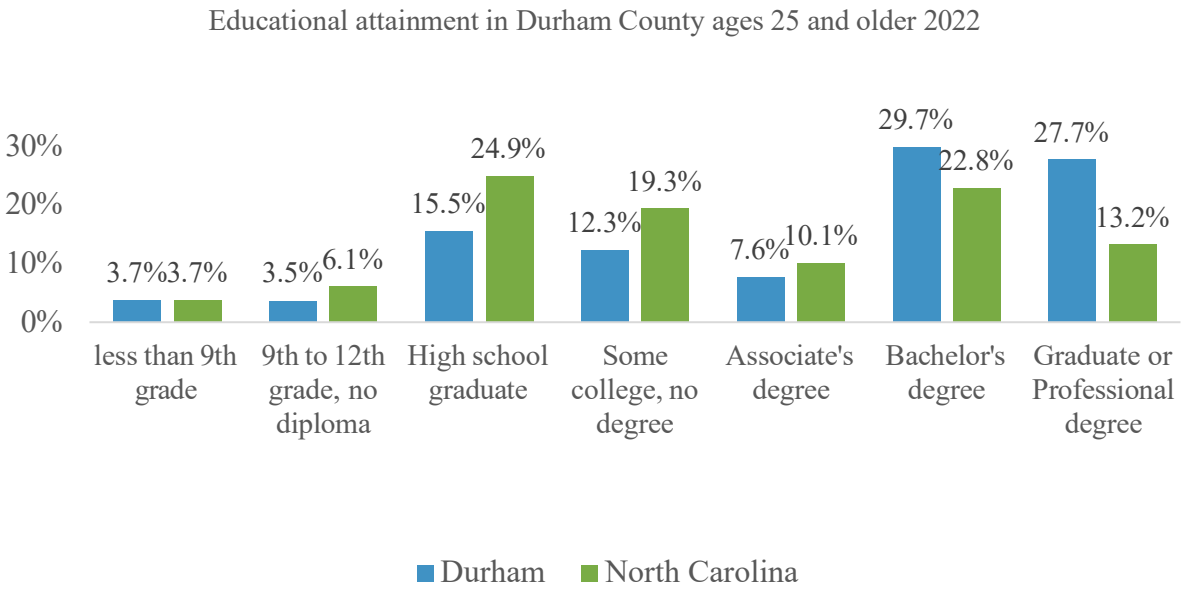


3.03 (c) Age profiles of Durham County and North Carolina 2022.[1]

Compared to North Carolina, Durham County's age profile is skewed towards the left, indicating that on average, Durham County's population is younger than North Carolina's.[2] The median age in Durham County is 36.1 years and North Carolina's median age is 39.2 years.[2]

Education

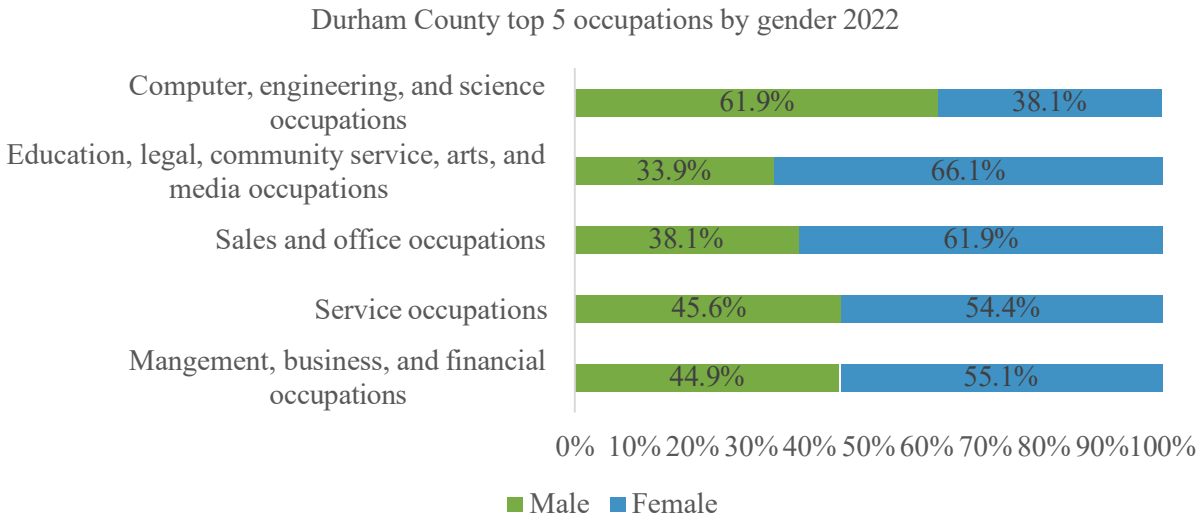
Durham County is also the home of three higher education schools; Duke University, Durham Technical Community College, and North Carolina Central University. All schools offer a wide variety of courses from science and math, nursing and medical doctor degrees, liberal arts, and more. These educational institutions attract students from around the world, which adds to Durham's diversity.



3.04 (d) Durham County and North Carolina educational attainment in 2022.[2]

Employment

The largest industries in Durham County include healthcare and social assistance, educational services, and professional, scientific, and technical services.[7] Male incomes are 1.33 times higher than females.[7] In quarter one of 2020 (January – March) the unemployment percentage was 3.5%, a slight increase from quarter four of 2019 which was 3.1%.[9] By quarter two in 2020, the unemployment percentage peaked at 10%.[10] By quarter four of 2020, the unemployment percentage dropped to five percent.[10] The most recent data is from quarter three of 2023 and the unemployment percentage is 3.1%, back to pre-pandemic levels.[10]

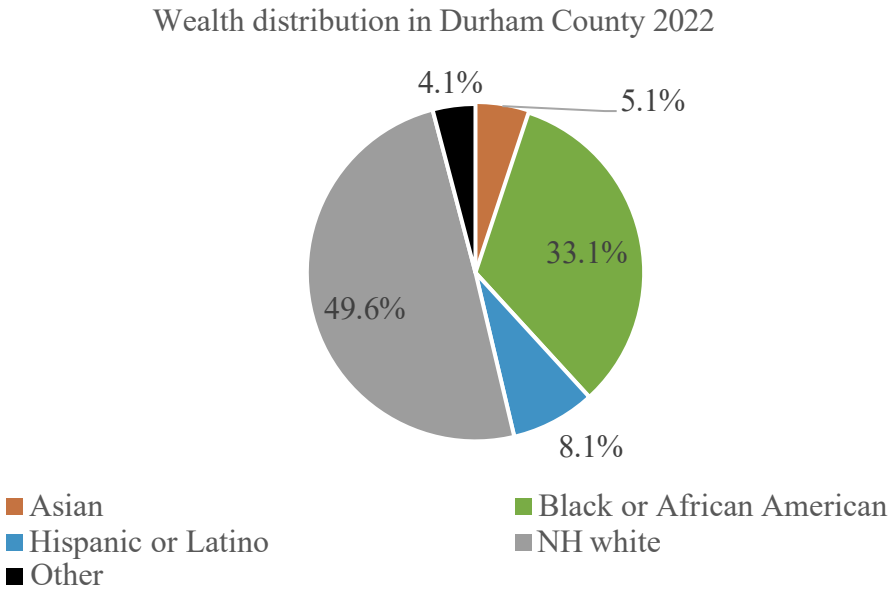


3.05 (e) Durham County occupations by gender in 2022[2]

Income, Poverty, Affordable Housing

While Durham County is expanding with new job opportunities, 10.5% of Durhamites under the age of 18 live in poverty.[2]

The wealth distribution in Durham County is discrepant from the demographics of the community.[2] Non-Hispanic whites claim 50% of Durham County's wealth through incomes, incentives, contracts, and more, which means the sources of wealth are inequitably distributed across races and ethnicities. For example, Latina/o/x or Hispanics make up 13.9% of Durham County's population. However, according to the wealth distribution data, Latina/o/x or Hispanics only receive 8.1% of Durham's wealth.[1] These inequities further drive social determinants of health such as generational poverty, racism, and neighborhood disinvestment, that can lead to poor health outcomes.

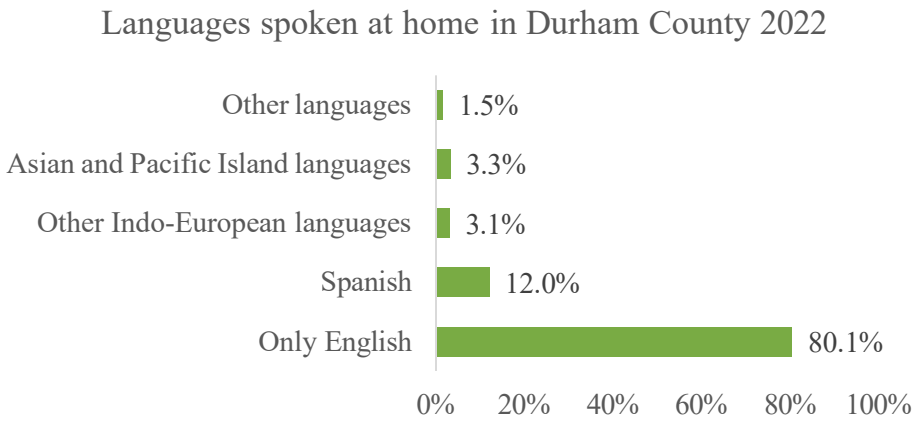


3.06 (f) Durham County wealth distribution 2022.[2]

The Median value of owner-occupied housing unites is $377,600 which is 1.4 times higher than North Carolina.[2] Renter occupied housing units account for 48% of housing units in Durham County.[11] Over half (55.2%) of renters in Durham County are cost burdened– spending more than 30% of their monthly income on housing costs.[12] The average one bedroom apartment is 742 square feet and costs $1,344 per month in 2023.[12] To live in a standard apartment and pay less than 30% of monthly income on housing, the household income must be at least $4,480 per month, or $53,760 a year.[12]

Foreign-born residents

The percentage of residents who are citizens is declining as people of more diverse cultures and nationalities move to Durham. In 2021, 90.9% of residents were citizens and 14.3% were foreign-born.[9] This is more than what is seen on the national level and is greater than Wake, Orange, and Chatham Counties as well as North Carolina as a whole.[3] Of the foreign-born residents in Durham County, 33.7% are naturalized citizens.[2]



3.07 (g) Languages spoken at home in Durham County 2022.[2]

References

[1] U.S. Census. (2022). *Quick Facts Durham County* https://www.census.gov/quickfacts/fact/table/durhamcountynorthcarolina/PST045223

[2] Census, U. S. (2022). *Durham County American Community Survey* https://data.census.gov/all?q=durham%20county%20census

[3] USA Facts. (2022). *Our Changing Population: North Carolina*. https://usafacts.org/data/topics/people-society/population-and-demographics/our-changing-population/state/north-carolina/?endDate=2022-01-01&startDate=2013-01-01

[4] Durham County. Durham County Today. https://www.dconc.gov/county-departments/departments-f-z/public-information/durham-county-today

[5] Durham Performing Arts Center. (2022). Top Theaters in the U.S. https://www.dpacnc.com/news/detail/dpac-scores-1-national-ranking

[6] Durham, D. *Food & Drink*. https://www.discoverdurham.com/food-drink/

[7] Durham County. *Board of County Commissioners*. https://www.dconc.gov/county-departments/departments-a-e/board-of-commissioners/commissioners

[8] Best Neighborhood. *Race, Diversity, and Ethnicity in Durham, NC*. https://bestneighborhood.org/race-in-durham-nc/

[9] Data USA. (2021). *Durham County, NC*. https://datausa.io/profile/geo/durham-county-nc

[10] Census Reporter. (2022). *American Community Survey*. https://censusreporter.org/profiles/05000US37063-durham-county-nc/

[11] Apartments.com. (2024). Rental Market Trends in Durham, NC. https://www.apartments.com/rent-market-trends/durham-nc/

[12] Housing and Urban Development. Rental Burdens: Rethinking Affordability Measures. https://www.huduser.gov/portal/pdredge/pdr_edge_featd_article_092214.html

Section 3.03 *Health Inequities*

Overview

The U.S. Department of Health and Human Services (HHS) Office of Disease Prevention and Health Promotion's Healthy People 2030 framework states that "the health and well-being of all people and communities is essential to a thriving, equitable society."[1] While the access to health for all people is imperative to an equitable society, the realization of this goal is hindered by increasing health costs, climate change, emerging diseases, and an inequitable social landscape. An inequitable landscape includes factors that contribute to health disparities and make health and well-being harder to attain for some people than for others.[2]

Health disparities are differences in personal health status related to social and demographic factors such as income level, gender, and race. Health disparities that are "deemed unfair or stemming from some form of injustice are called health inequities."[3] Health inequities, defined by the World Health Organization (WHO) as "differences in health status or in the distribution of health resources between different population groups, arising from the social conditions in which people are born, grow, live, work and age," create barriers to accessing means of improving one's health status and preventative measures for maintaining good health.[3] Social conditions impacting health outcomes such as socioeconomic status and oppression related to racism, sexism, and homophobia, are termed structural and social determinants of health (SSDHs).[4; 5]

A significant driver of health inequities is structural racism, defined as "the totality of ways in which societies foster racial discrimination through mutually reinforcing systems of housing, education, employment, earnings, benefits, credit, media, health care, and criminal justice."[6] In the United States, chattel slavery and the codification of racist practices through systems like Jim Crow shaped the landscape of inequity that continues to oppress Black or African Americans. These systems of oppression created lasting barriers to wealth, education, and homeownership and sustain socioeconomic disadvantages among Black or African Americans. The perpetuation of these disadvantages, in combination with the weight of generational trauma stemming from slavery and Jim Crow, result in disproportionately poor health outcomes within the Black or African American population.[7]

While there is a centuries-long history of anti-Black racism in the US, it is important to recognize that racial and ethnic groups such as Asian, American Indian and Alaskan Native (AIAN) or Indigenous, Hispanic or Latina/o/x, and Middle Eastern and North Africans (MENA), among others, also have long histories with systemic racism and discrimination in this country. This includes displacement and genocide of American Indians by European colonizers, immigrant exclusion policies for Asian, Hispanic or Latina/o/x, and MENA populations, and unequal access to mortgage lending, banking, quality education and healthcare. Black or African American, Hispanic or Latina/o/x, and AIAN are "disproportionately represented in prisons and jails". These historical and contemporary policies negatively impact health outcomes for these groups. Although race and ethnicity are key factors in systemic discrimination, other characteristics such as disability status, sexual orientation, gender identity, and age also play a role.

Primary Data

Discrimination

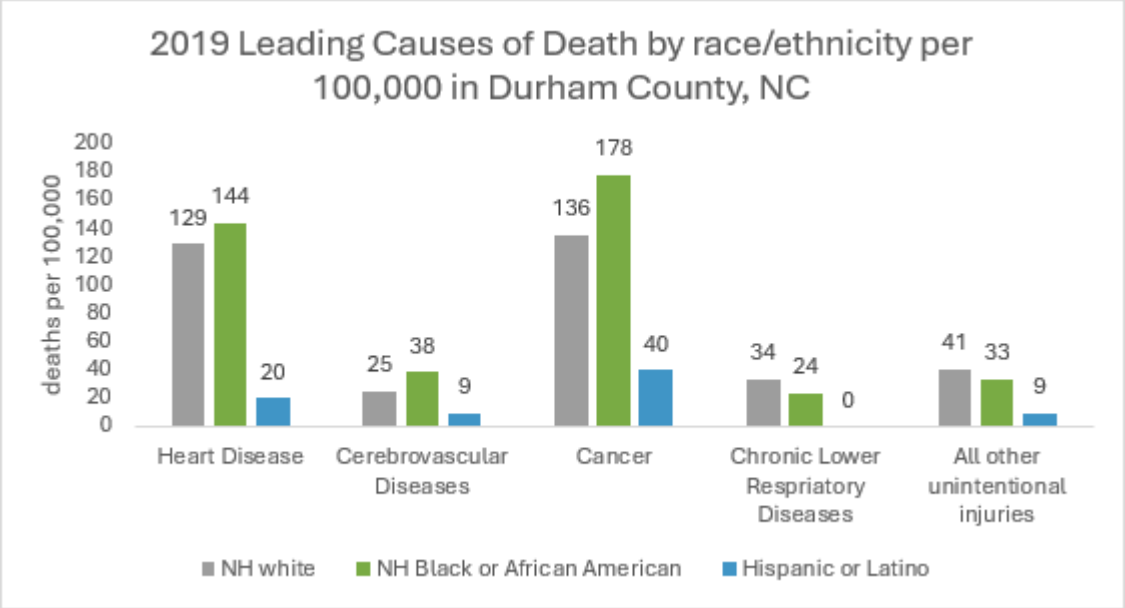
Studies demonstrate an association between discrimination and poor health outcomes such as low birthweight, cardiovascular complications, and hypertension.[8] In 2022, 46.5% of respondents to the County-Wide Community Health Assessment survey reported not experiencing discrimination related to race, sex, language proficiency, physical appearance, or age.[9] Of the remaining respondents who reported experiencing discrimination (53.5%), 24.4% experienced racism, 21.3% experienced discrimination by gender.[9] Age was another contributing factor at 13.2%, and language was the fourth most common answer at 10.2%.[9] Female respondents more commonly experienced discrimination than male respondents at a rate of seven to one.[10] When looking at discrimination by race and ethnicity, Black or African American respondents constituted 58.1% of the responses.[10]

Secondary Data

Mortality and Life Expectancy

In 2022, the top four leading causes of mortality in North Carolina were cancer, heart disease, unintentional injuries and chronic lower respiratory diseases, which overlap closely with the leading causes of mortality in Durham County from 2018-2020.[12] The infant mortality rate in North Carolina in 2021 was 6.8 infant deaths per 1,000 live births.[13] Similarly to trends in infant mortality at the county level, there are higher rates in infant mortality among Black or African American and Hispanic or Latina/o/x residents when compared with white North Carolina residents. The highest infant mortality rate per 1,000 live births is 12.1 among Black or African American residents, followed by 8.2 among American Indian residents and 5.1 among Hispanic or Latina/o/x residents.[14]

Black or African American Durham County residents have higher mortality rates than residents of other races for all leading causes of death.[10] White Durham County residents live longer on average than Black or African American residents, with a life expectancy of 82.5 years compared to a life expectancy of 76.6 from 2018-2020.[10] These racial inequities extend to infant health outcomes as well. The infant mortality rate for Black or African American infants in Durham County was four times the mortality rate for white infants in 2020.[10] Infant health disparities can also be attributed to systemic issues including racism, discrimination, and barriers to health care.[10]



Data from NCDHHS Division of Public Healtht[10]

Nutrition

Racial disparities in type two diabetes outcomes appear to mirror these disparities in food insecurity. See section 5.2 *Food Disparities* for more information. From the most recent data in 2019, the prevalence of type two diabetes in Durham County was 12.9%.[15] The prevalence among Black or African American residents was 18.6%, 13.2% among Hispanic or Latina/o/x residents, and 9.2% among white residents.[15]

Access to Care

Access to care is another factor that contributes to existing health inequities. Many barriers to care, such as the lack of health insurance, reliable transportation, and disposable income, are tied to social inequalities. People belonging to marginalized racial, ethnic, and socioeconomic populations are often more likely to experience these barriers to care, reinforcing a pattern of higher vulnerability to health inequity among marginalized groups.[16]

Access to wealth is a major determining factor related to healthcare access. Even with insurance coverage, many healthcare services carry burdensome out-of-pocket expenses. In 2018, 9,413 Durham families lived below the federal poverty level (FPL), with 30% of all Hispanic or Latina/o/x families in Durham living below the poverty level and 18% of all Black or African American families in Durham living below the poverty level.[14] In 2022, 25.6% of Durham County residents had household incomes at or below the 200% federal poverty line.[14]

Access to transportation is another determining factor related to healthcare access. In Durham County, 9.9% of households lack access to a vehicle, and 37.3% of households have access to only one vehicle.[17] Lack of vehicle access limits ease of transportation to healthcare facilities. When combined with restricted access to wealth, transportation can pose a significant hardship for those who do not own a vehicle and struggle to pay for transportation alternatives.

Health insurance access poses yet another barrier to healthcare. In 2022, 12.5% of the Durham County population under the age of 65 was uninsured.[36] In 2022, Durham Tract 18.02 had the highest uninsured rate in the county, at 20.4%. This tract is located east of downtown Durham, near Holloway Street and the intersection of I-885. In 2022, 46.6% of this tract's population was Black or African American, compared to the county at 35.3%.[18]

Poverty

While the percentage of Durham County residents living under the poverty line decreased from 15.8% in 2021 to 14.1% in 2022, racial disparities related to poverty rates persist. In 2022, the majority of Durham County residents living under the poverty line were Hispanic or Latina/o/x, followed by Black or African American, Asian, and white, respectively.[9] Additionally, over 40% of Black or African American and Hispanic or Latina/o/x households in Durham County currently possess zero wealth, which is more than twice the percentage of white households that possess zero wealth.[19] Without access to wealth or a source of disposable income, routine health services can quickly pose a significant financial burden to many. In cases where this burden is significant enough, households may be forced to forgo essential healthcare services in order to afford other life expenses such as housing and food.

Trends in poverty in Durham County closely follow those at the national level. In 2022, 13.2% of the portion of the Durham County population lived under the poverty line. Of these, 29.7% were Black or African American, followed by 23.4% white, 18.1% Hispanic or Latina/o/x and 3.4% Asian.[20] Food insecurity trends are also similar to those in Durham County at both the state and national levels. In 2021, 10.2% of US households were food insecure at some point during the year.[21] Of these households, 5.1 million had very low food security, meaning they were unable to eat as regularly as they normally would. In 2021, 32.1% of households living below the poverty level were food insecure. Between 2019 and 2021, 10.9% of North Carolina households were food insecure, compared to 10.5% at the national level.[21]

Interpretations: Disparities, Gaps, Emerging Issues

Data are consistent with national trends in health inequities that demonstrate higher health risks and decreased access to care among people of color.[22] Existing studies demonstrate the effects of racism on mental and physical health through mechanisms such as stress caused by oppression, which may explain in part the persistence of disparate health outcomes by race and ethnicity both in Durham County and nationally.[23] Inequities in access to healthcare, wealth and resources are yet another driver of persistent health disparities across different axes of identity including but not limited to race, gender and socioeconomic status.

When considering the ways in which social determinants of health influence health outcomes at the individual level, it is important to acknowledge the impact of intersecting marginalized identities. Commonly known as intersectionality, this theory introduced by Black or African American feminist scholars Kimberlé Crenshaw, Patricia Hill Collins, and Bell Hooks, explains how social identities interact with one another in a manner that informs social location and the impact of systems of oppression on marginalized individuals.[24] According to intersectionality theory, people with multiple marginalized identities (such being a person of color and also identifying as a woman, having a disability and/or being LGBTQIA+) can experience oppression in accordance with each of those identities, leading to a multiplying nature of oppression and marginalization. This theory can be applied to how individuals experience health outcome

inequities, and can inform the larger patterns in these disparities that exist at a population level.[25] For example, Black or African American women are more likely than white women to develop cardiovascular disease (CVD) and nearly 60 percent more likely to have high blood pressure but "research shows differences in referrals for cardiac care that are most evident for African American women, then African American men, compared with white men and women."[26]

An important limitation to consider in assessing health inequities at the county level is the underrepresentation of the Indigenous population in county health data. In 2019, the top four tribal affiliations in Durham County were Cherokee, Chippewa, Navajo and Sioux, and Indigenous or Native American county residents made up only 0.22% of the county population.[27] The severe level of underrepresentation of Indigenous people in county and national level health data can be largely attributed to the violent history of U.S. colonization, genocide and land theft against Indigenous people, a history that laid the foundation for the current system of land ownership in Durham County.[28] While it is a considerable challenge to assess health outcomes and health needs among Indigenous populations without adequate access to data, it is important to find ways to overcome this barrier in order to continue progress toward health equity.

Populations of color have worse outcomes than whites across most health, wealth, and physical environment indicators. There are inequities that exist by gender, sexual orientation, disability status, education, and income factors.

According to the National Academies of Sciences, Engineering and Medicine, "The inequitable distribution of disease and well-being in the United States shows that social factors, such as economic stability, education access and quality, health care access and quality, neighborhood and built environment, and social and community context, as well as the upstream structural factors that impact them, including governance systems and processes and the nation's cultural and historical context, play a critical role in health outcomes."[26] Systems, policies and opportunities for quality education, jobs, health care and living environment are the factors that have the greatest impact on a population's health.

Due to historic and contemporary policies that disadvantage different racial and ethnic groups such as segregation, displacement, disinvestment in neighborhoods and lack of quality education and employment in those communities, "low-income individuals and families… members of sovereign nations and tribes, and people who are Indigenous or American Indian, Alaska Native, Asian, Black or African American, Hispanic or Latino/a, or Native Hawaiian, and Pacific Islander" face the unequal hardship of poor health.[26] As a result, populations of color are more likely than whites to live in underserved communities that have fewer resources and amenities. Whites have been advantaged through policies such as the GI bill which provided low-interest paths to home ownership and wealth building which continues to benefit those same communities in the present day.[29]

Recommended Strategies

- Reduce barriers to participation in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and Supplemental Nutrition Assistance Program (SNAP) benefits.[26]
- Address the critical gaps between family resources and family needs through a combination of benefits that have the best evidence of advancing health equity, such as increased

Supplemental Nutrition Assistance Program benefits, increased housing assistance, and a basic income allowance for young children.[26]

- Funds should be allocated for projects, initiatives, and policies that focus on healing and reconciliation for Black or African American and Hispanic or Latina/o/x neighborhoods. This can include, but not limited to, releasing an updated strategic plan that intentionally includes goals and objectives that focus on anti-racist strategies to eradicate structural and institutional racism in the City of Durham.
- Reinvigorate projects that put the control of power back into the hands of the community members for neighborhood restoration projects. Invest in more equitable ways of interaction that ensure community members can fully participate in discussions and urban design decision making. This can include, but is not limited to, allocating equity funds to the Neighborhood Improvement Services department so they can work in conjunction with the Equity and Inclusion department to enhance community engagement.
- Ensure that the quality of water, air, and overall environment meets the highest standards in every zip code. Commit funds to ensure the underserved neighborhoods heal from natural disasters, environmental concerns like fallen trees, and environmental pollutants such as lead paint and cement dust. Resources and funds should be prioritized to Black or African American and Hispanic or Latina/o/x families and other communities that have historically been excluded and marginalized.
- Ensure access without barriers and with support to health services, nutritional sufficiency, education resources on good health, and behavioral changes with community health support groups.[30]
- Provide mortgage and public rent relief.[30]

Create a universal right to counsel for those facing eviction by allocating more money to Legal Aid's Eviction Diversion Program. 30

Current Initiatives & Activities

The Center for Black Health and Equity The Center for Black Health & Equity envisions a world where all people of African descent are able to obtain optimal health outcomes. https://www.centerforblackhealth.org/

City of Durham Neighborhood Improvement Services Works to preserve and improve quality of life conditions for Durham residents, and to encourage active participation in neighborhood redevelopment and public policy and decision making dialogue. https://www.durhamnc.gov/570/Neighborhood-Improvement-Services

Community Empowerment Fund The Community Empowerment Fund is working to end the racial wealth gap by supporting over 3,000 Members, annually, in reaching their employment, housing, and finance goals. https://communityempowermentfund.org/

Community Health Coalition Our goal is to improve the lives of underserved and most vulnerable populations. https://www.chealthc.org/

Communities in Partnership Our mission is to organize and cultivate long-term residents, especially residents of color and low wealth, to work towards racial, economic, and social liberation. https://communitiesinpartnership.org/

DcoThrives Durham County is taking a bold step towards addressing economic disparities by implementing a guaranteed income pilot program that aims to help Durham families go from surviving to thriving. https://www.dconc.gov/county-departments/departments-a-e/county-manager/dcothrives

Durham City-County Racial Equity Commission The purpose of the Durham City-County Racial Equity Commission is to examine, recommend, and advocate for policies and legislation to eliminate the burden of systemic and institutional inequities and racism in Durham County. https://www.durhamnc.gov/4705/Commissions-Committees

LATIN-19 Providing a critical space for leaders and allies in North Carolina to create collaborative and interdisciplinary solutions to address the health disparities in the Latina community in a trusting and committed environment. https://latin19.org/

Partnership for a Healthy Durham SEAT Team The Partnership for a Healthy Durham has formed a Systemic Equity Action Team to incorporate its racial equity principles to create an anti-racist organization. www.healthydurham.org

Racial Equity Institute We are an alliance of trainers, organizers, and institutional leaders who have devoted ourselves to the work of creating racially equitable organizations and systems. We help individuals and organizations develop tools to challenge patterns of power and grow equity. https://racialequityinstitute.org/

References

[1] U.S. Department of Health and Human Services, O. o. D. P. a. H. P. *Healthy People 2030 Framework*. https://health.gov/healthypeople/about/healthy-people-2030-framework

[2] Braveman, P. (2014). What are health disparities and health equity? We need to be clear. *Public health reports*, *129*, 5-8. https://doi.org/10.1177/00333549141291S203

[3] National Heart, L., and Blood Institute,. *Health Disparities and Inequities*. https://www.nhlbi.nih.gov/science/health-disparities-and-inequities

[4] World Health Organization. (2018). *Health inequities and their causes*. https://www.who.int/news-room/facts-in-pictures/detail/health-inequities-and-their-causes

[5] Durham County Department of Public Health, D. H., & Partnership for a Healthy Durham,. (2021). *Durham County Community Health Assessment 2020*. https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000

[6] Treatment Action Group. (2017). *Structural and Social Determinants of Health (SSDHs)*. https://www.treatmentactiongroup.org/wp-content/uploads/2017/03/Structural-Social-Determinants_0.pdf

[7] American Medical Association (AMA). (2021). What is structural racism? https://www.ama-assn.org/delivering-care/health-equity/what-structural-racism

[8] Williams, D. R., Neighbors, H. W., & Jackson, J. S. (2003). Racial/ethnic discrimination and health: Findings from community studies. *American Journal of Public Health*, *93*(2), 200-208.

[9] Partnership for a Healthy Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/10/Durham-2022-SOTCH.pdf

[10] Partnership for a Health Durham, & Durham County Department of Public Health. (2021). *2021 Durham County State of the County Health Report*. https://healthydurham.org/cms/wp-content/uploads/2022/09/2021-Durham-SOTCH-Report.pdf

[11] Partnership for a Health Durham, & Durham County Department of Public Health. (2022). *2022 Durham County State of the County Health Report*. https://healthydurham.org/cms/wp-content/uploads/2023/10/Durham-2022-SOTCH.pdf

[12] Centers for Disease Control and Prevention. (2018). *Stats of the State of North Carolina*. https://www.cdc.gov/nchs/pressroom/states/northcarolina/northcarolina.htm

[13] Centers for Disease Control and Prevention. (2023). *Infant Mortality Rates by State*. https://www.cdc.gov/nchs/pressroom/sosmap/infant_mortality_rates/infant_mortality.htm

[14] NC Department of Health and Human Services Division of Public Health, N. S. C. f. H. S. (2021). *2021 NORTH CAROLINA INFANT MORTALITY REPORT, TABLE 1A*. https://schs.dph.ncdhhs.gov/data/vital/ims/2021/2021-IMR-TABLE-1A-FINAL.html

[15] Durham Neighborhood Compass. (2023). *Diabetes (Adult Population) (Census Tracts)* https://compass.durhamnc.gov/en/compass/DIABETES_TOTAL/tract/?selected=37063001301&selected=37063001502&selected=37063001711&selected=37063002016

[16] Baah, F. O., Teitelman, A. M., & Riegel, B. (2019). Marginalization: Conceptualizing patient vulnerabilities in the framework of social determinants of health—An integrative review. *Nursing inquiry*, *26*(1), e12268.

[17] City of Durham. (2006). *Durham Walks Pedestrian Plan, 2006*. https://www.durhamnc.gov/DocumentCenter/View/3428/Section-20-Evaluating-Current-Needs-PDF

[18] U.S. Census Bureau. (2022). *Health Insurance Coverage Status and Type by Household Income in the Past 12 Months (in 2022 Inflation-Adjusted Dollars)* https://data.census.gov/table/ACSDT5Y2022.B27015?t=Income%20and%20Poverty&g=050XX00US37063

[19] Housing for New Hope. (2023). *The State of Affordable Housing and Homelessness, 2023*. https://housingfornewhope.org/wp-content/uploads/2023/06/State-of-Housing-2023.pdf

[20] DATAUSA. *DURHAM COUNTY, NC*. Retrieved September 2023 from https://datausa.io/profile/geo/durham-county-nc

[21] U.S. Department of Agriculture. (2023). Food Security and Nutrition Assistance. https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/

[22] Centers for Disease Control and Preventation. (2023). Racism and Health. https://www.cdc.gov/minorityhealth/racism-disparities/index.html

[23] Forrester, S. N., Gallo, J. J., Whitfield, K. E., & Thorpe Jr, R. J. (2019). A framework of minority stress: From physiological manifestations to cognitive outcomes. *The Gerontologist*, *59*(6), 1017-1023.

[24] Crenshaw, K. W. (2013). Mapping the margins: Intersectionality, identity politics, and violence against women of color. In *The public nature of private violence* (pp. 93-118). Routledge.

[25] Etherington, C. (2015). Race, gender, and the resources that matter: An investigation of intersectionality and health. *Women & health*, *55*(7), 754-777.

[26] National Academies of Sciences, E., and Medicine,. (2023). *Federal Policy to Advance Racial, Ethnic, and Tribal Health Equity*. https://nap.nationalacademies.org/catalog/26834/federal-policy-to-advance-racial-ethnic-and-tribal-health-equity

[27] Durham Neighborhood Compass. (2021). *Indigenous Population, 2021*.

https://compass.durhamnc.gov/en/compass/PTAIAN/tract/

[28] Bull City 150. (2018). Violence and Theft. https://www.bullcity150.org/uneven_ground/violence_theft/

[29] Blakemore, E. (2019). How the GI Bill's promise was denied to a million Black WWII veterans. *History. com*.

[30] City of Durham. (2023). *Report of the Durham Racial Equity Task Force: An Urgent and Loving Call to Action*. https://www.durhamnc.gov/DocumentCenter/View/32853/FINAL-REPORT-Durham-Racial-Equity-Task-Force-72220

Section 3.04 *Parks and Recreation*

Overview

Snapshot: Durham Parks and Recreation

- 6 parks with over 2000 acres
- 32 miles of accessible trails
- 12 program sites
- 7 gymnasiums
- 5 dance studios
- 2 indoor pools
- 3 outdoor pools
- 7 recreation centers
- 4 fitness facilities
- 2 indoor walking tracks
- 2 city lakes
- 2 heritage parks[1]

Durham Parks and Recreation (DPR) has a reputation for providing programs and opportunities for all Durham County's residents. These activities include sports and outdoor recreation, park trails, and lake activities. From results of the City of Durham's Annual Resident Survey to obtain a national accreditation, DPR is viewed as a leader in Parks, Recreation, and Leisure services. In 2023, DPR received its third consecutive accreditation from the Commission for Accreditation of Parks and Recreation Agencies (CAPRA). Achieving CAPRA accreditation is the best way to demonstrate that your organization and your staff provide your community with the highest level of service.[2]

The application process is a labor-intensive effort that brings all units of the department together in gathering data which meets predetermined national best practice standards. Currently there are 206 accredited Parks and Recreation Departments in the United States and 13 in North Carolina.[2]

Durham County Parks and Land

The Eno River State Park is located just 10 miles northwest of downtown Durham. The Eno river flows 33 miles from Orange to Durham County.[3] The park covers 4,000 acres of local flora and fauna and historical sites. This land offers camping, backpacking, hiking, fishing, paddling, and picnicking. There are over 30 miles of hiking trails that vary in difficulty for beginner and advanced hikers. The Check out the website for more information on visiting the park: https://www.ncparks.gov/state-parks/eno-river-state-park.

Duke Forest is land privately owned by Duke University and has been managed for teaching and research since 1931.[4] Over 7,000 acres of open fields and forested land spreads over Durham, Orange, and Alamance counties.

"The mission of the Duke Forest is to facilitate research that addresses fundamental and applied questions across a variety of disciplines and to aid in the instruction of all students in their pursuit of knowledge, especially regarding the stewardship of our natural resources."

All are welcome to enjoy the beautiful landscape of Duke Forest if the land is respectfully and carefully taken care of, and no evidence of human disturbance can be found. For more rules and regulations for visiting the park visit here: https://dukeforest.duke.edu/recreation/.

Spanning Durham and Wake counties lies Research Triangle Park. This global innovation center is the focal point between three Tier-1 research universities (North Carolina State University, Duke University, and University of North Carolina Chapel Hill), includes hundreds of science and

technology companies, extensive paths and trails, and government and academic institutions that spread over 7,000 acres. Over 20 miles of asphalt pedestrian trails are accessible in the park as well as four miles of natural surface mountain biking trails. More information on Research Triangle Park can be found here: https://www.rtp.org/trails/.

Half of the American Tobacco Trail runs straight through Durham as it begins near the Durham Bulls Athletic Park at Morehead Avenue.[5] The trail is accessible for walkers, bikers, runners, and hikers and features a colorful collection of wildlife.

For shorter walks around Durham, the Partnership for a Healthy Durham (in partnership with the Bull City United, Durham Housing Authority, Durham Parks and Recreation, and more), created one-mile trails in 2012. The neighborhoods with Healthy Mile Trails were selected based on the 2014 and 2017 Durham County Community Health Assessment survey responses where participants mentioned they exercise most. These trails were installed to help promote 30 minutes of physical activity a day. A yellow image of a pedestrian walker and the words 'healthy mile trail, Durham' can be found along Healthy Mile Trails to indicate where the path begins and ends.

The Trust for Public Land's ParkScore Index is a national comparison of the 100 most populated cities park systems across the United States. According to the 2023 ParkScore Index, Durham Parks and Recreation ranks 89th in its overall rating.[6] The 2023 ranking is a decrease from the 2019 ranking of 73rd out of the 100 cities measured. On the measure of equity, Durham Parks and Recreation has a score of 36th out of the 100 cities measured. Here, equity is defined as fairness in the distribution of parks and park space between neighborhoods by race and income. In the 100 most populated cities, Black, Indigenous, and people of color (BIPOC) communities have an average of 44% less park acreage than predominantly white communities. In Durham County's Community Health Improvement Plan 2022-2024, strategies and interventions, and action for access to exercise opportunities include continuing to create or enhance access to places for physical activity, like Healthy Mile Trails, parks, and recreational or exercise facilities.[7]

Primary Data

When Durham residents were asked what people, places, or things make Durham a good place to live in the Durham County County-Wide CHA, a notable number of people named parks and trails in 2019 and 2022. Walking is the most preferred method of exercise for Durham residents. Eighty-two percent of residents in 2019 and 68% of residents in 2022 named walking as their preferred exercise.[8] Ten percent of Comunidad Latina survey respondents named parks as a person, place, or thing that makes Durham a good place to live in 2022. Slightly more than 4% of respondents named parks in 2019.[9; 10] When asked where they exercised, 24% mentioned parks and 14% mentioned trails in the 2022 County-wide CHA.

In the 2022 Durham City/County Resident Satisfaction Survey, several areas for DPR were perceived highly amongst residents of Durham. For example, respondents answered that the *condition of trails and greenways, an increase in 'very satisfied and satisfied increased 2 % from 2017(62%) to 2022(64%).*[11] Also, in the same time span, respondents answered that with the conditions of parks and open spaces, there was an increase from 2017 to 2022 of 8.7%.[11] Over the six-year period DPR has invested a great deal in trail maintenance and parks and open spaces with the half penny bond funding. Current and future park projects in Durham are also benefiting from the Federal Equitable and Green Infrastructure funding. In other survey responses, *the condition of recreation centers and facilities witnessed a 5.9% increase from 2017 to 2022, and an additional increase from 2021 to 2022 of 1.7%.*[11] The newly built Wall Town Recreation Center,

Environmental Education Pavilion, along with major renovations to the Weaver Street and W.D. Hill Recreation Centers can attest to positive responses recorded.

Secondary Data

In accord with the Community Health Improvement Plan 2022-2024 of the Durham County Department of Public Health, DPR has established relationships with the local nonprofit Believers United for Progress, Inc. BUFP provides weekly healthy food distribution in a food apartheid area, for Black or African American, Hispanic or Latina/o/x, and Asian Durham residents. The Partnership for a Healthy Durham Physical Activity, Nutrition, and Food Access (PANFA) committee continues maintaining Healthy Mile Trails and is making plans to improve language access and expand to include green spaces.[12] DPR has established ten Healthy Mile Trails in its parks, working along with PANFA.

DPR has changed the selection of beverages available in facility vending machines in an effort to decrease the consumption of sugar-sweetened beverages. All of the aforementioned actions are efforts to assist in meeting objectives of Healthy NC 2030 of increase access to exercise opportunities, access to healthy foods, and decreased consumption of sugar sweetened beverages.[7]

The City of Durham Residency Survey's results from the past 10 years provide DPR with a glance on areas of success as well as ongoing challenges. The 2013-2023 Durham Parks and Recreation Master Plan was the tool developed, by administrators, employees, and the input of residents, which served as a guide on where and how to deliver services through the decade. A great deal has changed in the City of Durham over the past 10 years. The 2024 Comprehensive Parks, Recreation and Open Space Systems Plan will help Durham Parks and Recreation conduct its goal to develop quality parks and recreational facilities and programs throughout the City of Durham. The future programs, services, events, and facilities will create economic impacts, advance conservation efforts, rejuvenate health and wellness, enhance quality of life, and sustain social equity.[13]

Interpretations: Disparities, Gaps, Emerging Issues

Over the past six years, DPR has utilized grant funds, tax dollars, and federal assistance to revitalize the current infrastructure. New additions include a new recreation center, new and major park renovations to new maintenance equipment and are examples of growth within the department. Programs continue to remain fresh and developed in partnership with the needs of neighborhoods and communities. The start of a new five-year Master Plan process and continued national recognition highlights DPR's commitment to providing better services. And most importantly, recent findings in the City/County resident surveys reflect the challenging work ahead.

There are disparities, gaps, and emerging issues that not only DPR will be, and already is faced with. Ensuring that residents remain safe in parks, trails, and greenways is a response to houselessness, drug usage, and violent crimes in these public areas. A collaborative approach, which includes nonprofit organizations, faith-based organizations, city/county/state agencies and law enforcement as key organizations working together to address houselessness in Durham is needed.

Research on the effects that parks, greenways, trails, and open space have on violent crime data, there is no clear-cut evidence of a direct correlation. Durham Parks and Recreation uses the crime prevention through environmental design (CPTED) strategy to address park safety. The CPTED approach is recognized internationally for parks, open space and building design. CPTED

strategies aim to reduce victimization, deter offender decisions that precede criminal acts, and build a sense of community among residents.[14]

DPR continues to work towards making parks and recreation facilities accessible for all. Reduced fees, discounts, and waivers are available for children, seniors, military, employees, and non-profits. To allow time for accommodation, facilities and recreation classes must be registered for 21 days prior to the event.

Senior Citizens are a segment of the community that DPR will need to focus a great amount programming for, while assessing population growth trends. The U.S. population age 65 and over grew five times faster than the total population over the 100 years from 1920 to 2020, according to the 2020 Census. The older population reached 55.8 million or 16.8% of the population of the United States in 2020.[15] In 2010 the census estimated 9.8% of the population in Durham was over the age of 65, that number increased to 15.8% in 2022.[15; 16]

Recommended Strategies

- Forge Partnerships with organizations and agencies that address health disparities and issues of social equity and Inclusion in Durham. Specifically, network and join forces with non –profit organizations and agencies that are recipients of the federal American Rescue Plan Act (ARPA) funding. The American Rescue Plan Act of 2021 was signed into law by President Biden on March 11, 2021. The City of Durham will receive more than $50 million as part of the allocation.[17]
- Continued Community Engagement and Transparency. DPR's reorganization in 2023 has resulted in the formation of the new Community and Culture unit, which aims to solidify a culture of engagement and transparency, initiated during the 2013-2023 Master Plan process. Community engagement with Durham residents can be found in all 16 major projects spearheaded by DPR over the past few years.
- Continued data driven programming. To effectively program for residents of Durham with a purpose, data driven programming must continue to be utilized. NRPA metrics, Trust for Public Land, the City/County Resident Survey and Census Data are examples of sources that DPR program staff can use in accord with resident input. Programs must continue to reflect the goals of DPR as mirrored in its mission statement.
- According to the 2021 Durham Youth Listening Project, among the recommendations devised were that government agencies increase programming for young people, especially high school age youth and youth of color.[18]

Current Initiatives & Activities

Durham Parks and Recreation 2024 Durham Comprehensive Parks, Recreation and Open Space Systems Plan study process will include a park and recreation needs analysis and community assessment. The Comprehensive Parks, Recreation and Open Space Systems Plan will help Durham Parks and Recreation carry out its goal to develop quality parks and recreational facilities throughout the City of Durham. https://www.dprplaymore.org/514/2024-Durham-Comprehensive-Parks-Recreati

North Carolina Department of Natural and Cultural Resources the Year of the Trails is a celebration of the multifaceted significance of trails. They serve as conduits for movement, bring

people together, and offer opportunities for personal growth and reflection. https://www.dncr.nc.gov/programs-services/featured-programs/path/year-trail

Durham Parks Foundation exists to preserve, strengthen, and enhance parks, trails, open space, and recreational opportunities in Durham through diverse community involvement, fundraising, partnerships, and education. https://durhamparksfoundation.org

Durham County Open Space Program was formally created in 2003 to guide the County's acquisition of open space parcels, with a focus on watershed and farmland protection. https://www.dconc.gov/county-departments/departments-a-e/engineering-and-environmental-services/open-space-and-real-estate-division/durham-county-open-space-program

Partnership for a Healthy Durham Physical Activity, Nutrition, and Food Access Committee coalition consists of local organizations and community members with the goal of collaboratively improving the physical, mental, and social health and well-being of Durham residents. The Partnership has five committees that focus on Durham County health priorities and communications, which are led by the Steering committee. There are currently hundreds of active members in the Partnership. https://healthydurham.org/about-healthy-durham

Bull City Fit Durham/Duke Children's Healthy Lifestyles Bull City Fit Community-based wellness program located in Durham, NC that offers free evening and weekend activity sessions that engage and provide active learning. The Healthy Lifestyle Program is a family-based intervention for children with a body mass index (BMI) over the 95th percentile. https://bullcityfit.com/

References

[1] Durham Parks and Recreation. (2023). *About Us*. https://www.dprplaymore.org/27/ABOUT-US
[2] National Recreation and Park Association. (2023). *CAPRA Accreditation*. https://www.nrpa.org/certification/accreditation/CAPRA/
[3] NC Division of Parks and Recreation. (2023). *The Trails of the Eno River State Park*. https://www.ncparks.gov/maps/eno-river-state-park-map/open
[4] Office of the Duke Forest. (2023). *Recreation*. https://dukeforest.duke.edu/recreation/
[5] Discover Durham. (2023). *Durham's Outdoor Adventure Guide*. https://www.discoverdurham.com/blog/explore-durhams-great-outdoors/
[6] Trust for Public Land. *ParkScore® for Durham, NC*. https://www.tpl.org/city/durham-north-carolina\
[7] Durham County Department of Public Health. (2020). *Community Health Improvement Plan – 2022-2024*. Retrieved from https://healthydurham.org/cms/wp-content/uploads/2022/10/PANFA-2022-2024-CHIPs.pdf
[8] Partnership for a Healthy Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/10/Durham-2022-SOTCH.pdf
[9] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016–2023*. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[10] Durham County Department of Public Health, D. H., & Partnership for a Healthy Durham,. (2021). *Durham County Community Health Assessment 2020*. https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000
[11] ETC Institute. (2023). *2022 Durham County Resident Survey Findings Report*. https://www.dconc.gov/home/showpublisheddocument/38594/638137035308500000
[12] Durham Parks and Recreation, & City of Durham. *2024 Durham Comprehensive Parks, Recreation and Open Space Systems Plan*. https://www.dprplaymore.org/514/2024-Durham-Comprehensive-Parks-Recreati
[13] Partnership for a Health Durham, & Durham County Department of Public Health. (2022). *2022 Durham County State of the County Health Report*. https://healthydurham.org/cms/wp-content/uploads/2023/10/Durham-2022-SOTCH.pdf
[14] The International Crime Prevention Through Environmental Design Association. *The International CPTED Association*. https://www.cpted.net/
[15] Caplan, Z. (2023). U.S. Older Population Grew From 2010 to 2020 at Fastest Rate Since 1880 to 1890. https://www.census.gov/library/stories/2023/05/2020-census-united-states-older-population-grew.html
[16] U.S. Census Bureau. (2022). *Age and Sex: American Community Survey, ACS 1-Year Estimates Subject Tables, Table S0101* https://data.census.gov/table/ACSST1Y2019.S0101?q=Durham County, North Carolina
[17] City of Durham. *American Rescue Plan*. https://www.durhamnc.gov/4529/American-Rescue-Plan
[18] Ortiz, A., Brown, E., & The City of Durham Office on Youth (OOY). (2021). *Youth Listening Project*. https://www.durhamnc.gov/DocumentCenter/View/36680/Durham-Youth-Listening-Project-Report-2021

Chapter 4

Determinants of Health

Photo Courtesy of Discover Durham

This chapter includes:

- Housing and Homelessness
- Education
- Access to Healthcare and Health Insurance
- Crime and Safety

Section 4.01 *Housing and Homelessness*

Overview

The U.S. Department of Housing and Urban Development (HUD) characterizes affordable housing as occupants spending no more than 30% of their income on housing costs, including utilities, for both rented and owned properties.[1] Housing affordability has been adversely affected by factors such as a less housing availability, historically high mortgage interest rates, and the cessation of COVID-19 pandemic-related housing assistance programs at the federal, state, and local levels.[2]

The 2020 Durham Community Health Assessment noted that the historical basis for housing inequities and health in Durham, such as redlining and displacement of African Americans, has been ongoing for decades.[3] Beyond the historical legacy of these systemic racial and social inequities, symptoms of housing inequities have evolved over time with more recent issues related to affordability, homelessness, housing quality and safety, and neighborhood gentrification.[3]

The well-established connection between housing quality, affordability, and health is significant.[4; 5] Inadequate or nonexistent housing is associated with health issues such as increased asthma cases due to exposure to mold and pests, hindering of children's intellectual development due to lead exposure, and higher rates of hospital injury admissions due to extreme temperatures.[5; 6; 7]

Primary Data

Housing Affordability

Housing affordability is based on the availability of housing (rental or owned), the demand for housing, and the ability of those seeking housing to pay rent or a mortgage.[8] The 2022 County-wide Durham Community Health Assessment (CHA) Survey documents that home ownership decreased between 2019 and 2022, with Black or African Americans 35% less likely to own their home than whites in 2019 and 45% less likely to own their homes than in 2022.[9]

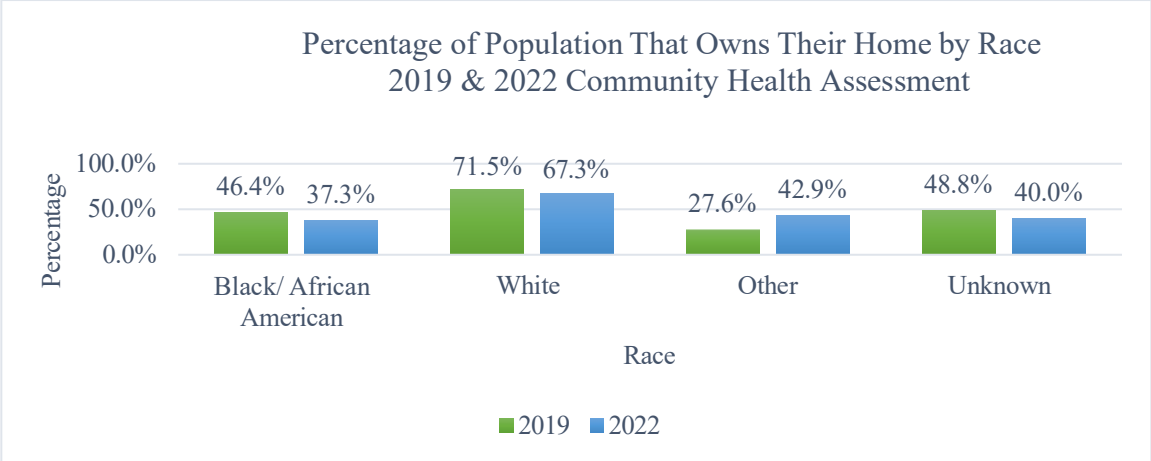


Figure 4.01 (a). Percentage of Homeowners in Durham, North Carolina by Race.[9]

Of survey respondents to the 2022 Durham County-Wide CHA Survey, 32% indicated difficulty finding housing.[9] The same survey showed that affordable housing, along with violent crime, were the two topics that have the greatest impact on quality of life.[9]

Durham City/County strategic planning officials also conducted the 2022 Durham County Resident Survey with 55% of respondents indicating that they were "very dissatisfied" (26%) or "dissatisfied" (29%) with the availability of affordable housing, and 30.8% indicated that their housing costs were more than 30% of their monthly income.[10]

Homelessness

The Point-in-Time (PIT) Count is a nationwide annual census conducted over a 24-hour period in late January to enumerate individuals facing homelessness.[11] It encompasses those in emergency shelters, transitional housing, and unsheltered situations.[12] Data from the PIT count informs the Department of Housing and Urban Development's funding decisions for local housing aid programs.[12]

Durham County saw an overall decrease in homelessness from 459 individuals in 2022 to 375 in 2023.[12] There was a ten percent increase in those unsheltered, defined by HUD as individuals and families sleeping in a place not designed for or ordinarily used as a regular sleeping accommodation.[12] Unsheltered homelessness in Durham County has increased steadily since 2020 from 77 in 2020 to 144 in 2022 to 158 in 2023.[12]

In 2023, Durham County reported a decline in overall homelessness, contrasting with a rise in unsheltered homelessness since 2020.[12] Notably, a significant proportion of the homeless population in Durham County identifies as Black or African American.[12]

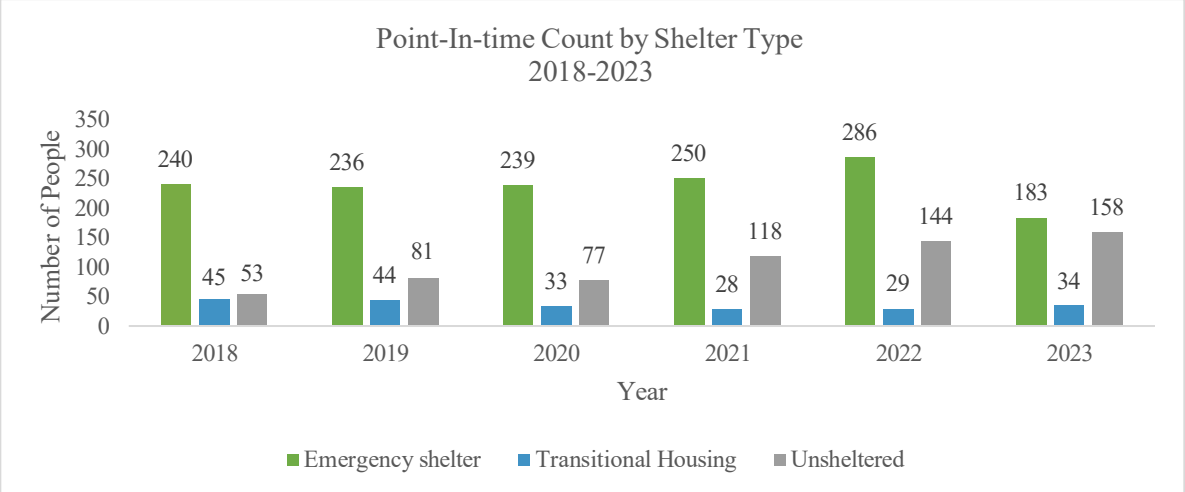


Figure 4.01 (b). The Point-In-Time Count of Homeless Individuals by the Shelter Type.[12]

Housing Quality and Safety

Violence contributes to unsafe living conditions which affects the overall quality of housing and subsequent wellbeing of those living in neighborhoods with high rates of crime. Nearly 20% of the 2022 CHA County-Wide survey respondents cited violent crime as having an impact on their quality of life.[9] About 12% of respondents overall cited neighborhood violence as a primary

cause of stress.[9] About 23% of Comunidad Latina CHA respondents cited violence as impacting their quality of life and nearly 17% of the respondents indicated theft was the major contributor to their primary stress.[13]

Secondary Data

Housing Affordability

Median rental costs increased dramatically with the onset of the COVID-19 pandemic in Durham in March 2020 while wage growth remained stagnant, placing added pressure on lower income families to pay rent.[14]

A Centers for Disease Control and Prevention eviction moratorium prevented eviction filings beginning September 2020 but expired in August 2021.[15] As a result, eviction filings doubled between 2021 and 2022, primarily in areas where people of color reside.[16]

Home ownership affordability has also declined. According to Durham County Tax records, the median price of homes sold has increased 45.5%, from $279K (2020) to $406K (2023).[17] Almost 10% of downtown Durham condominiums sold for more than one million dollars, almost a ten-fold increase from 2015.[17]

Based on the December 2023 Realtors Affordability Score (a score of one or higher suggests a market where homes for sale are more affordable to households proportional to their income), affluent Durham households (those near the 80th percentile income) can afford housing (60% of houses affordable) on par with national scores.[18] However, Durham households near the 35th percentile income find significantly fewer houses affordable relative to their income (1.5% in Durham versus 10.4% nationally).[18]

Homelessness

Trends seen in Durham County are similar to those that have been noted in North Carolina at-large. According to the 2022 Annual Homelessness Assessment Report (AHAR) Part I, the number of individuals experiencing unsheltered homelessness increased from 2,558 in 2020 to 3,625 in 2022.[19]

During the COVID-19 pandemic, there was an increase in the availability of non-congregate shelters (hotels and motels).[19] Although these emergency resources are no longer available as it evolves into an endemic, there has been a national increase by 11% in the availability of emergency shelter beds, transitional housing, and rapid rehousing.[19]

Housing Quality and Safety

Black or African American and Hispanic or Latina/o/x households have historically been exposed to more neighborhood crime of all types than white households, including larceny, burglary, and vandalism.[20] People living in these areas are more subject to increased poverty, police scrutiny, illicit drugs, and unemployment. The 2022 Durham Community Health Assessment Survey responses confirmed that crime remains a major concern for residents.[9]

Interpretations: Disparities, Gaps, Emerging Issues

The City of Durham and Durham County have prioritized affordable, high quality, safe housing since 2017, and are taking steps to ameliorate these problems, coordinating with multiple

community-based organizations, faith groups, and local employers, many of which are represented in the Partnership for a Healthy Durham (www.healthydurham.org).

Durham County has provided affordable housing support and leadership through organizations such as the City of Durham, the Durham Housing Authority, Durham County Project Access, and the Partnership for a Healthy Durham. Durham City approved a $95 million Housing bond in 2019 and consolidation of the bond and $65 million in existing City and federal funds under the Forever Home, Durham program.[21]

Recommended Strategies

- Increase the number and availability of emergency shelters.
- Increase number of affordable housing units that are publicly controlled.
- Provide mental health services for those who are houseless or living in publicly funded housing.
- Advocate for reduction in state preemptions of local ordinances:
    - Allow rent control for private housing.
    - Mandates for affordable housing in new developments.
    - Allow progressive city tax structures.
- Reduce housing costs.
- Increase the affordable housing stock by revising/updating city/county zoning regulations:
    - Allowing zoning for smaller, less elaborate houses
    - Converting vacant office/commercial/government space to housing
    - Revising building height restrictions, buffers between structures, runoff requirements
    - Revising parking requirements for new development
    - Revising mixed use regulations
- Increase availability of financial assistance for housing and those facing eviction.
- Implement harsher penalties for discriminatory housing practices.

Current Initiatives & Activities

HEART Team Holistic Empathetic Assistance Response Teams (HEART) are unarmed mental health professionals who respond to nonviolent behavioral and mental health crisis 911 calls. https://www.durhamnc.gov/4576/Community-Safety

Forever Home, Durham The City of Durham passed a $95 million affordable housing bond in November 2019. Together with $65 million in federal and existing city funding, the Forever Home, Durham program was started to build homes, renovate properties and provide essential services for low-to-moderate income residents. https://www.durhamnc.gov/4593/Forever-Home-Durham

Partnership for Healthy Durham Health and Housing Committee the newly developed committee in response to the 2017 CHA that works to increase education and advocacy regarding health and housing. https://healthydurham.org/health-and-housing

Project Access of Durham County Oversees the Durham Homeless Care Transitions (DHCT) program with the goal of assisting medically vulnerable homeless people transitioning from institutions. http://www.projectaccessdurham.org/

Alliance Behavioral Healthcare Mental health, substance abuse, and intellectually disabled LME that helps clients facing housing problems or homelessness with case management and opportunities for short term housing support through the Independent Living Initiative (ILI), leased housing through the DASH program, and moving from institutions to apartments with Transitions to Community Living Initiative (TCLI) https://www.alliancebhc.org/

City of Durham Manages multi-million HUD contracts for housing and homeless services, conducts property inspections and is overseeing housing bond implementation. http://durhamnc.gov/

DataWorks-NC A local non-profit dedicated to "democratizing data" that maintains social driver and health data on the Durham Neighborhood Compass website. https://compass.durhamnc.gov/en

Durham Affordable Housing Loan Fund Public/private partnership providing financing to create or preserve multi- or single-family affordable housing units in Durham. https://www.self-help.org/business/loans/all-business-loans/durham-affordable-housing-loan-fund

Durham CAN (Congregations, Associations, and Neighborhoods) Broad and diverse membership coalition working to bring key issues to elected leaders to promote change – a leader in the movement to improve housing affordability / quality and proximity to transit. http://www.durhamcan.org/

Durham COC The HUD mandated community collaborative that sets policy around homeless services in Durham including prioritization for housing and funding allocations https://www.durhamcoc.org

NC Housing Coalition The North Carolina Housing Coalition's mission is to lead a movement to ensure that every North Carolinian has a home in which to live with dignity and opportunity. www.nchousing.org

Eviction Diversion Program Collaboration between Duke Law School, Legal Aid, and the Department of Social Services with funding from the city and county. https://evictioninnovation.org/2020/01/28/diversion-durham/

Housing for New Hope a nonprofit active in multiple areas including the new in 2020 Street Outreach Team which serves homeless people living outside with case management and referrals. HNH also owns/maintains three permanent supportive housing sites and directs a rapid rehousing program. https://www.housingfornewhope.org/outreach-casemanagement

References

[1] Thorsby, D. (2022, September 13, 2022). *What is affordable housing?* https://realestate.usnews.com/real-estate/articles/what-is-affordable-housing
[2] Emma Waters, K. K. (2023). *Rising rates and increasing unaffordability: 2023 housing market in review*. https://bipartisanpolicy.org/blog/rising-rates-and-increasing-unaffordability-2023-housing-market-in-review/
[3] Durham County Department of Public Health, D. H., , Partnership for a Healthy Durham,. (2020). *Durham County Community Health Assessment 2020*. https://healthydurham.org/cms/wp-content/uploads/2021/08/2020-CHA-FINAL.pdf
[4] Steve Rolfe, L. G., John Godwin, Isobel Anderson, Pete Seaman, Cam Donaldson. (2020). Housing as a social determinant of health and wellbeing: developing an empirically-informed realist theoretical framework. *BMC Public Health*(2020). https://doi.org/https://doi.org/10.1186/s12889-020-09224-0
[5] Philippa Howden-Chapman, J. B., Richard Edwards, David Jacobs, Kim Bathan, David Ormandy. (2023). Review of the impact of housing quality on inequalities in health and well-being. *Annual Review of Public Health*, *44*, 233-254. https://doi.org/https://doi.org/10.1146/annurev-publhealth-071521-111836
[6] National Center for Healthy Housing. *Lead*. https://nchh.org/information-and-evidence/learn-about-healthy-housing/health-hazards-prevention-and-solutions/lead/#:~:text=Exposure%20to%20lead%20in%20housing%20poses%20a%20significant,systems%20and%20seriously%20hinders%20the%20body%E2%80%99s%20neurological%20development.
[7] Michele Fornaro, E. D., Michele De Prisco, Martina Billeci, Anna Maria Mondin, Raffaella Calati, Lee Smith, Simon Hatcher, Mark Kaluzienski, Jess G. Fiedorowicz, Marco Solmi, Andrea de Bartolomei, Andre F. Carvalho. (2022). Homelessness and health-related outcomes: an umbrella review of observational studies and randomized controlled trials. *BMC of Medicine*, *20*. https://doi.org/10.1186/s12916-022-02423-z
[8] Schaeffer, K. (2022). *Key facts about housing affordability in the U.S.* https://www.pewresearch.org/short-reads/2022/03/23/key-facts-about-housing-affordability-in-the-u-s/
[9] Durham County Department of Public Health, D. H., , Partnership for a Healthy Durham,. (2023). *Durham County Community Health Assessment County-Wide Data Dashboard. Data Trends from 2010-2022* https://app.powerbigov.us/view?r=eyJrIjoiMjEwMjNjZDgtNzg5Zi00YjRmLThhMGItZTMzOThjMGJlOTE2IiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[10] ETC Institute. (2023). *2022 Durham County Resident Survey: Findings Report.* https://www.dconc.gov/home/showpublisheddocument/38594/638137035308500000
[11] Housing for New Hope. (2024). *2024 Point in Time Count*. https://housingfornewhope.org/our-impact/pit-count/
[12] Lloyd Schmeidler, C. o. D. O. o. C. D. (2023). *2023 PIT Count & HIC Report.* https://housingfornewhope.org/wp-content/uploads/2023/05/2023_PITHIC_4-26-2023.pdf
[13] Durham County Department of Public Health, D. H., Partnership for a Healthy Durham,. (2023). *2023 Durham County comunidad Latina community health assessment survey report*. https://healthydurham.org/cms/wp-content/uploads/2023/12/Comunidad-Latina-Data-Report-Final.pdf
[14] Killeen, J. (2022). *Who Owns Durham.* https://docs.google.com/presentation/d/1495DeEbXoQ6KsJOmtUi96eFtUfZ-Gxv8f4z7nGphYdE/edit#slide=id.p
[15] Kathryn M Leifheit, S. L. L., Julia Raifman, Gabriel L Schwartz, Emily A Benfer, Frederick J Zimmerman, Craig Evan Pollack. (2021). Expiring eviction moratoriums and COVID-19 incidence and mortality. *American Journal of Epidemiology*, *190*(12), 2503-2510. https://doi.org/https://doi.org/10.1093/aje/kwab196
[16] Dataworks NC. (2023). *Tenant demographics and eviction filings in Durham County*. https://dataworks-nc.org/wp-content/uploads/Tenant-Demographics-and-Eviction-Filings-in-Durham-County.pdf

[17] Pehlivanian, L. In the Bull City, million-dollar home sales are no longer outliers. *The 9th Street Journal*. https://9thstreetjournal.org/2023/11/21/in-the-bull-city-million-dollar-home-sales-are-no-longer-outliers/

[18] Realtor.com. (2024). *REALTORS Affordability Distribution Curve and Score* https://www.realtor.com/research/reports/inventory-affordability

[19] The U.S. Department of Housing and Urban Development. (2022). *The 2022 Annual Homelessness Assessment Report (AHAR) to Congress*. https://www.huduser.gov/portal/sites/default/files/pdf/2022-AHAR-Part-1.pdf

[20] Evans K Lodge, C. H., Carmen M Gutierrez, Kristen M Rappazzo, Michael E Emch, Chantel L Martin. (2021). Estimating exposure to neighborhood crime by race and ethnicity for public health research. *BMC Public Health*, *21*(1), 1078. https://doi.org/10.1186/s12889-021-11057-4.

[21] City of Durham. *Forever Home, Durham*. https://www.durhamnc.gov/4593/Forever-Home-Durham

Section 4.02 Education

Overview

"People with higher levels of education are more likely to be healthier and live longer".[1]

The Durham County Public School's (DPS) district is in the top 10 largest in North Carolina.[2] DPS offers traditional public schools, magnet programs, year-round calendar schools and small specialty high schools.[3] This district is in the top 30 in the nation. DPS is known for hiring National Board-Certified teachers. Three of Durham's high schools were on US News and World Report's best high schools list for 2018.[3] Durham Public Schools (DPS), Durham Technical Community College, Duke University, North Carolina Central University, NC School of Science and Math are a few of the institutions that contribute to the rich educational landscape in Durham. While many students thrive, a focus on accessibility, affordability, and coordination of services could foster larger positive outcomes.

Durham Public Schools 2023-2028 Strategic Plan outlines DPS's five priorities[3]:

- Increase Academic Achievement
- Provide a School Safe Environment that Supports the Whole Child
- Attract and Retain Outstanding Educators and Staff
- Strengthen School, Family, and Community Engagement

To ensure fiscal and operational responsibility, DPS initiated several academic initiatives such as a centralized data dashboard, Student Success Coaches, and increased opportunities for summer credit recovery. Helping students to recover from the concerns of the COVID-19 pandemic, DPS increased the number of schools with trauma informed teams, structured psychotherapy for adolescents responding to chronic stress, and selected cultural frameworks in every school.

Primary Data

2023 Durham County Community Health Assessment Survey[4]

The 2022 Durham County County-wide Community Health Assessment survey participants mentioned better schools as an issue that causes the greatest effect on quality of life (4.4%). Contrasting, 8.8% of survey participants reported that having good schools in their neighborhood made their neighborhood a great place to live. Education was not a priority based on the 2023 Durham County Community Health Assessment Comunidad Latina survey participants. Of Comunidad Latina survey participants, 4.5% specifically mentioned that a lack of childcare had a great impact on quality of life.

There were discrepancies between the county-wide and Comunidad Latina surveys regarding educational attainment of survey participants. Over 50% of county-wide participants have their bachelor's or higher degree while less than 25% of Comunidad Latina survey participants did. These results are not comparable and are discrepant due to the different sampling methodologies used for each survey.

2021 Youth Risk Behavior Survey Durham County[5]

The most recent Youth Risk Behavior Survey (YRBS) data available is from 2021. The survey is done every two years and Durham County is an oversampled county – most, if not all, eligible schools participate. Students were asked about their school belonging and over 50% of middle and high schoolers reported strongly agreeing or agreeing that they felt they belonged at school. In addition, 52.6% of middle schoolers and 49.5% of high schoolers reported they strongly agreed or agreed that their teachers really cared about them and gave them a lot of encouragement. Regarding COVID-19's impact on school learning, 38.7% of students strongly agreed that their schoolwork was more difficult during the pandemic than before.

Significant trends in the data are clear when examining racial inequities. For example, Black or African American high school students are more than twice as likely as white students to experience suicidal ideation. Black or African American students are nearly seven times as likely to not have had a dentist checkup in two years than white students. Mental health was also examined among LGBTQ+ high school students and bisexual students were more likely than their gay or lesbian peers to have suicidal ideation.

Other interesting points include substance use has decreased significantly since 2019 and cigarette use is down to under three percent of students. Very little use of hard drugs including cocaine, methamphetamine, and heroin was reported. Marijuana and alcohol were the top two substances used among both middle and high schoolers.

Secondary Data

Early Education

In 2019, the North Carolina Department of Health and Human Services released North Carolina's Early Childhood Action Plan (ECAP). The plan sets forth a bold vision for North Carolina's children, focused on making steady progress towards achieving ambitious goals relating to children's health and development, safety and well-being, and learning.[6]

Durham is the first county in North Carolina to create an Early Childhood Action Plan (ECAP) tailored to the needs of its community.[7] Durham Children's Initiative (DCI), with support and funding from Durham County, convened families, community members, and more than 150 families and child-serving agencies to develop a plan for a stronger, more aligned, and more equitable early childhood system.[7]

The Pediatrics Supporting Parents Initiative awarded Durham funding *(up to $2.37 million over three years)* to invest in evidence-based and community-rooted approaches to supporting social-emotional health for children in Durham ages zero to three and their families.[7] This initiative focuses specifically on connecting community-rooted initiatives with Duke Pediatrics to provide Black or African American and Hispanic or Latina/o/x families greater access to social-emotional support. This funding is a significant investment in the well-being of children and families in Durham. Regarding academics, "Durham Public Schools saw improvements in every sub-group

compared to previous school year of students tested for performance, and in every tested subject except for eighth grade science and high school English II in school year 2022-2023."[8]

The need for quality, licensed, and affordable childcare continues to be a serious concern in Durham County. There are nearly 35,000 children from birth through age eight in the county, and parents are spending an average of 19.3% of their yearly income on childcare.[7] Some childcare centers have waiting lists of six to fifteen months long.

School Wellness

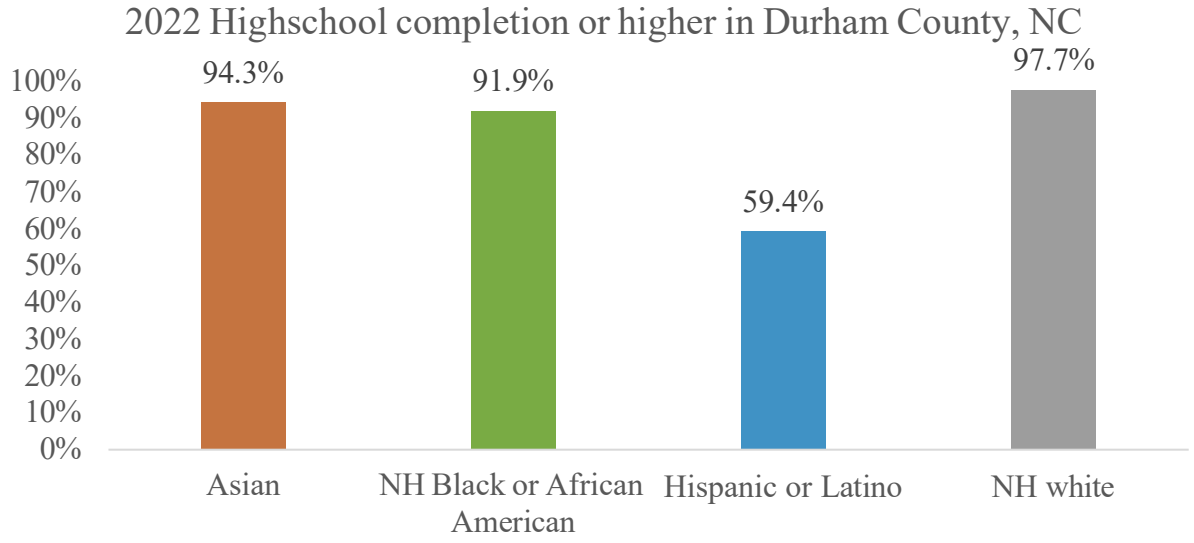
School wellness is the integration of physical activity, nutrition, and social-emotional learning into the school environment.[9] It is important for students to have access to healthy foods and opportunities to be active so they can learn and succeed.

Durham Public Schools (DPS) has a wellness policy that outlines goals and strategies for promoting student health and well-being. The policy includes provisions for healthy meals and snacks, physical education, and social-emotional learning.[10]

DPS schools now have a guidance counselor who provides support to students and staff. DPS also offers several social-emotional learning programs, such as Second Step and Restorative Practice Centers.[11]

Secondary Education and Beyond

High school graduation rates are increasing in Durham County. However, large discrepancies between races/ethnicities are present.[11] Further research is needed to understand the reasons behind racial disparities in graduation rates.



4.01 (a) High school completion or higher in Durham County, NC 2022

Durham County is home to Duke University, North Carolina Central University – an Historically Black College or University (HBCU), and Durham Technical College. Duke University was

founded in 1924 and is now a prestigious university nationwide offering the top education for medical students.[12] Durham Tech courses for trades, engineering, math and science, and liberal arts.[13]

Interpretations: Disparities, Gaps, Emerging Issues

Children who are healthy are more likely to succeed in school, have positive relationships, and live happy and productive lives. However, children in Durham County face a number of disparities, gaps, and emerging issues that impact their health.

According to the 2021 Youth Risk Behavior Survey report, "systemic and institutional racism are discussed as it pertains to risky behaviors among youth in Durham County. Persons of color are often more at risk for unhealthy behaviors and outcomes.[14] Studies have shown that if Black or African American students are taught by a non-Hispanic white teacher, they are more likely to receive a worse behavioral assessment than white students".[15]

The suspension rate for Black or African American students in Durham Public Schools (DPS) is significantly higher than the suspension rate for white students.[16] The rate of school suspensions differed drastically between races in the 2021-2022 school year.[17] During the school year, 197 Black or African American students per 1,000 students was 197 followed by Hispanic and Latino students which was 63 suspensions per 1,000 students. This is compared to 25 white student suspensions per 1,000.

According to the 2021 Youth Risk Behavior Survey report, "Gun violence is the leading cause of death for children and teens (ages one-19).[18] Gun violence has a significant impact on psychological and mental well-being and can lead to poorer performances in school. Black or African American teens are 17 times more likely to die by gun homicide than white children."[19]

COVID-19 Impacts

The unexpected transition to remote learning in early 2020 resulted in massive rescheduling, readjustments, and compromise on behalf of parents and children. Lack of internet access, became a big issue and barrier to academic success.[20] Black or African Americans often don't receive culturally affirming education.[21] Students of color face additional barriers including increased financial hardship, daylong sibling care, limited access to technology, emotional hardship, and limited access to food.[13]

Recommended Strategies[7]

- Value the voices and experiences of families in our community.
- Ensure universal, family and child focused programs are available to all.
- Address root causes in an upstream way to prevent stress and trauma for families.
- Ensure culturally affirming, anti-racist, affordable, and quality support is provided to students and families to work on core issues.

Current Initiatives & Activities

Durham County Department of Public Health DPS partners with Durham County Department of Public Health to provide students with immunizations and other health services. https://www.dcopublichealth.org/services/communicable-diseases/immunization-3638

Durham Children's Initiative (DCI) is a non-profit organization that works to improve the health and well-being of children in Durham. https://dci-nc.org/

Graced Inc.is a non-profit organization empower youth and young adults to thrive by providing life-enhancing programs that support self-reliance and break the cycle of trauma. https://www.gracedinc.com/

Communities In Schools of Durham is to champion the connection of needed community resources with schools to help young people stay in school and prepare for life. https://www.cisdurham.org/

Kramden Institute's mission is to provide technology tools and training to bridge the digital divide of students from diverse backgrounds. https://kramden.org/

Shodor Education Foundation, Inc. using modeling, simulation technologies, and computational science improve math and science education in Durham's youth. http://www.shodor.org/

North Carolina Farm to School connects local farmers with DPS schools to provide students with fresh, healthy food. https://www.ncfarmtoschool.com/

Durham Youth Fitness provides free after-school fitness programs for DPS students.

Durham Healthy Schools Coalition is coalition of community partners working to promote school wellness in Durham. [11]

References

[1] *Health People 2030*. (2023) U.S. Health Department and Human Services, Office of Disease and Prevention and Health Promotion (2023) . Retrieved from https://health.gov/healthypeople/objectives-and-data/browse-objectives/education-access-and-quality
[2] Durham Public Schools. About Durham Public Schools. https://www.dpsnc.net/domain/127
[3] Durham Public School Strategic Plan. (2023) Durham Public Schools. Retrieved from: https://www.dpsnc.net/Page/2941
[4] Partnership for a Healthy Durham. 2022 Durham County County-wide Community Health Assessment Survey Data Report. 2023. Healthydurham.org
[5] Partnership for a Healthy Durham. 2022 Durham County County-wide Community Health Assessment Survey Data Report. 2023. Healthydurham.org
[6] Grown in Durham. Durham's Early Childhood Action Plan. 2019. https://dci-nc.org/wp-content/uploads/2021/10/DCI_ECAP-Summary_10-01-21-English.pdf
[7] Durham County Department of Public Health. Grown in Durham. https://sites.google.com/view/durhamecap/home
[8] Durham Public Schools. Every student grou's test scores increased in Durham Public Schools. 2022-2023. https://www.dpsnc.net/site/default.aspx?PageType=3&DomainID=2235&ModuleInstanceID=8373&ViewID=6446EE88-D30C-497E-9316-3F8874B3E108&RenderLoc=0&FlexDataID=110082&PageID=6281
[9] Centers for Disease Control and Prevention (CDC). (2023, September 20). School Wellness. Retrieved from https://www.cdc.gov/healthyschools/index.htm
[10] Durham Public Schools (DPS). (2023, November 12). EMBRACE Social-Emotional Learning (SEL) Hub. Retrieved from https://embrace.dpsnc.net/
[11] US Census. 2022 American Community Survey 1-year estimates. Educational attainment. Data.census.gov
[12] Duke University Libraries. Duke University: A Brief Narrative History. 2020, September 1. https://library.duke.edu/rubenstein/uarchives/history/articles/narrative-history
[13] Durham Tech. The History of Durham Tech. https://www.durhamtech.edu/about-durham-tech/history-durham-tech
[14] Candace Jackson. The New York Times. 2021, August. What is redlining? What Is Redlining? - The New York Times (nytimes.com)
[15] American Psychological Association. 2010. Children, youth, families, and socioeconomic status. Available here: https://www.apa.org/pi/ses/resources/publications/children-families
[16] Patterson, A. Durham School Board Orders Plan to Address Racial Achievement Gaps. IndyWeek. 2023, October 10. Durham School Board Orders Plan to Address Racial Achievement Gaps - INDY Week

[18] Everytown Research & Policy. Child and Teen Gun Safety. Available here: https://everytownresearch.org/issue/child-teensafety/
[19] Durham County Department of Public Health. Gun Safety Program. Available here: https://www.dcopublichealth.org/services/health-education/health-promotion-and-wellness/gun-safety-program
[20] Kelly, H. June 2, 2022. The Washington Post. Pandemic disrupted learning for US teens, but not evenly, poll shows. Available here: https://www.washingtonpost.com/technology/2022/06/02/pandemic-remote-teens-learning/

[21] Jones, T. M. April 2021. Children and Schools. School mental health providers' perspectives on the impact of COVID-19 on racial inequities and school disengagement. Available here: https://academic.oup.com/cs/article/43/2/97/6290269

Section 4.03 *Access to Healthcare, Insurance, and Information*

Overview

Access to health care in a community refers to the ability of residents to find a steady medical provider for their primary and specialty care needs and the ability to receive that care without facing significant barriers.[1] While Durham County has a variety of medical providers, access to affordable health care and insurance remains a concern for residents.

To serve the needs of the uninsured and underinsured individuals and families, Durham community-based organizations are stepping up to fill in the gaps. Due to COVID job loss and newly uninsured adults have denied care for themselves, population is greatly affected by our US healthcare system, suggesting reform is needed.

Notably, beginning Dec. 1, 2023, more North Carolina residents were able to get health coverage through NC Medicaid expansion.[2] Adults ages 19 through 64 earning up to 138% of the federal poverty line (e.g., singles earning about $20,000/year or families of three earning about $34,000/year) may be eligible.[2] More than 600,000 NC residents – 22,000 Durham County residents – will be covered by Medicaid expansion.[3; 4] Medicaid expansion allows those NC residents in need of health coverage to apply whether single of a family.[2] Medicaid expansion means more people can get full Medicaid benefits but should inquire with their local DSS office.

Community Assets

Durham has multiple healthcare agencies that provide a range of health services such as the Durham County Department of Public Health, Lincoln Community Health Center, (LCHC) and the Duke University Health System.

Durham's resources, including a high number of providers per resident, 10.6 physicians per 1000 residents, help to offset lack of insurance as a barrier to health care when compared to many other NC counties, especially those in rural areas.[5] Additionally, Durham has a significant number of community health workers (CHWs). A CHW is a frontline public health worker who is a trusted member of the community and/or has an unusually close understanding of the community they serve. They build individual and community capacity by increasing health knowledge and self-sufficiency through a range of activities such as outreach, community education, informal counseling, social support, and advocacy.[6]

The vision of Lincoln Community Health Center (LCHC) is to "strive to be a provider of primary and preventive health care that is of high quality, culturally competent, efficient and customer-centered in a state-of-the-art facility in collaboration with other community partners."[7]

Project Access of Durham County (PADC) donates medical and surgical specialty services to eligible low-income, uninsured individuals annually. PADC has a care management team that includes care managers and community health workers (CHWs) that provide support to patients enrolled in the program.[8]

The Durham County Department of Public Health provides free or sliding fee scale clinical services including immunizations, screenings, and prenatal care.[9] Durham County has a free health clinic, Samaritan Health Center.[10] Senior PharmAssist supports seniors with medication access,

medication management, and tailored community referral.[11] The Benefit Enrollment Center assists Medicare beneficiaries apply for additional benefits.[12]

A report released in 2023 shows that the Affordable Care Act (ACA) enacted under President Obama in 2010 caused an all-time low national uninsured rate of 7.7%.[13] Sixteen million Americans enrolled in coverage through Healthcare.gov and state websites, contribution to a historic low.[14] It is important to note that "Changes in uninsured rates from 2020 to 2023 were largest among individuals with incomes between 200% and 400% of the Federal Poverty level."[14]

Primary Data

According to the 2022 Durham County County-wide survey sample, 5.5% of the residents surveyed identified no health insurance as a top priority. Approximately 10.2% of Durham County residents were uninsured in 2023. [9] High cost and unemployment were the two most cited reasons Durham residents identified as barriers to getting health insurance.[9]

Meanwhile, the 2023 Comunidad Latina survey sample revealed that roughly half of residents surveyed did not have health insurance or coverage in the last 12 months.[15] High cost and lack of coverage were the primary reasons the Comunidad Latina survey participants cited as obstacles to getting health insurance.[15]

Access to Providers

Access to a personal health care provider and continuity of care are associated with higher satisfaction and better health outcomes.[16] The Healthy People 2030 objective is for 84% of individuals to have a primary care provider.[17] Currently The 2022 Durham County-Wide Community Health Assessment Survey found that 85.2% of Durham County residents did not have a problem getting healthcare for themselves or someone in their household.[9] Nearly 15% of the respondents who expressed difficulty acquiring care cited dental, primary care, and pharmaceuticals as the most difficult.[9]

Secondary Data

Durham County is currently ranked number 6th in North Carolina for clinical care. Table 4.4 (a) lists Durham County's clinical care ratios and statistics as it relates to peer counties in North Carolina: Forsyth, New Hanover, and Guilford.[18]

Clinical Care Ratios, Durham & Peer Counties in North Carolina 2020

Clinical Care	Durham	Forsyth	New Hanover	Guilford
Uninsured	13%	12%	12%	12%
Primary Care Physicians	810:1	860:1	1,110:1	1,260:1
Dentists	1,330:1	1,520:1	1,220:1	1,650:1
Mental Health Providers	140:1	280:1	190:1	310:1
Preventable Hospital Stays	2,885	3,358	2,254	2,993
Mammography Screenings	43%	46%	51%	41%
Flu Vaccinations	62%	56%	61%	56%

Table 4.4(a) Clinical Care Ratios, Durham & Peer Counties in North Carolina[18]

Interpretations: Disparities, Gaps, Emerging Issues

Durham has an abundance of health care services and providers. However, availability does not exactly translate to accessibility. Access to health care is a complex topic. In addition to the supply of providers and health care services, other factors determine accessibility. For example, a health care organization using practices that prevent all the individuals it serves from being able to find, understand, and use information to make decisions about their health decreases access to care.

Transportation is a social driver of health that impacts access to care.[19] Without reliable, safe, and affordable transportation, individuals miss or delay health care visits. Research has shown that delaying care results in poorer health outcomes and increased costs for individuals.[20] It also fuels health disparities as people who have lower incomes and who have at least one pre-existing condition are more likely to postpone accessing care than people who do not.[20] Ensuring affordable transportation is important to improving access to care for low-income, older adults, and Black or African American Durham residents specifically. Fifty-two percent of GoDurham riders over the age of 35 and people of color are 80% of the ridership.[21] Additionally, 68% of GoDurham riders do not have a vehicle available to them and they rely on public transportation for mobility.[21]

Other barriers like not having paid sick days reduce access to care for many Durham community members, specifically individuals who earn lower incomes. Having paid sick leave means that workers are able to take time off from work to access health care services, accompany family members to appointments in addition to recover from illness and injuries. In the United States, 77% of all workers have access to paid sick leave but that number decreases along with incomes.[22] More than half of workers, 55%, in the lowest 25% of incomes have paid sick days. Paid sick leave is available to less than 40% of workers who have the lowest 10% of income have paid sick leave.[22] In North Carolina, employers are "not required to pay employees wage benefits such as vacation pay, sick leave, jury duty pay, and holiday pay" regardless of how many hours the worker puts-in each week.[23]

Medicaid Expansion will provide health coverage to more than 600,000 adults, age 19-64, in North Carolina.[4] While Expansion will increase access to health care, it is estimated that there will still be 700,000 adults in North Carolina without health insurance.[24] The number of uninsured adults after Expansion in Durham/Chapel Hill has been calculated to be 8.9%, or 60,000 individuals.[25]

Forty-two percent of individuals remaining uninsured in Durham/ Chapel Hill are in families with at least one non US citizen member. This area will have North Carolina's second smallest decrease in uninsured rate.[25]

Recommended Strategies

- Improve organizational health literacy by conducting assessments, implementing evidence-based strategies like the Teach Back method for all levels of personnel, simplifying written communication and improved integration of Community Health Workers in care teams.
- Advocate for paid sick leave for all workers in North Carolina.
- Expand patient navigation and benefits enrollment workforce to increase community understanding about NC Medicaid, Medicaid Expansion, and the Affordable Care Act, who qualifies and how to access. Ensure the workforce reflects Durham demographically and linguistically.
- Increase support and awareness about local programs that provide access to care for people who do not have health insurance like Lincoln Community Health Center, Project Access of Durham County, hospital charity care programs and free and charitable clinics.
- Increase the hours of operations as well as the number of community clinics to accommodate residents who cannot access health care services during work hours.
- Ensure that free and safe transportation is available to all in Durham who need it.
- Increase access to affordable broadband internet services, devices and digital literacy training to communities and individuals who are not able to use telehealth.
- Improve access to Social Security disability benefits for individuals with physical, mental, or complex health conditions.
- Advocate for continued support to health care providers who will continue providing access to care for individuals without health insurance after Medicaid Expansion.

Current Initiatives & Activities

Access to Care Committee (committee of The Partnership for a Healthy Durham) develops community and agency-based strategies to make measurable improvements in access to care for the uninsured and underinsured residents in Durham. http://www.healthydurham.org

NCCARE360 is the first statewide coordinated care network to better connect individuals to local services and resources. NCCARE360 is the first statewide network that unites health care and human services organizations with a shared technology that enables a coordinated, community-oriented, person-centered approach for delivering care in NC. The NCCARE360 Advisory Council meets to address any issues or concerns with the platform. https://nccare360.org/

Project Access of Durham County (PADC) links people without health insurance into a local network of clinics, laboratories, pharmacies, and hospitals that donate their efforts to those in need. Serves eligible low-income, uninsured Durham residents who have specialty medical care needs. http://projectaccessdurham.org

HELP-Health Equipment Loan Program is part of Project Access of Durham County. HELP accepts gently used durable medical equipment, refurbish it, sanitize it, and make minor repairs, and then loans to Durham County residents in need. http://www.projectaccessdurham.org/HELP/

Durham Homeless Care Transitions (DHCT) is an initiative led by Project Access of Durham County, Lincoln Community Health Center's Healthcare for the Homeless Clinic, and the Duke Outpatient Clinic.

Senior PharmAssist promotes healthier living for Durham seniors by helping them obtain and better manage needed medications and health education, Medicare insurance counseling, community referral, and advocacy. http://www.seniorphamassist.org

Lincoln Community Health Center (LCHC) provides accessible, affordable, high quality outpatient health care services to the medically underserved at one central clinic and nine satellite clinics. http://www.lincolnchc.org

Durham County Department of Public Health provides clinic services for targeted public health issues, offers outreach and case management particularly to reduce risk in children, pregnant women, and people with specific communicable diseases, and provides community education to promote health. https://www.dcopublichealth.org**The Duke Division of Community Health Benefits Enrollment Center (BEC)** helps people who have Medicare and don't have a lot of money. They help you find other programs like SNAP, Medicaid, Medicare Savings Program, Affordable Connectivity Program and Lifeline, as well as connections to local community resources. Services are free and available to all Medicare beneficiaries. https://fmch.duke.edu/patient-care-community-health/benefits-enrollment-center

Durham Technical Community College Community Health Worker Course (Non-credit) is designed to provide individuals with the required knowledge, tools, and resources to become recognized as a certified Community Health Worker (CHW) in North Carolina working in a variety of healthcare and community settings such as Health Departments, Hospitals, Federally Qualified Health Centers, Clinics, Faith-based Organizations. https://www.durhamtech.edu/continuing-education/community-health-worker-continuing-education-program

References

[1] U.S. Department of Health and Human Services, & Office of Disease Prevention and Health Promotion. *Access to Health Services*. https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/access-health-services
[2] Durham County. (2023). *Medicaid*. https://www.dconc.gov/county-departments/departments-f-z/social-services/family-economic-independence/medicaid
[3] Durham County Department of Public Health. (2023). *Medicaid Expansion with DCo Public Health & Social Services* [Video].
[4] North Carolina Office of the Governor. (2023). *Governor Cooper Signs Medicaid Expansion into Law* https://governor.nc.gov/news/press-releases/2023/03/27/governor-cooper-signs-medicaid-expansion-law
[5] City of Durham. Pertinent Facts About Durham North Carolina. In.
[6] North Carolina Department of Health and Human Services. *Community Health Workers*. https://www.ncdhhs.gov/divisions/office-rural-health/community-health-workers
[7] Lincoln Community Health Center. *About Us*. https://lincolnchc.org/?page_id=781
[8] County, P. A. o. D. *Vision, Mission*. https://projectaccessdurham.org/
[9] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[10] Center, S. H. https://www.samaritanhealthcenter.org/
[11] Senior PharmAssist. https://www.seniorpharmassist.org/
[12] Duke Family Medicine & Community Health. *Benefits Enrollment Center*. https://fmch.duke.edu/patient-care-community-health/benefits-enrollment-center
[13] U.S. Department of Health and Human Services. (2023). *New HHS Report Shows National Uninsured Rate Reached All-Time Low in 2023 After Record-Breaking ACA Enrollment Period* https://www.hhs.gov/about/news/2023/08/03/new-hhs-report-shows-national-uninsured-rate-reached-all-time-low-2023-after-record-breaking-aca-enrollment-period.html
[14] Sheen, R. (2023). National Uninsured Rate Reaches All-Time Low in 2023. *The ACA Times*. https://acatimes.com/national-uninsured-rate-reaches-all-time-low-in-2023/
[15] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023*. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[16] Agency for Healthcare Research and Quality (US). (2021). *2021 National Healthcare Quality and Disparities Report*. https://www.ncbi.nlm.nih.gov/books/NBK578537/
[17] U.S. Department of Health and Human Services, & Office of Disease Prevention and Health Promotion. *Increase the proportion of people with a usual primary care provider — AHS-07*. https://health.gov/healthypeople/objectives-and-data/browse-objectives/health-care-access-and-quality/increase-proportion-people-usual-primary-care-provider-ahs-07
[18] County Health Rankings & Roadmaps. *Compare Counties* https://www.countyhealthrankings.org/explore-health-rankings/compare-counties?year=2023
[19] U.S. Department of Health and Human Services, & Office of Disease Prevention and Health Promotion. *Social Determinants of Health*. https://health.gov/healthypeople/priority-areas/social-determinants-health
[20] Gertz, A. H., Pollack, C. C., Schultheiss, M. D., & Brownstein, J. S. (2022). Delayed medical care and underlying health in the United States during the COVID-19 pandemic: A cross-sectional study. *Preventive medicine reports*, *28*. https://doi.org/10.1016/j.pmedr.2022.101882
[21] City of Durham. (2021). *Let's Make GoDurham Bus Transit Better!* https://godurhamtransit.org/sites/default/files/godurhamprofile062021_ttidocument.pdf
[22] U.S. Bureau of Labor Statistics. (2023). *Higher paid workers more likely than lower paid workers to have paid leave benefits in 2022* (TED: The Economics Daily image, Issue.

https://www.bls.gov/opub/ted/2023/higher-paid-workers-more-likely-than-lower-paid-workers-to-have-paid-leave-benefits-in-2022.htm

[23] N.C. Department of Labor. *Promised Wages Including Wage Benefits*. https://www.labor.nc.gov/workplace-rights/employee-rights-regarding-time-worked-and-wages-earned/promised-wages-including-wage-benefits

[24] Floyd, C. (2023). Medicaid expansion approved: What that means for those left uninsured. *Spectrum News*. https://spectrumlocalnews.com/nc/charlotte/news/2023/04/27/medicaid-expansion

[25] Simpson, M., & Brett-Turner, E. (2022). *Who Would Gain Coverage under Medicaid Expansion in North Carolina?* https://www.urban.org/sites/default/files/2022-11/Who%20Would%20Gain%20Coverage%20under%20Medicaid%20Expansion%20in%20North%20Carolina.pdf

Section 4.04 *Crime and Safety*

Overview

Exposure to crime and violence can have short and long-term detrimental effects on one's overall well-being.[1] Due to factors including structural racism, poverty, and limited educational and employment opportunities, communities of color are disproportionately affected by violence and therefore more likely to experience its impacts on their mental and physical health.[2,3] Across the US, community gun violence – which typically occurs outside the home between unrelated individuals and is a growing concern for the Durham community – is more prevalent among American Indian/Alaska Native Black/African American, and Hispanic or Latina/o/x communities, which have the highest rates of firearm homicides.[4]

Experiencing violence in one's community, either directly or indirectly, is associated with a variety of negative health outcomes. These can include both chronic medical conditions such as cardiovascular disease, cancer, stroke, and asthma and mental illnesses such as depression, anxiety, and post-traumatic stress (PTS).[1] Furthermore, both direct and indirect exposure to violence can affect people's perception of their communities and erode their overall sense of safety.[1] In turn, this can have serious effects on one's health. For example, individuals who feel unsafe in their neighborhoods may self-report worse physical and mental health.[1] Those who have been exposed to gun violence may also be less likely to use community recreational facilities and parks.[1] Recognizing that crime and violence can have a considerable impact on public health, this section details recent trends related to crime and safety in the Durham community.

Primary Data

For the 2022 Durham County-Wide Community Health Assessment Survey, residents were asked which three issues had the greatest effect on quality of life. Violent crime received the second highest number of responses (19.5% of respondents), only ranking behind affordable housing (24.9% of respondents).[5] This marks a slight increase compared to the 2019 survey, when 17.2% of residents selected violent crime for this prompt. However, in that year, violent crime received the most responses, followed by affordable housing (12% of respondents).[6] In addition, multiple 2022 respondents who selected the "other" category specified that excessive gun violence is the issue with the greatest effect on quality of life.[5] Some residents even cited gun violence as the most important health problem in Durham County. Responses further indicate that violence is having an impact on locals' mental well-being, with 12.2% reporting neighborhood violence as a source of stress, up from 10.4% in the 2019 survey.[5,6]

The 2023 Durham County Community Health Assessment Comunidad Latina Survey revealed that 18.8% of respondents ranked violent crime second among factors with the greatest effect on quality of life behind substance abuse (25.6%).[5] Residents surveyed in this sample did not identify violent crime as a significant source of stress.

Although violent crime continues to be a concern for some Durham residents, survey results indicate that many also feel safe in their community. When asked which people, places, and things make the Durham community a good place to live, 21.5% of residents surveyed in the county-wide sample responded with safe neighborhoods, and 19.7% responded with less crime.[5] Nearly 20% of respondents to the Comunidad Latina sample cited safe neighborhoods when asked which people, places, and things made Durham a good place to live.[7] The 2022 City of Durham Resident

Survey reinforced these findings, with a majority of respondents reporting feeling safe when they walked alone in their neighborhood during the daytime (85.6%), engaged with Law Enforcement (62.7%), used City recreation centers (60%) and visited City parks (58.2%).[8]

Residents were additionally asked what could be done in Durham County to support them. Recommendations included less crime (3.9% of responses) and reducing gun violence (3.4% of responses).[5] In the 2022 City of Durham Resident Survey, nearly 60% identified continuing to prioritize crime reduction strategies and response efforts to create safer neighborhoods as the top focus area for Building a Safer Community Together.[8]

Youth Perceptions of Safety

Young people have expressed anxiety around violence in Durham County. The 2021 Durham Youth Listening Project, led by the City of Durham Office on Youth, found that many youth feel unsafe in their community.[9] This was frequently attributed to violence, as well as a lack of welcoming spaces and limited community mental health resources.[9]

School safety was a serious issue for Listening Project participants, who shared that guns, gang activity, and other types of violence created dangerous learning environments. Some participants raised concerns about school shootings, and some even felt that carrying a weapon was necessary to protect themselves on campus.[9] Others highlighted the presence of school resource officers on campus, who tended to make them feel less safe, and fears that they could get unfairly involved in the justice system.[9]

Similar themes arose in the Youth Behavior Risk Survey, which examines health risk behaviors and identifies safety concerns among Durham middle and high school students. In the 2021 survey, 23% of high schoolers reported knowledge of gang activity at school, a 66.5% decline from findings in the 2019 survey.[10] A new question for 2021 asked students how long it would take for them to acquire and be ready to fire a gun. According to the data, over a quarter of middle school students and more than one-fifth of high school students reported that they would need less than 24 hours to obtain and fire a gun. Some students – 4.8% of middle schoolers and 14.2% of high schoolers – felt so unsafe at school that they did not attend class at least once in the previous 30 days.[10]

Secondary Data

From 2019 – 2021, the Durham community experienced a 5.3% overall increase in violent crime.[11; 12] This is a reversal of the overall downward trend seen from 2016 – 2018, when violent crimes decreased by 13%.[6] From 2018 to 2021, the population of Durham County saw a modest increase of 3% from an estimated 316,739 to 326,126.[11; 12] Durham Police Department data from 2019 – 2021 shows increases in homicides, rapes, and aggravated assault.[12] The number of homicides increased to 47 in 2021, a 30% increase from 2019, while rapes rose by 5% and aggravated assaults by 13.9%.[11; 12] Robbery was the sole violent crime that decreased over this period, dropping by 13.4%.[12] Across the state, homicide rates increased by nearly 45% from 2019 to 2021 and aggravated assault by 15.2%; over the same period, rapes decreased by 5% and robberies by 26% statewide.[11; 12]

By contrast, property crimes decreased across all categories over this same period, declining overall by 10%.[11; 12] The biggest drop over this period was in burglaries, which were down by 24.8% over this period, followed by a 7% decrease in larcenies and a 1.6% decrease in motor vehicle thefts.[11; 12] Table 4.05(a) below provides additional details.

2019 – 2021 Crime Statistics, Durham Municipal Police					
	2019	**2020**	**2021**	**3-year Average**	**2019 – 2021 % Change**
Homicide	36	37	47	40	+30.6%
Rape	121	125	127	124	+5.0%
Robbery	627	627	543	599	-13.4%
Agg. Assault	1,263	1,662	1,439	1,455	+13.9%
Total Violent Crime	2,047	2,451	2,156	2,218	+5.3%
Burglary	1,982	1,940	1,491	1,804	-24.8%
Larceny	8,001	7,586	7,437	7,675	-7.0%
Motor Vehicle Theft	703	899	692	765	-1.6%
Total Property Crime	10,686	10,425	9,620	10,244	-10.0%

Table 4.05(a) Municipal Police Data, Durham 2019 – 2021.[11; 12]

Across the three year-period from 2019 – 2021, the average violent crime rate per 100,000 in Durham County was 742.6, with a high of 819.1 in 2020 and a low of 703.46 in 2019.[11; 12] When compared with peer counties, the violent crime rate in Durham was lower than rates observed in Cumberland County (average rate of 889.5) and Forsyth County (average of 841).[11; 12] This contrasts with findings from the prior three-year period, when Durham had the highest violent crime rate of these Counties.[11; 12]

Gun Violence

In addition to increases in violent crime, local Durham Police Data reveals concerning trends in gun violence. Over a five-year period from 2017 – 2021, a total of 160 individuals were fatally shot in Durham, while an additional 1,028 individuals were involved in non-fatal shooting incidents.[13] In 2020, gun violence incidents in Durham rose 66% from the prior year – a trend in line with nation-wide increases in gun violence.[13] While there were fewer shooting incidents overall in 2021, the number of fatal incidents increased by 24%.[13]

These incidents disproportionately impacted young Black males in the Durham community.[13] Throughout the five-year reporting period, 83.8% of all fatal shooting victims and 86.1% of all nonfatal shooting victims were African American/Black.[13] The majority of shooting victims were under the age of 35, and 89.4% of fatal shooting victims and 83.2% of nonfatal shooting victims were male.[13]

Juvenile Involvement

Across the state, violent crime among juveniles under age 18 declined by 32% from 2019 – 2021.[11; 12] This continued the downward trend from the previous three-year reporting period.[11; 12] Despite this overall decrease, there were more homicides, forcible rapes, and robberies in 2021 than in 2020.[12] Even though homicide arrests decreased by 12% from 2019 - 2021, homicide arrests rose by 26% from 2020 to 2021.[11; 12] Forcible rapes also dipped by 46% from 2019 to 2020 to increase by 55% in the following year.[11; 12] Aggravated assault arrests went up by 14% after dropping by

27% the prior year.[12] Property crimes steadily declined across all categories, dropping by 58.3% over the three-year period.[11; 12] The sharpest decrease was seen among larcenies, which dropped by 65.7%.[12] See Table 4.06(b) below for additional information.

Arrests by Offense Among Juveniles in NC, 2019 – 2021					
	2019	**2020**	**2021**	**3-year Average**	**2019 – 2021 % Change**
Homicide	49	34	43	42	-12.0%
Rape	41	22	34	32	-17.1%
Robbery	493	366	255	371	-48.3%
Agg. Assault	388	286	325	333	-16.2%
Total Violent Crime	971	708	657	779	-32.3%
Burglary	862	537	387	595	-55.1%
Larceny	2,309	1,269	792	1,457	-65.7%
Motor Vehicle Theft	300	295	267	287	-11.0%
Total Property Crime	3,471	2,101	1,446	2,339	-58.3%

Table 4.05(b) Arrests by Offense, Juveniles < 18 years of age, 2019 - 2021[11; 12]

During this same three-year period, juvenile complaints rose in Durham County. Complaints for juveniles ages 6-17 peaked in 2020, marked by a 770% increase in Violent Class A-E offenses, a 25% increase in Serious Class F-I/A1 offenses, and a slight increase of 6% in Minor Class 1 - 3 offenses.[14; 15] Despite a decrease in overall juvenile complaints in 2021, the total number of complaints received was still 17% higher than in 2019.[14-16] Further details are provided in table 4.06(c) below.

Durham County Juvenile Complaints 2019 - 2021						
Year	**Violent Class A – E**	**Serious Class F – 1, A1**	**Minor Class 1 - 3**	**Distinct Juveniles Detained**	**Detention Admissions**	**Youth Detention Center Commitments**
2019	17	217	233	46	89	1
2020	148	272	248	53	71	0
2021	67	269	219	45	58	0

Table 4.05(c) Complaints for juveniles ages 6-17 in Durham County, NC, 2019 – 2021.[14-16]

Interpretations: Disparities, Gaps, Emerging Issues

With violent crime once again trending upward, more residents are voicing their concerns about crime and violence – especially gun violence – in Durham County. In Durham, where African American or Black residents represent 35.3% of the population and 13.9% of residents identify as Hispanic or Latina/o/x decreasing violent crime is a critical step toward addressing health disparities.[17] Furthermore, these populations are more likely to be involved in the criminal legal system; in fact, African American or Black people are incarcerated in state prisons at five times

the rate of white Americans.[18] According to a report by the Sentencing Project, law enforcement officers are more likely to search Black or African American and Hispanic or Latina/o/x drivers that white drivers; however, data shows that they are more likely to discover drugs or weapons when they search white drivers' vehicles.[19] Despite similar rates of drug use across racial groups, Black individuals make up nearly a quarter of all arrests for drug violations while only representing 14% of the population.[19]

In 2020, the City of Durham established a Racial Equity Task Force to address system-level challenges in education, housing, health and environmental justice, and the criminal legal system. Among the Task Force's recommendations were strategies to end the criminalization of communities of color, specifically African American or Black and Hispanic or Latina/o/x residents.[20] These strategies included but were not limited to (1) decriminalizing mental illness, substance use, and poverty; (2) ensuring that jury pools reflect the diverse Durham community; (3) support alternatives to incarceration; (4) encouraging law enforcement to work with institutions to collect actionable data on racial disparities; (5) create a community review board with subpoena power to ensure accountability among law enforcement officers; and (6) continue to support victims of crime, regardless of immigration status.[20]

Recommended Strategies

- Implement evidence-based programming to address youth violence and create safe learning environments (e.g., school-based anti-bullying programming).[21]
- Support the development, continuation, and expansion of mentoring and enrichment-focused programs for youth to reduce delinquency.[21]
- Strengthen partnerships between law enforcement, community organizations, and government agencies to address public safety issues through a community policing lens.[21]
- Expand access to appropriate mental health services, substance use treatment, and wraparound supports for individuals with justice system involvement.[21]

Current Initiatives & Activities

Bull City United launched by Durham County Government in 2016 and utilizes the evidence-based Cure Violence strategy to address gun violence in six Durham census tracts.

Durham County Justice Services Department promotes public safety through support for the local criminal justice system while supervising and rehabilitating justice-involved individuals through a wide array of supportive services. https://www.dconc.gov/county-departments/departments-f-z/justice-services

Durham Partners Against Crime (PAC) is a community-based volunteer organization that promotes collaboration among police officers, Durham residents, and city and county government officials to find sustainable solutions to community crime issues and improve quality of life. https://www.durhamnc.gov/CivicAlerts.aspx?AID=3495&ARC=5130

Durham Police Department (DPD): The Crisis Intervention Team connects individuals with behavioral health and substance use issues to community-based care, instead of incarceration. The Community Resource Unit educates residents and businesses in best practices and strategies for

crime prevention. Community Liaison Officers serve to build strong police-community partnerships with LGBTQ and Hispanic/Latino/a/x populations through diversity training, assistance in investigations, and community events. https://www.durhamnc.gov/149/Police

Project BUILD is a multi-disciplinary gang intervention program that provides coordinated case management and services to youth and young adults between the ages of 14 and 21 who are at high risk of gang involvement. https://www.dconc.gov/county-departments/departments-f-z/justice-services/project-build

Creating Healthy Opportunities Inspiring Children to Have Everyday Success (CHOICES) Program offers youth ages 11-15 a chance to learn about the life-altering consequences of criminal activity and pairs youth with either a detention officer or a deputy who commits to mentoring the participant for the remainder of the program. https://www.durhamsheriff.com/services/community-programs-outreach/choices-youth-program

Misdemeanor Diversion Program (MDP) is a 90-day diversion program for young adults ages. 18-26 who have committed first-time misdemeanors (except firearm, sexual, and traffic offenses) to help them avoid any future arrests. https://www.dconc.gov/county-departments/departments-f-z/justice-services/misdemeanor-diversion-program

Juvenile Crime Prevention Council (JCPC) reviews the needs of juveniles in Durham County who are at risk of delinquency and evaluates the resources available to meet those needs. https://www.dconc.gov/county-departments/departments-f-z/justice-services/juvenile-crime-prevention-council

References

[1] U.S. Department of Health and Human Services. *Crime and Violence* (Healthy People 2030, Issue. https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries/crime-and-violence
[2] Wilson, W. J. (2012). *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy* (Second ed.). University of Chicago Press. https://doi.org/10.7208/chicago/9780226924656.001.0001
[3] Kameron J. Sheats, P., Shalon M. Irving, P., Jim A. Mercy, P., Thomas R. Simon, P., Alex E. Crosby, M., Derek C. Ford, P., Melissa T. Merrick, P., Francis B. Annor, P., & Rachel E. Morgan, P. (2018). Violence-Related Disparities Experienced by Black Youth and Young Adults: Opportunities for Prevention. *American Journal of Preventative Medicine*, *55*(4), 462-469. https://doi.org/https://doi.org/10.1016/j.amepre.2018.05.017
[4] Centers for Disease Control and Prevention. (2022). *Community Violence Prevention*. https://www.cdc.gov/violenceprevention/communityviolence/index.html
[5] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[6] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2021). *Durham County Community Health Assessment 2020*. https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000
[7] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023*. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[8] ETC Institute. (2023). *2022 Durham County Resident Survey Findings Report*. https://www.dconc.gov/home/showpublisheddocument/38594/638137035308500000
[9] Ortiz, A., Brown, E., & The City of Durham Office on Youth (OOY). (2021). *Youth Listening Project*. https://www.durhamnc.gov/DocumentCenter/View/36680/Durham-Youth-Listening-Project-Report-2021
[10] Durham County Department of Public Health. (2021). *2021 Durham County Youth Risk Behavior Survey*. https://healthydurham.org/cms/wp-content/uploads/2023/09/YRBS-Report-FINAL.pdf
[11] North Carolina State Bureau of Investigation. (2020). *Crime in North Carolina - 2019*. https://www.ncsbi.gov/Services/SBI-Statistics/SBI-Uniform-Crime-Reports/2019-Annual-Summary.aspx
[12] North Carolina State Bureau of Investigation. (2022). *Crime in North Carolina - 2021*. https://www.ncsbi.gov/Services/Crime-Statistics/Crime-in-North-Carolina-Annual-Summaries/2021-Annual-Summary.aspx
[13] Cook, P. J., & Vila, A. (2023). *Gun Violence in Durham, NC, 2017-2021: Investigation and Court Processing of Fatal and Nonfatal Shootings*. https://wcsj.law.duke.edu/wp-content/uploads/2023/03/2023-Gun-Violence-in-Durham.pdf
[14] North Carolina Department of Public Safety. (2020). *2019 County Databook*. https://www.ncdps.gov/our-organization/juvenile-justice/community-programs/juvenile-crime-prevention-councils/jcpc-planning-process/county-databooks
[15] North Carolina Department of Public Safety. (2021). *2020 County Databook*. https://www.ncdps.gov/our-organization/juvenile-justice/community-programs/juvenile-crime-prevention-councils/jcpc-planning-process/county-databooks
[16] North Carolina Department of Public Safety. (2022). *2021 County Databook*. https://www.ncdps.gov/our-organization/juvenile-justice/community-programs/juvenile-crime-prevention-councils/jcpc-planning-process/county-databooks
[17] United States Census Bureau. (2022). *U.S. Census Bureau quickfacts: Durham County, North Carolina*. https://www.census.gov/quickfacts/durhamcountynorthcarolina

[18] Essex, A., & Hartman, M. (2022). *Racial and Ethnic Disparities in the Criminal Justice System*. https://documents.ncsl.org/wwwncsl/Criminal-Justice/Racial-and-Ethnic-Disparities-in-the-Justice-System_v03.pdf

[19] Ghandnoosh, N., & Barry, C. (2023). *One in Five: Disparities in Crime and Policing*. https://www.sentencingproject.org/reports/one-in-five-disparities-in-crime-and-policing/

[20] Durham Racial Equity Task Force. (2020). *Report of the Durham Racial Equity Task Force: An Urgent and Loving Call to Action*. https://www.durhamnc.gov/DocumentCenter/View/32853/FINAL-REPORT-Durham-Racial-Equity-Task-Force-72220

[21] County Health Rankings & Roadmaps. *Strategies: Policies and programs that work.* https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies?f%5B0%5D=health-factor%3ACommunity+Safety

Chapter 5
Health Promotion

Photo Courtesy of Discover Durham

This chapter includes:

- Physical Activity
- Nutrition and Food Access
- Resilience and Protective Factors

Section 5.01 *Physical Activity*

Overview

Physical activity is one of the best ways to improve one's health, with an abundance of health benefits. Examples include protection of bones, joints, and muscles, prevention of falls, weight management, and even reducing the risk of developing certain cancers.[1] Not only can physical activity have an effect physically, but it also reduces one's risk of depression and anxiety and improves one's sleep.[1]

The World Health Organization (WHO) defines physical activity as "any bodily movement produced by skeletal muscles that requires energy expenditure".[2] Physical activity includes activities such as vacuuming, walking from the car to the grocery store, washing dishes, and playing with your children. This is different from exercise, which is defined as "planned, structured, repetitive and intentional movement intended to improve or maintain physical fitness".[3] Exercise is one type of physical activity, and includes running, biking, dancing, and lifting weights, as a few examples.

Current physical activity guidelines from the United States Department of Health and Human Services (USDHHS) differ among age groups and abilities. Children ages three to five should be physically active throughout the day to enhance growth and development.[4] Youth ages six through seventeen years old should get 60 minutes or more of moderate-to-vigorous physical activity per day.[4] Moderate physical activity is defined as activity that raises one's heart rate enough that they can talk but not sing, while vigorous physical activity makes it very difficult to say more than just a few words.[4] Adults should aim for at least 150-300 minutes of moderate-to-vigorous physical activity each week, choosing both cardiovascular and muscle-strengthening exercises.[4]

These numbers may seem intimidating to some, but any movement is better than none. People who sit more and move less throughout the day have an increased risk of all-cause mortality and an increased risk of developing type II diabetes, cardiovascular disease, and colon, endometrial, and lung cancers.[4]

Primary Data

2022 Durham County Community Health Assessment Survey

The most popular form of physical activity among Durham residents was walking (67.8%), followed by lifting weights (23.9%), and gardening (20.5%), which were the same top three as 2019.[5; 6] Although these top three were the identical, physical activity and exercise participation declined across the board. For example, in 2019, over 80% of Durham County residents listed walking as their primary form of exercise, but in the latest survey this was less than 70%.[5; 6] Most residents listed their home (46%) and neighborhood (45%) as where they exercise the most, and 24% of respondents said they mainly exercise at a gym.[6] For the 11 individuals who responded they do not exercise, most reported not being able to do so physically, followed by not liking to exercise and being intimidated to try something new.[6] Thirty-seven percent of respondents from the 2022 county-wide survey said they use physical activity and exercise to deal with stress, an increase from 33.7% in the 2019 Durham County Community Health Assessment Survey.[5; 6]

2023 Durham County Comunidad Latina Community Health Assessment Survey

There were 176 responses to Comunidad Latina Community Health Assessment Survey questions about physical activity.[7] Most of these residents (55.7%) listed walking as their primary form of exercise, with the next highest response of "I don't exercise" (22.7%). Nearly 32% of respondents who exercise chose to do so in their neighborhood, 25.6% at a park, and 14.2% chose to exercise at home.[7] Of the 40 residents who said they do not exercise, most responded that they don't have time to exercise (37.5%), while 27.5% said that their job includes physical labor.[7]

Community Improvements to Increase Physical Activity

Respondents to the 2022 Durham County County-Wide Community Health Assessment Survey list more and safer sidewalks (49%), more access to off-road paths or trails (37%) and safer crosswalks (33%) as the most common improvements to increase the number of community members walking as exercise.[6] Top responses in the Durham County Comunidad Latina Community Health Assessment Survey were as follows: a walking group or program (36.9%), access to off road paths or trails (25.6%), safer neighborhoods (23.9%), more sidewalks (21%), and better lighting (19.2%).[7]

Percentage of Responses to the Question: Whether you currently walk or not, what would make you want to walk more?

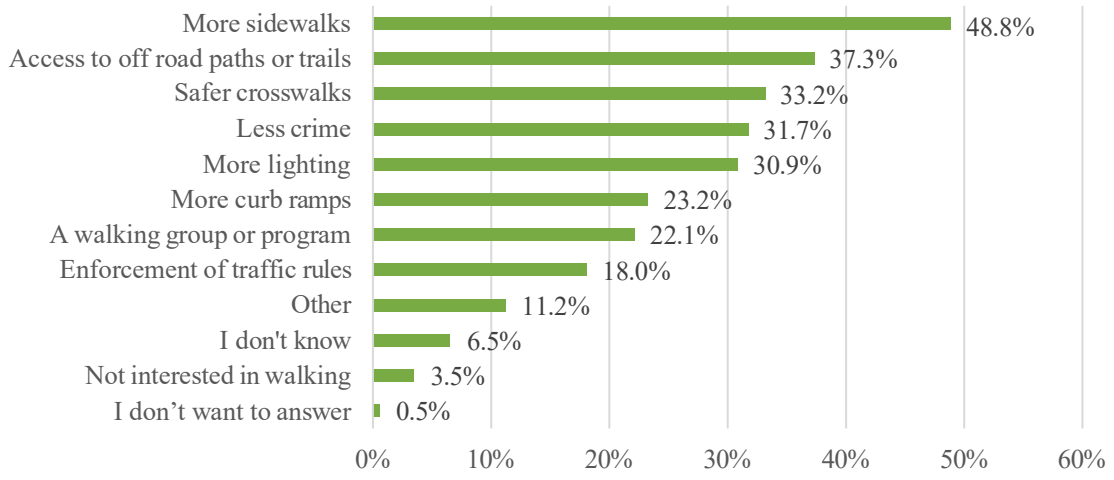


Figure 5.01 (a) Improvements Needed to Increase Walking, County-Wide Survey, Durham, 2022.[6]

Percentage of Responses to the question: Whether you currently walk or not, what would make you want to walk more?

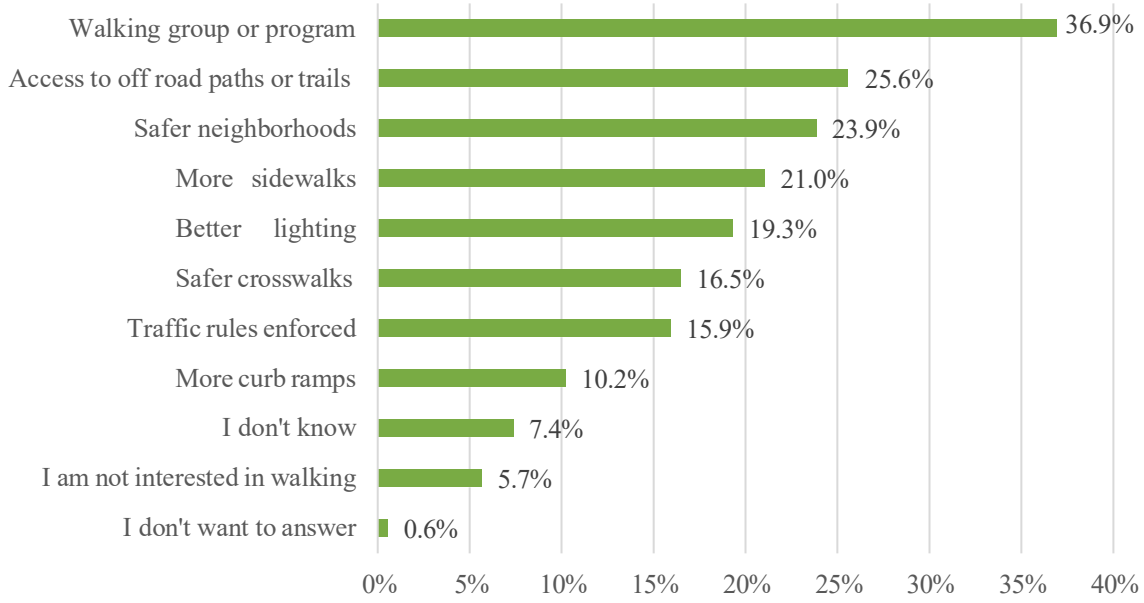


Figure 5.01 (b) Improvements Needed to Increase Walking. Comunidad Latina Survey, Durham, 2023.[7]

Secondary Data

Adult Physical Activity Data from County Health Rankings, North Carolina

County/Region	Percentage of adults 18 and over reporting no leisure-time physical activity (data from 2020)	Percentage of population with adequate access to locations for physical activity (data from 2020, 2022)
Durham	21%	90%
Orange	16%	83%
Wake	16%	90%
Chatham	19%	71%
North Carolina	22%	75%
United States	22%	84%

Table 5.01 (a) Adult Physical Activity Data from 2020, 2022 for Durham County, Neighboring Counties, North Carolina, and the United States.[8]

Adult Physical Inactivity Prevalence Maps by Race/Ethnicity from Behavioral Risk Factor Surveillance System (BRFSS), North Carolina, 2017-2020

Race/Ethnicity	Rate of Physical Inactivity
Non-Hispanic Asian Adults	17.2%
Non-Hispanic White Adults	22.9%
Non-Hispanic American Indian/Alaska Native Adults	31.3%
Non-Hispanic Black Adults	26.8%
Hispanic Adults	33.8%

Table 5.01 (b) Adult Physical Inactivity Data from 2017-2020 by Race/Ethnicity in North Carolina.[9]

Durham Public Schools, along with the Durham County Department of Public Health, conducted the Youth Risk Behavior Survey (YRBS) to assess health and well-being of middle and high school students in 2021.[10] Approximately 21.5% of middle school students and 16.9% of high school students meet the 60 minutes per day of physical activity recommended by the USDHHS.[10] They found that middle schoolers were more likely to meet physical activity guidelines than high schoolers.[10] One in three middle school students attends physical education (PE) classes five days a week.[10] Across race and ethnicity, Black or African American students were almost twice as likely to meet physical activity guidelines than other groups, and white students were over twice as likely than Hispanic or Latina/o/x students.[10]

As seen in Table 5.01 (a), Durham County has a higher percentage of adults with adequate access to physical activity locations when compared to neighboring Orange and Chatham Counties, the state of North Carolina, and the United States as a whole. However, despite higher access, there are more residents in Durham County reporting physical inactivity than these other areas.

Table 5.01 (b) shows the rates of physical inactivity in adults among different races/ethnicities in North Carolina overall. From this data, Hispanic or Latina/o/x adults and Non-Hispanic American Indian/Alaska Native adults report the highest rates of physical inactivity in North Carolina. Similar data is found in most of the Southeastern states, except that North Carolina sees higher rates of physical inactivity among Non-Hispanic Asian adults and Non-Hispanic white adults. This is the most recent data received from the nationwide Behavioral Risk Factor Surveillance System (BRFSS) and provided by the Centers for Disease Control and Prevention (CDC).[9] For many people in these groups, circumstances out of their control have made them vulnerable to poor health and behaviors, which will be discussed in the next section.

Interpretations: Disparities, Gaps, Emerging Issues

As discussed earlier, physical activity has decreased overall since the previous Durham County Community Health Assessment Survey in 2019. A possible reason for this decrease is the COVID-19 pandemic which changed many residents' lifestyles and behaviors.

There are many factors that play a role in an individual's health, oftentimes out of their control. Examples include systemic racism, discrimination, economic barriers and wealth, and social inequalities that have existed for centuries and continue to affect communities.[11] These same

factors can influence physical activity levels and preferences. Residents who have higher incomes and live in more socially desirable areas are found to have higher physical activity rates than those who do not make as much. In the 2019 Survey of Consumer Finances, it was found that the typical white family has up to eight times more net worth than other demographic groups.[12; 13] Physical activity levels are also generally higher among groups that have received a higher education.[14] Those with higher incomes and educational levels tend to live in neighborhoods that have infrastructure conducive for physical activity. Although this information is not specific to Durham, it is important to keep in mind when determining how to improve access and participation to physical activity.

Results from the 2023 Durham County Comunidad Latina Community Health Assessment Survey show higher physical inactivity levels in Hispanic or Latina/o/x neighbors than the county-wide sample in Durham. But, due to the sample size in the county-wide survey, we are unable to determine any other demographic differences.[7] There may be some important cultural differences in the Hispanic or Latina/o/x population. For example, Latina/x women are more successful in meeting physical activity guidelines and goals when they can participate with their social network or within larger gatherings and environment plays a big part.[15]. It is important to investigate ways to increase social opportunities for physical activity along with potential environmental barriers, like safety of the neighborhoods, sidewalks, and physical activity resource access.

Recommended Strategies

There are multiple gaps in data and information surrounding physical inactivity in specific demographics and areas in Durham. Because of this, it is important for the Durham County Department of Public Health, Partnership for a Healthy Durham, Duke Health, and other community groups to talk more in-depth with community members and listen to challenges that prevent everyone from meeting physical activity guidelines. Community conversations, or community listening sessions, are conversations held with the intended audience to learn what is needed, barriers to health, assets, and how to move forward.

There are various evidence-based strategies to improve physical activity provided the Centers for Disease Control and Prevention (CDC) and the Community Preventive Services Task Force (CPSTF), but not all of them will benefit each community in the same way. Using the data gathered in the 2022 Durham County Community Health Assessment County-Wide Survey, the following are recommended strategies to work towards in Durham.

1) Finding avenues to increase physical activity during school time is a strategy that should be further investigated. Students spend at least seven hours a day, five days a week in school. Recommended strategies include marketing and educating schools on how to promote physical activity to students.[16]
2) Promoting engagement with Durham's Healthy Mile Trails (HMTs) is another opportunity to increase physical activity. HMTs are one-mile loops along neighborhood or park sidewalks with limited elevation changes that provide safe and accessible places to be active.[18] Residents interested in creating one in their neighborhood work with the Durham County Department of Public Health and the Partnership for a Healthy Durham to identify where they could be placed, and then assist with the trail creation.
3) It is also important to increase awareness throughout the community about how residents can be physically active, as well as provide more opportunities. This can include family-

based interventions, home-based interventions, and other socially supportive interventions.[20]

This is not an exhaustive list. The Partnership for a Healthy Durham, along with the Durham County Department of Public Health and other community groups need to work with community members to best identify how to improve physical activity and, in turn, improve quality of life among all who live in Durham. For residents worried about injury or who have chronic conditions that impact health and/or mobility, it is recommended to speak with their doctor to determine the physical activity recommendations.

Current Initiatives & Activities

Durham Center for Senior Life (DCSL)
DCSL is a non-profit organization designed to offer an array of programs and services for older adults in Durham. Services that encourage physical activity include exercise classes and access to a fitness center. Physical activity programs provided by DCSL include Matter of Balance and Bingocize. https://dcslnc.org/services/

Durham Parks and Recreation
Durham Parks and Recreation (DPR) provides opportunities for the Durham community to get outside, explore, and enjoy life through recreation that will contribute to their physical, emotional, and social health. One initiative of DPR, "MyDurham," aims to engage youth in afterschool activities for peer support, health promotion, and physical activity in a developmental setting. https://www.dprplaymore.org/

Durham Open Space and Trails Commission (DOST)
DOST advises City officials on matters related to preserving open space and trails throughout the City of Durham. They help guide decisions that can have an impact on trails, recreation, and transportation facilities for pedestrians and bicyclists in the area.
www.durhamnc.gov/1652/Durham-Open-Space-and-Trails-Commission-

Bike Durham
Bike Durham believes that everyone should have access to safe, affordable, and sustainable transportation regardless of who they are or where they live. Through events, advocacy, and education, Bike Durham empowers all people to walk, bike, and ride transit more often. https://bikedurham.org/

YMCA of the Triangle
The YMCA is committed to improving the nation's health and well-being, along with Youth Development and Social Responsibility. There are multiple locations in Durham County, as well as programs aimed to prevent or manage chronic health conditions through physical activity.
https://www.ymcatriangle.org/

Bull City Fit
Bull City Fit is A community-based wellness program in Durham that offers free evening and weekend activity sessions that encourage and promote active living. This includes the Healthy

Lifestyles Program, a childhood obesity treatment clinic for children with a BMI over the 95th percentile and their families. https://bullcityfit.com/

Playworks Southeast
Playworks helps kids stay active and build valuable social and emotional skills through play.
https://www.playworks.org/southeast/

Partnership for a Healthy Durham: Physical Activity, Nutrition, Food Access Committee (PANFA)
PANFA is comprised of community members and organizations, both small and large, that have a common goal of working to improve the health and wellbeing of Durham County residents through physical activity, school nutrition, and improved food access. The group is housed in the Durham County Department of Public Health and meetings are held virtually each month for all that are interested in the work. healthydurham.org

Eat Smart, Move More North Carolina
A statewide movement that promotes opportunities for physical activity, as well as healthy eating, in all places people live, learn, earn, play, and pray.
https://www.eatsmartmovemorenc.com/who-we-are/

Black Girls Run
The goal of "Black Girls Run" is to encourage and motivate black women to practice a healthy lifestyle. They want to serve as a fitness resource for runners and gym rats alike, as well as provide tips and commentary on staying active and maintaining a healthy lifestyle.
https://www.facebook.com/groups/BlackGirlsRUNRaleigh/ and https://blackgirlsrun.com/

References

[1] Centers for Disease Control and Prevention. (August 1, 2023). *Benefits of Physical Activity*. https://www.cdc.gov/physicalactivity/basics/pa-health/index.htm
[2] World Health Organization. (2022). *Physical activity*. https://www.who.int/news-room/fact-sheets/detail/physical-activity
[3] Gummelt, D. (2015). *Physical Activity vs. Exercise: What's the Difference?* https://www.acefitness.org/resources/everyone/blog/5460/physical-activity-vs-exercise-what-s-the-difference/
[4] US Department of Health and Human Services. (2018). *Physical Activity Guidelines for Americans* https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf
[5] Durham County Department of Public Health, Partnership for a Health Durham, & Duke Health. (2021). *Durham County Community Health Assessment 2020*. https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000
[6] Durham County Department of Public Health, Partnership for a Healthy Durham, & Duke Health. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[7] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023*. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[8] County Health Rankings & Roadmaps. *Health Behaviors*. University of Wisconsin Population Health Institute School of Medicine and Public Health. https://www.countyhealthrankings.org/explore-health-rankings/county-health-rankings-model/health-factors/health-behaviors
[9] Centers for Disease Control and Prevention. (2022, February 17, 2022). *Adult Physical Inactivity Prevalence Maps by Race/Ethnicity*. Division of Nutrition, Physical Activity and Obesity

National Center for Chronic Disease Prevention and Health Promotion. https://www.cdc.gov/physicalactivity/data/inactivity-prevalence-maps/index.html
[10] Durham County Department of Public Health. (2021). *2021 Durham County Youth Risk Behavior Survey*. https://healthydurham.org/cms/wp-content/uploads/2023/09/YRBS-Report-FINAL.pdf
[11] National Academies of Sciences Engineering and Medicine. (2023). *Federal Policy to Advance Racial, Ethnic, and Tribal Health Equity*. T. N. A. Press. https://doi.org/10.17226/26834
[12] Hawes, A. M., Smith, G. S., McGinty, E., Bell, C., Bower, K., LaVeist, T. A., Gaskin, D. J., & Jr., R. J. T. (2019). Disentangling Race, Poverty, and Place in Disparities in Physical Activity. *International Journal of Environmental Research and Public Health*, *16*(7). https://doi.org/https://doi.org/10.3390/ijerph16071193
[13] Bhutta, N., Chang, A. C., Dettling, L. J., & Hsu, J. W. (2020). Disparities in Wealth by Race and Ethnicity in the 2019 Survey of Consumer Finances. *FEDS Notes*. https://www.federalreserve.gov/econres/notes/feds-notes/disparities-in-wealth-by-race-and-ethnicity-in-the-2019-survey-of-consumer-finances-20200928.html
[14] Scholes, S., & Bann, D. (2018). Education-related disparities in reported physical activity during leisure-time, active transportation, and work among US adults: repeated cross-sectional analysis from the National Health and Nutrition Examination Surveys, 2007 to 2016. *BMC Public Health 18*(926). https://doi.org/https://doi.org/10.1186/s12889-018-5857-z
[15] Larsen, B. A., Pekmezi, D., Marquez, B., Benitez, T. J., & Marcus, B. H. (2013). Physical Activity in Latinas: Social and Environmental Influences. *Women's Health*, *9*(2), 201-210. https://doi.org/https://doi.org/10.2217/WHE.13.9

[16] Centers for Disease Control and Prevention, O. o. P., Performance, and Evaluation,. (2018). *School-based Programs to Increase Physical Activity*. https://www.cdc.gov/policy/hi5/physicalactivity/index.html

[17] Centers for Disease Control and Prevention, & Office of Policy Performance and Evaluation. (2018). *Safe Routes to School (SRTS)*. https://www.cdc.gov/policy/hi5/saferoutes/index.html

[18] Partnership for a Health Durham. *Healthy Mile Trails*. https://healthydurham.org/committees/physical-activity-nutrition-and-food-access/healthy-mile-trails

[19] Community Preventive Services Task Force (CPSTF). *Increasing Physical Activity: Built Environment Approaches*. https://www.thecommunityguide.org/media/pdf/OnePager-Physical-Activity-built-environment.pdf

[20] Community Preventive Services Task Force (CPSTF). (2022). *CPSTF Findings for Physical Activity*.

Section 5.02 *Nutrition and Food Access*

Overview

Household food and nutrition security is having enough nutritious food for all members of a household to lead active and healthy lives. Food and nutrition security is interconnected with and impacted by poverty, housing costs, wages, healthcare, and transportation, at the very least. Vulnerable communities have persistently been affected by these socioeconomic, educational, and environmental disadvantages and therefore, have experienced more challenges in food access and poorer nutrition-related health outcomes.[1] Individuals with food insecurity are at increased risk of negative health outcomes and have higher rates of chronic disease. In addition, children with food insecurity face higher rates of hospitalization and risks of developmental and social concerns.[2; 3]

Primary Data

Nutrition/Quality of Diet

Healthy eating is a challenge facing all communities in Durham County. The most common reason given by participants for not eating healthy all the time in the 2022 County-Wide Community Health Assessment Survey (CW) was healthy eating took too much time (30%) followed by the cost of food (20%).[4]

According to the 2021 Behavioral Risk Factor Surveillance Survey (BRFSS), only 10% of residents in region five of North Carolina (which includes Durham County) consumed fruits, vegetables, or beans five or more times per day.[5] This is a 5% decrease since 2019 and is below the state average. Eighteen percent of residents eat vegetables fewer than one time per day and 40% eat fruit fewer than one time per day.[6; 7] In North Carolina, just 11% of adults are consuming the recommended amount of fruit; just 9.5% are consuming the recommended serving of vegetables.[8] This is concerning, because it is lower than the recommendation from the Dietary Guidelines for Americans for adults to consume 1.5-2 cup-equivalents of fruits and two to three cup-equivalents for vegetables as part of a healthy dietary pattern.[9]

Of respondents to the 2022 Durham County County-wide CHA survey, 20% reported having a sugary drink at least once per day during the previous seven days.[4] In the Durham County 2019 Youth Risk Behavior Survey (YRBS), 18% of high school students reported drinking a sugar-sweetened beverage at least once a day.[10] Sugary drinks are linked to numerous negative impacts on health, as outlined in the secondary data section below.

Food Insecurity and Food Access

Food security and access is a critical issue in Durham County. Food insecurity statistics are hard to quantify because of the impacts of the COVID-19 pandemic. COVID-19 made surveying residents and getting accurate data difficult. There were also many emergency food programs that assisted Durham residents with acquiring food. With the end of the federal emergency many of these programs ended in June 2023 after most of the data in this report was collected. Thus, Durham County household food insecurity is likely more acute than is described below.[11]

According to the 2022 Durham County County-wide CHA survey, 9% of survey respondents stated the cost of food has the greatest impact on their quality of life. Furthermore, 12% of respondents said they sometimes skipped or cut the size of their meal because they did not have enough money to buy food, a description of very low food security. Nearly 17% of survey

respondents who self-identified as food insecure worried that food would run out before they had money to purchase more.[4]

Enrollment in Food and Nutrition Services (FNS, also known as SNAP/EBT and formerly known as food stamps) has increased since the pandemic started, with 12% of Durham County's households currently receiving FNS.[12; 13] FNS does not cover all food needs. The 2022 Urban Institute SNAP data tool shows that FNS benefits (~$2.73 benefit per meal) would not cover the cost of an average, moderately priced meal in Durham (~$3.26).[14] Not all food insecure households are eligible for FNS assistance and not all eligible households participate in the program.[15]

Most 2022 CW CHA survey respondents (92%) buy the food they eat at home from a grocery store. The second most common source of food is supercenters such as Walmart or Target. Ninety-two percent drive a car to get the food they eat at home. However, 6% of survey respondents report walking, 3% biking, and 1% use public transportation (bus). To note, participants could pick more than one response for mode of transportation. Over half of survey respondents reported it takes them five-10 minutes one-way to get to food (56%), and 3% of people traveled for over 20 minutes.[4]

According to the USDA's Economic Research Service's Food Access Research Atlas, eight census tracts in Durham County did not have a grocery store within one mile.[16] There are two tracts located around Roxboro Road in North Durham, one near Morreene Road, three near North Carolina Central University and two that surround Miami Boulevard. This data was collected prior to the closure of Los Primos Supermarket in Northeast Central Durham, a result of gentrification-driven rent hikes.[17]

Secondary Data

Nutrition/Diet Quality

Eating a balanced diet comprised of whole grains, fruits, vegetables, lean proteins, and good sources of calcium helps to prevent malnutrition and lowers the risk of many diseases including diabetes, heart disease, stroke, and cancer, and improves mental health.[18] Conversely, consuming a diet high in ultra-processed foods is linked with increased risks of cancer, type-two diabetes, cardiovascular diseases, irritable bowel syndrome, depression, asthma, and all-cause mortality.[19] Ultra-processed refers to a large category of industrial processed, highly palatable, ready to eat foods that generally include numerous additives and few whole food ingredients. Examples include instant soup, reconstituted meat, sweet breakfast cereals, industrially produced baked goods, and many more. Despite these risks, consumption of ultra-processed food represented 56% of all calories consumed by adults in 2018.

The consumption of sugar-sweetened beverages (SSBs) is linked to many health consequences including increased risk for weight gain, type 2 diabetes, tooth decay, hypertension, and cardiovascular disease.[20; 21] Although sugary beverage consumption is declining nationally, there is evidence to suggest that continued consumption is linked to advertising.[22] For every additional 100 television ads seen for SSBs, consumption of these drinks among youth increases 9%.[23] This is unsurprising given the extensive marketing campaigns aimed at encouraging people, especially youth of color, to consume SSBs.[24]

Food Insecurity and Food Access

Food insecurity is linked to negative developmental, behavioral, and academic outcomes for children.[1] Nationally, due to historically racist policies, Black or African American and Hispanic or Latina/o/x households experience higher rates of food insecurity than white, non-Hispanic households.[25] Additionally, older adults are at higher risk. Feeding America's 2021 senior hunger report found that nationally an estimated 7% of adults age 60 or older are food insecure.[26] Older adults who are food insecure face an associated 11% increase in healthcare costs.[1] Additional studies have shown that low-income, food-insecure adults are at higher risk of chronic disease and obesity. Furthermore, children who are food insecure may have increased risk for negative effects to their developmental, physical, and mental health.[3]

United States Department of Agriculture (USDA) food assistance programs have been shown to increase participants' food security, diet quality, long-term health, educational attainment, and economic self-sufficiency.[27] Studies found evidence that assistance in early childhood leads to high earning potential in adulthood and links the programs to healthier birth weights, lower stress hormones, higher academic achievement, and overall improved health outcomes.[28] However, enrollment remains low. In 2020, 56% of eligible individuals were enrolled in the NC Women, Infants, and Children (WIC) program and in 2019, 69% in the NC FNS program. Recently, federal waivers (starting in March 2020) resulted in greater flexibility in enrolling in these programs because of the COVID-19 pandemic. These were significant but temporary (due to most waivers ending between February and October 2023) increases in FNS and WIC enrollment; North Carolina had the country's greatest increase in WIC participation with rates increasing by 21% between February 2020 and February 2022.[1; 29]

Additionally, climate change has been shown to negatively impact food security due to disruptions in all parts of the food system. As climate change progresses, food security will continue to be affected in a variety of ways including reduced access to food and disruptions in food availability. Materially poor populations are at greatest risk of food security from climate change.[30]

Interpretations: Disparities, Gaps, Emerging Issues

Disparities

In 2022, Durham County residents, there are clear disparities with respect to food and nutrition access. There are racial disparities among food insecure residents: 39% of Hispanic or Latina/o/x residents and 15% of Black residents identify as food insecure compared to 7% of white residents in the county-wide survey.[31] Durham's Black or African American and Hispanic or Latina/o/x residents are more likely than whites to cut the size of meals or skip meals due to a lack of money.[4]

Households with children are significantly more likely to experience food insecurity.[25] For the 2022-2023 school year, more than half (55%) of students in Durham Public Schools were eligible for free or reduced-price school lunches.[32] According to the 2021 YRBS, 64% of middle schoolers and 77% of high school students reported not eating breakfast on all seven days during the seven days prior to taking the survey. Females and Black and Hispanic or Latina/o/x students were less likely to eat breakfast on all seven days.[33]

Gaps

In 2021, the University of Wisconsin Population Health Institute assessed Durham County's food environment through their County Health Ranking program. Durham County was issued a 7.7 out of 10 based on access to healthy foods, the population living in poverty, and proximity to a grocery

store, but a more local assessment is needed.[34] A Food System Assessment (FSA), a way to evaluate the local food environment and value chain, is planned by the Durham County Cooperative Extension but not complete.[35] Until this is complete, identifying gaps in the local food environment and making an improvement plan is more challenging.

Emerging Issues:

As Durham continues to grow, ongoing support is needed to ensure affordable housing options are available.[36] In Durham County, the living wage – a wage needed to meet basic needs without assistance-would be $17.60 per hour as opposed to the current state minimum wage which is $7.25. Increasing minimum wage to a living wage would give over $21,000 additional per year in wages that could be put towards housing and food, contributing to the fight against food insecurity.[37; 38]

Fewer individuals are choosing farming as their livelihood.[39] As the population in Durham continues to increase, the demand for jobs in the food industry, on and off the farm, will increase.[40] Action is needed to make the food-related jobs desirable to more individuals and in some cases, more profitable. In North Carolina, the average pay for farmworkers rose almost 4% from 2020-2022, to $14.16 per hour. This is over the minimum wage but does not meet Durham's livable wage.[41]

Food systems depend on the climate being somewhat consistent and dependable and without major fluctuations outside of what is typical. Climate change is bringing shifts in temperature, droughts, and extreme weather events. This can impact the ability to grow, ship and receive, and store food. In addition, research is showing that climate change can impact the nutritional quality of food. Durham County must act to ensure steps are taken to minimize negative impacts and maximize nutrition.[42]

Recommended Strategies

The White House recognized the urgent need to address food insecurity in its Conference on Food, Nutrition, and Health in 2022, when it set a goal of ending hunger and increasing healthy eating and physical activity by 2030. Goal measures for ending hunger are reducing very low food security (households with insufficient food) to less than 1% and cutting food insecurity (households struggling to access enough nutritious food) in half. Select recommendations from The White House Strategy on Hunger, Nutrition, and Health as well as other recommendations shown to improve food security are listed below as strategies to consider in Durham.[43]

- Ensuring residents receive a living wage can increase food security and diet quality.[44]
- Increasing housing security is likely to increase food security and diet quality.[45-47]
- Supporting policies and systems to expand federal nutrition programs - SNAP, WIC and school meals - through increasing benefits and improving accessibility.[1; 48; 49]
- Creating fruit and vegetable incentive programs (called Double Bucks in Durham - see Current Initiatives), increase access to healthy food, increase consumption of fruits and vegetables, purchase of nutrient dense foods, and improve food security and diet quality.[50]
- Completing a Food System Assessment (FSA)
- Restricting advertising of unhealthy foods and beverages, especially when aimed at children and communities of color.[51] Restrictions can be implemented through policies and systems at the local and state levels, as well as institutionally at schools or businesses.[43]

- Enticing grocery stores or supermarkets into underserved neighborhoods that have been historically disinvested using financial initiatives, tax incentives, or zoning regulation changes can increase access to nutrient dense foods.[43; 52]
- Several strategies are recommended to reduce sweetened beverages intake including:
  - Implementing a SSB tax with revenue used to support healthy programs.[53]
  - Implementing healthy vending policies and restricting sales of SSBs.[54]
  - Increasing water availability and promotion.[55]
- Investing in programs to safeguard against the negative effects of climate change. [30]

Current Initiatives & Activities

Communities in Partnership is a community rooted organization that runs programs such as a food co-op with the goal of food sovereignty. https://communitiesinpartnership.org/who-we-are

Double Bucks farmers' market incentive program at the Black Farmers Market, Durham Farmers Market, and South Durham Farmers Market. See farmers' market websites.

Durham Area Food Resources Map features a searchable map to find Durham grocery stores, farmers markets, school meal sites, and food pantries. https://www.endhungerdurham.org/

Durham County Cooperative Extension provides agriculture education, houses Durham Food Security network, and offers other resources for the community. https://durham.ces.ncsu.eu/

Durham County Food Apartheid Map
https://storymaps.arcgis.com/stories/4617859c60ff44a69c15477a27382133

Durham County Department of Public Health Nutrition Division provides clinical nutrition services, the Chronic Care Initiative program, the Formerly Incarcerated Transition (FIT) program and Durham's Innovative Nutrition Education (DINE) program. https://www.dcopublichealth.org/services/nutrition-3670

Durham Public School Hub Farm is a learning farm that supports physical activity, food awareness, and outdoor experiences for the DPS community. https://www.thehubfarm.org/

Durham Public Schools, School Nutrition Services provides nutritious and accessible meals to DPS students. https://www.dpsnc.net/nutrition

End Hunger Durham supports food relief organizations and those in need of food through advocacy and collaborative programs. https://www.endhungerdurham.org/

Farmer Foodshare provides wholesale opportunities for small-midsize local farmers and coordinates food donation programs. https://www.farmerfoodshare.org/

Food Bank of Central and Eastern North Carolina provides food distribution, community health and engagement, child hunger programs and benefits outreach. https://foodbankcenc.org/

Inter-Faith Food Shuttle provides food distribution, operates a community garden, and provides food and culinary education. https://www.foodshuttle.org/

Meals on Wheels provides meals and social connection to older adults, people with disabilities and other eligible citizens. https://www.handsontriangle.org/agency/detail/?agency_id=87451

Partnership for a Healthy Durham Physical Activity, Nutrition and Food Access Committee works to increase food access and improve the food and physical activity environment. https://healthydurham.org/committees/physical-activity-nutrition-and-food-access

References

[1] North Carolina Department of Health and Human Services. (2023). *NCDHHS State Plan for Nutrition Security 2023-2024*. https://www.ncdhhs.gov/ncdhhs-state-action-plan-nutrition-security-2023-2024/open
[2] Feeding America. (2023). *Child hunger keeps kids from reaching their full potential*. Retrieved 2023 from https://www.feedingamerica.org/hunger-in-america/child-hunger-facts
[3] Office of Disease Prevention and Health Promotion. *Food Insecurity*. https://www.ncdhhs.gov/ncdhhs-state-action-plan-nutrition-security-2023-2024/open
[4] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[5] Durham County Department of Public Health. (2021). *2021 Durham County Youth Risk Behavior Survey*. https://healthydurham.org/cms/wp-content/uploads/2023/09/YRBS-Report-FINAL.pdf
[6] NC State Center for Health Statistics. (2022). *2021 BRFSS Survey Results: North Carolina Tobacco Use, Smoking Status* https://schs.dph.ncdhhs.gov/data/brfss/2021/nc/all/_smoker3.html
[7] NC State Center for Health Statistics. (2022). *2021 BRFSS Survey Results: Local Health Director Region 5 Demographics (Consumed fruit one or more times per day.)* https://schs.dph.ncdhhs.gov/data/brfss/2021/region5/_FRTLT1A.html
[8] Lee, S. H., Moore, L. V., Park, S., Harris, D. M., & Blanck, H. M. (2022). Adults Meeting Fruit and Vegetable Intake Recommendations — United States, 2019. *MMWR Morb Mortal Wkly Rep*, *2022*(71). http://dx.doi.org/10.15585/mmwr.mm7101a1
[9] U.S. Department of Agriculture, & U.S. Department of Health and Human Services. (2020). *Dietary Guidelines for Americans, 2020-2025*. https://www.dietaryguidelines.gov/resources/2020-2025-dietary-guidelines-online-materials
[10] Durham County Department of Public Health. (2019). *Youth Risk Behavioral Survey (YRBS) Durham County 2019*. https://healthydurham.org/cms/wp-content/uploads/2021/12/2019-Youth-Risk-Behavior-Report-Final-09162021.pdf
[11] U.S. Department of Agriculture Food and Nutrition Service. (2023). *SNAP – Expiration of Program Flexibilities for the COVID-19 Public Health Emergency*. https://www.fns.usda.gov/snap/expiration-program-flexibilities-covid-19
[12] U.S. Census Bureau. *QuickFacts: Durham County, North Carolina*. https://www.census.gov/quickfacts/fact/table/durhamcountynorthcarolina
[13] U.S. Census Bureau. (2021). *SNAP Benefits Recipients in Durham County, NC [CBR37063NCA647NCEN]*. https://fred.stlouisfed.org/series/CBR37063NCA647NCEN
[14] Urban Institute. (2023). *Does SNAP Cover the Cost of a Meal in Your County?* https://www.urban.org/data-tools/does-snap-cover-cost-meal-your-county-2022
[15] U.S. Department of Agriculture Food and Nutrition Service. *North Carolina: Who Participates in SNAP?* https://fns-prod.azureedge.us/sites/default/files/resource-files/snap-state-factsheet-nc.pdf
[16] U.S. Department of Agriculture Food and Nutrition Service. (2023). *Go to the Atlas*. https://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas/
[17] Edwards, S. (2022, 9/29/2022). Los Primos Supermarket, Community Staple in East Durham, Forced to Close After Twenty Years. *INDY Week*. https://indyweek.com/food-and-drink/los-primos-supermarket-closes/
[18] World Health Organization. (2020). *Healthy diet*. https://www.who.int/news-room/fact-sheets/detail/healthy-diet
[19] Baker, P., Elizabeth,L., Lawrence,M., Machado,P., & Zinocker,M.,. (2020). Ultra-processed foods and health outcomes: a narrative review. *National Library of Medicine*, *12*(7). https://doi.org/10.3390/nu12071955
[20] Bleich, S. N., & Vercammen, K.A.,. (2018). The negative impact of sugar-sweetened beverages on children's health: an update of the literature. *BMC Obesity*, *5*. https://doi.org/10.1186/s40608-017-0178-9

[21] Deshpande, G., Essop, M.F., & Mapanga, R.F.,. (2017). Frequent sugar-sweetened beverage consumption and the onset of cardiometabolic diseases: Cause for concern? *Journal of the Endocrine Society*, *1*(11), 1372-1385. https://doi.org/10.1210/js.2017-00262

[22] Harvard T.H. Chan School of Public Health. (August 2023). *Sugary Drinks*. https://www.hsph.harvard.edu/nutritionsource/healthydrinks/sugary-drinks

[23] UConn Rudd Center for Food Policy & Obesity. (2015). *Food advertising targeted to Hispanic and Black youth: Contributing to health disparities* (Rudd Report, Issue. https://media.ruddcenter.uconn.edu/PDFs/272-7%20%20Rudd_Targeted%20Marketing%20Report_Release_081115%5B1%5D.pdf

[24] Harris, J., Frazier, W., Kumanyika, S., & Ramirez, A.,. (2019). *Increasing disparities in unhealthy food advertising targeted to Hispanic and black youth* (Rudd Report, Issue. https://uconnruddcenter.org/wp-content/uploads/sites/2909/2020/09/TargetedMarketingReport2019.pdf

[25] U.S. Department of Agriculture Economic Research Service. (October 25, 2023). *Interactive Charts and Highlights*. https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-u-s/interactive-charts-and-highlights/

[26] Gundersen, C., & Ziliak, J.,. (2023). *The state of senior hunger in 2021*. Feeding America. https://www.feedingamerica.org/research/state-senior-hunger

[27] Executive Office of the President of the United States. (2015). *Long-term Benefits of the Supplemental Nutrition Assistance Program*. https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/SNAP_report_final_nonembargo.pdf

[28] Trisi, D. (2023). *Government's Pandemic Response Turned a Would-Be Poverty Surge Into a Record Poverty Decline*. https://www.cbpp.org/research/poverty-and-inequality/governments-pandemic-response-turned-a-would-be-poverty-surge-into

[29] U.S. Department of Agriculture. (2023). North Carolina: COVID-19 Waivers & Flexibilities. North Carolina: COVID-19 Waivers & Flexibilities | Food and Nutrition Service (usda.gov)

[30] Brown, M. E., J.M. Antle, P. Backlund, E.R. Carr, W.E. Easterling, M.K. Walsh, C. Ammann, W. Attavanich, C.B. Barrett, M.F. Bellemare, V. Dancheck, C. Funk, K. Grace, J.S.I. Ingram, H. Jiang, H. Maletta, T. Mata, A. Murray, M. Ngugi, D. Ojima, B. O'Neill, and C. Tebaldi. (2015). Climate Change, Global Food Security, and the U.S. Food System. http://www.usda.gov/oce/climate_change/FoodSecurity2015Assessment/FullAssessment.pdf

[31] Partnership for a Healthy Durham. *Durham county community health assessment county-wide data dashboard* https://app.powerbigov.us/view?r=eyJrIjoiMjEwMjNjZDgtNzg5Zi00YjRmLThhMGItZTMzOThjMGJlOTE2IiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9

[32] Durham Public Schools. (2022). FACTS & FIGURES ABOUT DURHAM PUBLIC SCHOOLS. https://www.dpsnc.net/Page/151

[33] Partnership for a Healthy Durham. (2021). *2021 Durham County Youth Risk Behavior Survey*. https://healthydurham.org/cms/wp-content/uploads/2023/09/YRBS-Report-FINAL.pdf

[34] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2023). *County Health Rankings and Roadmaps* https://www.countyhealthrankings.org/explore-health-rankings/north-carolina/durham?year=2023

[35] Kara Martin, a., and Tammy Morales. (2015). Community Food System Assessments. *American Planning Association*. Community Food System Assessments (planning-org-uploaded-media.s3.amazonaws.com)

[36] Duke, O. o. D. C. A. (2021). *Strategic Community Impact Plan*. https://community.duke.edu/wp-content/uploads/2021/08/21_08_26_dca_booklet_v2.pdf

[37] Labor, N. C. D. o. Minimum Wage in N.C. Retrieved September 2023, from https://www.labor.nc.gov/workplace-rights/employee-rights-regarding-time-worked-and-wages-earned/minimum-wage-nc

[38] City of Durham. *Livable Wage Rate History*. https://www.durhamnc.gov/3695/Livable-Wage-Rate-History
[39] USA Facts Team. (2023). Who is the American Farmer. https://usafacts.org/articles/farmer-demographics/
[40] Townsend, R. B., Rui Manuel; Prasann, Ashesh; Lee, Maria. (2017). Future of Food: Shaping the Food System to Deliver Jobs. http://hdl.handle.net/10986/26506
[41] Farmworker Justice. (2021). US Department of Agriculture Releases 2021 Farm Labor Report Showing Rising Wages for Farmworkers. https://www.farmworkerjustice.org/blog-post/us-department-of-agriculture-releases-2021-farm-labor-report-showing-rising-wages-for-farmworkers/
[42] Fanzo, J., Davis, C., McLaren, R., & Choufani, J. (2018). The effect of climate change across food systems: Implications for nutrition outcomes. *Global food security*, *18*, 12-19.
[43] White House. (2022). Biden-Harris administration national strategy on hunger, nutrition, and health. Published September 2022. In.
[44] Palazzolo, M., & Pattabhiramaiah, A. (2022). Raising the Minimum Wage Improves Nutrition among Food-Insecure Households. In.
[45] Burrowes, K. (2019). How Stable, Affordable Housing Can Help Tackle Food Insecurity. https://housingmatters.urban.org/articles/how-stable-affordable-housing-can-help-tackle-food-insecurity
[46] National Association of Realtors. (2021). Housing affordability and Food Sufficiency. https://www.nar.realtor/research-and-statistics/research-reports/housing-affordability-and-food-sufficiency
[47] Seo, B. K., & Park, G.-R. (2021). Food insecurity and housing affordability among low-income families: does housing assistance reduce food insecurity? *Public Health Nutrition*, *24*(13), 4339-4345.
[48] Carlson, S., & Keith-Jennings, B. (2018). SNAP is linked with improved nutritional outcomes and lower health care costs. *Washington, DC: Center on Budget and Policy Priorities*, 1-19.
[49] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2021). Nutrition Standards. County Health Rankings and Roadmaps. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/school-nutrition-standards
[50] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2020). Fruit & vegetable incentive programs. County Health Rankings and Roadmaps. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/fruit-vegetable-incentive-programs
[51] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2019). Child-focused advertising restrictions for unhealthy foods & beverages. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/child-focused-advertising-restrictions-for-unhealthy-foods-beverages
[52] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2020). New Grocery Stores in Underserved Areas. County Health Rankings and Roadmaps. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/new-grocery-stores-in-underserved-areas
[53] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2023). Soda taxes. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/sugar-sweetened-beverage-taxes
[54] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2021). Healthy vending machine options. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/healthy-vending-machine-options
[55] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2023). Water availability & promotion interventions. *County Health Rankings and Roadmaps*. https://www.countyhealthrankings.org/take-action-to-improve-health/what-works-for-health/strategies/water-availability-promotion-interventions

Section 5.03 *Resilience and Protective Factors*

Overview

"Community resilience is the ability of a community to recover from and/or thrive despite the prevalence of adverse conditions. In the context of community trauma, building resilience means putting the conditions in place in which the community can heal from past trauma and be protected against the impact of future trauma."[1] In communities, trauma looks like high levels of violence, concentrated poverty, isolation, and a lack of and neglect of infrastructure.[1] Trauma is widespread and has impacts across the lifetime, including on the health and wellbeing of individuals. While individuals practice resilience daily, approaches to addressing trauma often focus on personal experiences without considering the communities in which individuals live and the systems of oppression they must navigate. Improving community-level resilience and uplifting protective factors that lower the likelihood of negative outcomes requires disrupting systems that create harm and disparities. Healthy communities maintain environments that meet community and individual needs, allowing residents to thrive.

The 2023 Community Health Assessment (CHA) data affirms that Durham is a resilient community.[2] The 2023 CHA report highlights several key areas of resilience, including strong social networks and celebration of diverse backgrounds. Opportunities to strengthen protective factors in partnership with communities also emerge from the 2022 CHA survey data, including improving the ability of residents to meet basic needs such as housing, living wage, and food security; increasing access to medical care and mental health care; and addressing community violence.

Primary Data

Strong social networks

In the 2022 Durham County Community Health Assessment County-wide survey, residents surveyed describe Durham as a good place to live because of the community, including neighbors, neighborhoods, and culture. Overall, 44.1% of respondents said they *always* get the social and/or emotional support they need and 34.8% said they *usually* get the social and/or emotional support they need. Black or African American respondents were more likely to report *always* receiving the social and/or emotional support they need (49.2%) than white respondents (39%).[2] Forty-six percent of Comunidad Latina respondents reported *always* getting the social and/or emotional support they needed.[3] Of Comunidad Latina respondents, 35.7% reported *usually* getting the support they needed.[3]

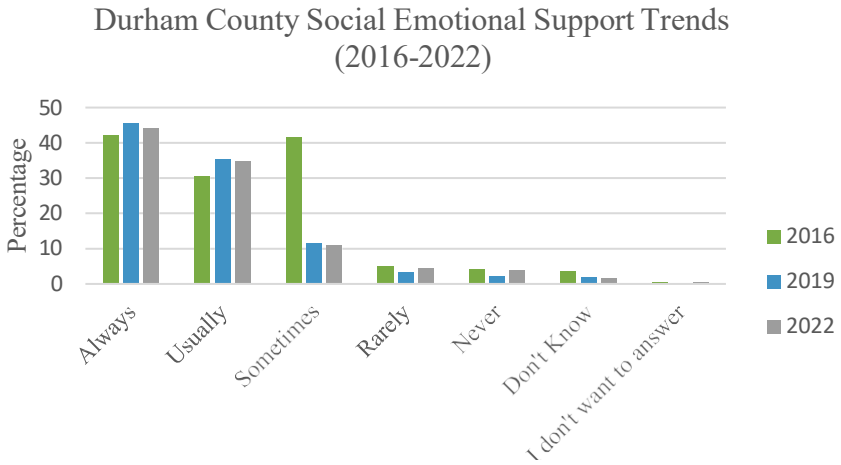


Figure 5.03(a) Durham County Social Support Needs Trends, 2016-2022[2]

A community where unique identities are known and celebrated

Sense of belonging—being known and celebrated—is a key protective factor individuals and communities.[4] Resilient communities identify and celebrate unique identities represented in its population. Durham comprises many cultures, identities, and histories. Institutions support a sense of belonging for some. Of high school students surveyed in the 2021 Youth Risk Behavior Survey (YRBS), 53.6% agree or strongly agree that they belong at their school.[5] Almost 60% of middle school students agree or strongly agree that they belong at their school.[5] However, in the 2019 Durham Youth Listening Project, young people (ages 13-25) "do not feel that there are many safe spaces for them to go."[6]

Meeting basic needs

Meeting basic needs in Durham has become more challenging in recent years. In the 2022 County-Wide CHA survey, 24.9% of respondents said affordable housing has the greatest effect on quality of life, more than twice the percentage in 2019.[2] Financial stress was the primary cause of stress reported in the 2022 County-Wide CHA survey. In Durham County, 49% of renters and 20.9% of mortgage holders are cost-burdened, meaning more than 30% of their monthly income goes to housing.[2] Nearly 12% of respondents said they skipped a meal or cut the size of their meal because there wasn't enough money for food.[2] Food insecurity, housing insecurity, unmet medical need, and bill-burden are indicators of material hardship.[7; 8]

Access to health care and mental health care

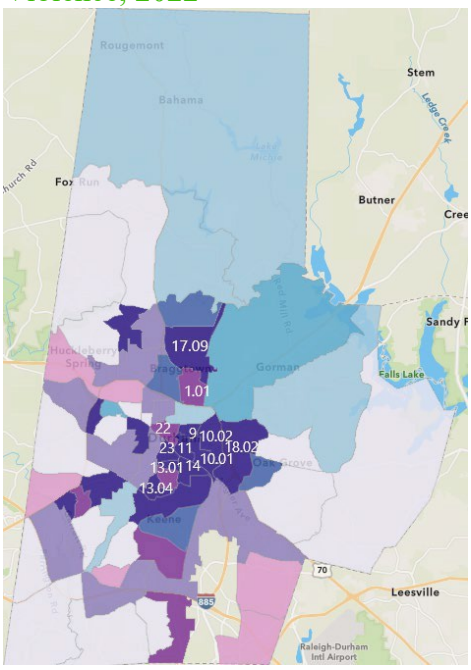
In the 2022 Community-Wide CHA survey, 18% of respondents reported having difficulty finding healthcare.[2] The most common reasons were cost, lack of insurance, and providers not taking insurance. Of Black or African American respondents, 51% had difficulty finding healthcare compared to 21.6% of white respondents.[2] Of Comunidad Latina respondents, 86.1% reported having difficulty finding healthcare they needed in the 2023 Comunidad Latina CHA survey.[3]

According to the 2019 Durham Youth Listening Project, "young people feel an overwhelming need for mental health support to help them survive the experiences they are faced with."[6] Young people also report that mental health resources are not easy to access and are not affordable. Accessing mental health providers with diverse backgrounds and lived experiences was challenging for young people.[6]

Community violence

While homicides in Durham increased by 12.1% between 2018 and 2020, the percentage of gang-related homicides decreased from 51.5% to 24.3%."[9] Violent crime is not evenly dispersed across the County. Over half of homicides and aggravated assaults in Durham took place in 12 census tracts. These neighborhoods have high rates of violent crime up to 7.5 times higher than Durham's overall rate per capita.[9] Nearly 14% of Durham residents live in these neighborhoods. The average age demographics across the 12 census tracts mirror Durham County's age demographics.[10] However, racial demographics highlight inequities and display the historical influence on these patterns. The residents of neighborhood most impacted by violence are disproportionately Black or African American and Hispanic or Latina/o/x. Many of the neighborhoods impacted are historically Black neighborhoods impacted by redlining, urban renewal, and/or gentrification. These neighborhoods are the most impacted by community level trauma in Durham. The bigger picture shows a higher level of risks factors, including high social vulnerability, lower healthcare insurance access, and lower voter participation.

Map overlay of Social Vulnerability of Census Tracts Experiencing High Levels of Violence, 2022



Map 5.03(a) Map overlay of Social Vulnerability of Census Tracts Experiencing High Levels of Violence, 2022

Comparison of 12 Census Tracts with County

	Average of Census Tracks	Durham County
Race/Ethnicity		
Hispanic	23.1%	13.70%
Non-Hispanic White	18.8%	42.60%
Non-Hispanic Black or African American	51.9%	34.80%
Non-Hispanic Other	0.6%	10.7%
Type 2 Diabetes among adults (2019)	16.3%	12.9%
Percentage without Healthcare Coverage	21.9% (13.5-31.5% range)	10.0%
Social Vulnerability (2020)	0.9674 (median)	0.7285
General Election Voter Participation (2020)	64.1%	73.9%

Table 5.03(a) Comparison of Census Tracts with High Crime to County[10-14]

Secondary Data

Trauma—at the community and individual levels has a "significant impact on development, health, and wellbeing."[1] Strong feelings of connection and responsibility for each other among residents are marks of community resilience and strong protective factors.[1] Additionally, access to basic needs, physical health, and mental health care are critical to community resilience.

Housing quality, financial security, and access to health care are important for community resilience. Stress related to accessing basic needs and the safety of a built environment has a negative impact on individuals and communities. In Durham, lack of communal wealth, safe and affordable housing, and access to a living wage are linked to historical traumas such as redlining, Jim Crow laws, urban renewal, and educational segregation.[15; 16]

North Carolina ranks 39th in access to mental health care in the country.[17] While Durham has a better ratio of mental health care providers by population (140:1 compared to 340:1 in NC), providers and community members report long waiting times to access to care and inability to access care due to cost.[18]

Sense of belonging in high school and involving young people in community traditions are positive childhood experiences that build resilience, increasing social-emotional health across the lifespan, and reduce risk for adult mental illness.[19]

Interpretations: Disparities, Gaps, Emerging Issues

Durham is a resilient community, necessitated by its history, struggles, and successes, although all areas within the county do not experience the same levels of adversity. Facing systems of oppression, communities in Durham have found ways to create belonging, address challenges, and heal. Efforts to increase protective factors for the Durham community must acknowledge systemic drivers of adversity and oppression that have created gaps in access and resources across subgroups.

Changes in Durham's growth and gentrification are creating unequal access to public spaces and minimizing the sense of belonging. Additionally, increasing expenses for community members and uneven development of Durham further erode protective factors and opportunities. Divestment from historically marginalized communities compounds community trauma and fails to build on community assets developed over generations. Gentrification benefits middle and high-income white residents who are often new to the area. Older Black adults and historically Black communities are displaced through rising property taxes, lack of affordable housing stock, and changing social networks. At the same time, investment by private developers is depleting affordable housing and displacing long-time residents and small businesses.

"[M]any youth participants shared that they do not feel welcome in downtown Durham or in schools. This was especially mentioned by youth of color. Local businesses were not seen as welcoming places because of the signals they give young people that keep them away. These signals include dress codes, the presence of alcohol, treatment by staff, the cost of entry, and age restrictions. Many young people were frustrated that there were few places to go in Durham where they could connect with their friends in casual settings in their free time."[6]

Normalization of underdevelopment of communities, few opportunities for economic advancement, and lack of social cohesion perpetuate community trauma. To effect change, Durham must invest in historically marginalized communities, strengthen community assets, and promote relationships that empower residents with opportunities and social connections.

Recommended Strategies

Creating a more resilient Durham can only be accomplished with a multi-pronged approach to improving inclusion. This includes increasing access to safe, affordable housing and culturally informed services; strengthening participation in civic and community life; and ensuring opportunities for all residents to share in rising prosperity.[20]

Strategies for increasing community resilience include:

- Greatly increase and improve the availability of free and affordable and accessible health and mental health resources, for adults and young people. They should also be created with consideration of diverse cultures and backgrounds.[6]
- Preserve and expand safe, secure, and affordable rental housing.[21]
- Implement intensive, place-based strategies to address underlying social in the census tracts most affected by community-level trauma.[9]
- Decrease inequality by investing in low-wealth communities to increase education, employment, and benefits for Durham's residents at the bottom of the economic ladder.

- Host and promote more events to celebrate the different cultures that comprise the Durham community.
- Partner with community members to create safe, welcoming public spaces in neighborhoods most impacted by community trauma.

Current Initiatives & Activities

Together for Resilient Youth

Together for Resilient Youth (T.R.Y.) is a community-led organization working to address adverse experiences that result in behavioral health challenges such as substance use, chronic disease, and violence by increasing resilience and reducing community risk factors through mobilization and collective impact. https://try4resilience.org/

Grown in Durham

Grown in Durham is a collective of families, frontline providers, community-rooted leaders, and institutional leaders working to ensure the well-being of children ages 0-8, their families and their communities. https://grownindurham.org/news/

BeConnected

Be Connected Durham is a community initiative and a social enterprise centered in abolitionist, anti-racist, and equitable engagement principles. They curate events that connect audiences, address disparities, foster equity, and bridge understanding through the arts, culture, music, and political advocacy as the vehicle for real, lasting change. https://www.beconnecteddurham.com/

City of Durham Office on Youth

The Durham Office on Youth works with youth, families, City and County staff and leadership, and community partners to elevate youth voices and enhance services and programs for youth. https://www.durhamnc.gov/1350/Office-on-Youth

Durham Congregations, Associations, and Neighborhoods

Durham Congregations, Associations, and Neighborhoods (CAN) is based in institutions: congregations, associations, schools (both private and public), nonprofits, community health centers, and neighborhood organizations that share a concern for families and a tradition of faith and democracy. https://www.durhamcan.org/

El Futuro

El Futuro is a community-based nonprofit organization that seeks to transform Latino-serving mental health care in North Carolina and beyond. They provide bilingual and culturally responsive mental health services including therapy, psychiatry, substance use treatment, and case management. https://elfuturo-nc.org/

DCo Thrives Basic Income Pilot

Durham County is addressing economic disparities by implementing a guaranteed income pilot program that aims to help Durham families. This program will provide financial support to 125 low-income families and assess the potential positive impacts on the community. www.dconoc.gov/dcothrives

References

[1] Davis, R., Pinderhughes, H., & Williams, M. (2016). *Adverse Community Experiences and Resilience: A Framework for Addressing and Preventing Community Trauma*. Prevention Institute. https://preventioninstitute.org/publications/adverse-community-experiences-and-resilience-framework-addressing-and-preventing

[2] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

[3] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023*. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9

[4] Centers for Disease Control and Prevention. (June 29, 2023). *Risk and Protective Factors*. https://www.cdc.gov/violenceprevention/aces/riskprotectivefactors.html

[5] Durham County Department of Public Health. (2021). *2021 Durham County Youth Risk Behavior Survey*. https://healthydurham.org/cms/wp-content/uploads/2023/09/YRBS-Report-FINAL.pdf

[6] Durham City Office on Youth. (2021). *Durham Youth Listening Project*. https://www.durhamnc.gov/4423/Durham-Youth-Listening-Project

[7] Schenck-Fontaine, A., & Ryan, R. M. (2022). Poverty, Material Hardship, and Children's Outcomes: A Nuanced Understanding of Material Hardship in Childhood. *Children*, *9*(7), 981. https://doi.org/10.3390/children9070981

[8] Iceland, J., & Kovach, C. (2022). *Neighborhood Income and Material Hardship in the United States*. Penn State University. https://www2.census.gov/ces/wp/2022/CES-WP-22-01.pdf

[9] Young, M. (2022). *2021 Durham Community Gang Assessment*. https://www.durhamnc.gov/DocumentCenter/View/54124/2021-Durham-Community-Gang-Assessment

[10] United States Census Bureau. (2022). *Age and Sex*. https://data.census.gov/table/ACSST1Y2022.S0101?q=Durham%20County

[11] Centers for Disease Control and Prevention, & Agency for Toxic Substances and Disease Registry/Geospatial Research, A., and Services Program,. (2020). *CDC/ATSDR Social Vulnerability Index Interactive Map 2020 Database Durham, North Carolina*. Retrieved November 29 from https://www.atsdr.cdc.gov/placeandhealth/svi/interactive_map.html

[12] DataWorks. *General Election Participation, 2020* https://compass.durhamnc.gov/en/compass/PTGNRL/blockgroup/

[13] DataWorks. (2019). *Diabetes (Adult Population)* https://compass.durhamnc.gov/en/compass/DIABETES_TOTAL/blockgroup/

[14] United States Census Bureau. (2022). *Selected Characteristics of Health Insurance Coverage in the United States." American Community Survey, ACS 1-Year Estimates Subject Tables, Table S2701*. https://data.census.gov/table/ACSST1Y2022.S2701?q=Durham%20County,%20North%20Carolina&t=Health:Health%20Insurance&g=1400000US37063000101&y=2022

[15] Durham Racial Equity Task Force. *Report of the Durham Racial Equity Task Force: An Urgent and Loving Call to Action*. https://www.durhamnc.gov/DocumentCenter/View/32853/FINAL-REPORT-Durham-Racial-Equity-Task-Force-72220

[16] City and County of Durham. (2018). *Race and Ethnicity* https://live-durhamnc.opendata.arcgis.com/pages/race--equity

[17] Reinert, M., Nguyen, T., & Fritze, D. (2021). *The State of Mental Health in America 2022*. https://www.mhanational.org/sites/default/files/2022%20State%20of%20Mental%20Health%20in%20America.pdf

[18] University of Wisconsin Population Health Institute. (2023). *Durham, NC* https://www.countyhealthrankings.org/explore-health-rankings/north-carolina/durham?year=2023

[19] Bethell, C., Jones, J., Gombojav, N., Linkenbach, J., & Sege, R. (2019). Positive Childhood Experiences and Adult Mental and Relational Health in a Statewide Sample: Associations Across Adverse Childhood Experiences Levels. *JAMA pediatrics*, *173*(11). https://doi.org/10.1001/jamapediatrics.2019.3007

[20] Armendaris, F. (2015). *World - Inclusive cities approach paper*. World Bank Group. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/402451468169453117/world-inclusive-cities-approach-paper

[21] Grown in Durham. (2021). *Durham's Early Childhood Action Plan*. https://sites.google.com/view/durhamecap/our-plan?authuser=0

Chapter 6

Chronic Disease

Photo Courtesy of Discover Durham

This chapter includes:

- Cancer
- Diabetes
- Heart Disease and Stroke
- Obesity and Weight Stigma
- Mental Health and Substance Use Disorder
- Tobacco

Section 6.01 *Cancer*

Overview

Cancer is a group of diseases characterized by uncontrolled growth and spread of abnormal cells.[1] It affects about one in three people and is the second most common cause of death in the US. As of 2022, more than 18 million Americans are living with cancer and 1.9 million more are expected to be diagnosed in the US in 2023.[2] It is expected that there will be about 1,670 deaths per day from cancer in 2023. North Carolina is expected to be one of the leading states in new Cancer cases with a projected 67,690 new cases and expected 20,400 deaths.[3] North Carolina also leads with a relatively large number of lung cancer cases as a historically tobacco producing state.[3]

There are many different types of Cancer, it can develop anywhere in the body, and can affect anyone regardless of age, race, or gender. While much of Cancer starts at the genomic level and can spread throughout the body via a process called metastasis, there are many external factors that can induce this chain reaction to occur. Risk factors including excess ultraviolet radiation exposure, smoking, and obesity have all been shown to increase the likelihood of developing cancer.[4] Beyond behavioral risk factors, social determinants of health (SDH) also play a substantial role in cancer development. Socioeconomic status, environmental factors (including air and water quality), low education, lack of health insurance, and social isolation have all been linked to higher cancer mortality.[5] SDH, behavior, and biology all have significant effects on cancer risks and outcomes.

According to the National Cancer Institute, "cancer health disparities" is defined as adverse differences in new cases, prevalence, mortality, survival, morbidity, survivorship, financial burden, screening rates, and stage at diagnosis among various demographics.[6] For instance, Black or African American people have higher mortality rates than all other racial groups for many cancer types. Beyond the clinical setting cancer has profound effects on the community, missed days of work, reduction of hours, high hospital bills, psychosocial distress, and asset depletion are all direct and indirect costs due to cancer.[7] Understanding the unique needs and circumstances of each patient can drive more informed treatment plans. While there are many problems facing NC regarding cancer, there are many institutions at the forefront working hard to minimize its effects including the Duke Cancer Institute and UNC Lineberger.

Primary Data

The most recent report of the County-wide Community Survey ranks cancer as an important health concern in Durham County.[8] As a tobacco state, smoking rates have remained consistent throughout the years.[9] The 2022 County-wide Community Health Survey reported that over 50% of respondents were exposed to secondhand smoke in a variety of environments including family or friend's house, workplace, public spaces, bars, etc.[8] While a relatively small portion of respondents, 12% and 7.3%, reported they smoke cigarettes or e-cigarettes respectively, on a routine basis exposure to secondhand smoke has serious implications on the community such as heart disease, lung cancer, and adverse reproductive health effects.[8; 10] Such effects tend to have a larger impact on BIPOC communities due to factors including lack of affordable housing, access to healthcare barriers, and other socioeconomic inequities.

It is well established that lower income communities face higher exposure to smoke inducing negative health effects, for instance the American Lung Association finds that people living in

poverty smoke for twice as many years as people not in poverty.[11] In Durham, lack of affordable housing has been reported as a major barrier which oftentimes puts residents in difficult situations of choosing between well-resourced communities or housing that is within their budget, that typically is located in less-resources communities, leaving residents reportedly feeling very dissatisfied with their current housing situation.[12] According to the 2022 Durham County State of the County Health Report, mortality rates are higher for Black or African Americans than other races or ethnicities for all leading causes of death in Durham County, with the greatest disparities in cancer and heart disease.[13] Despite increased focus on bridging these disparities, life expectancy for Black or African American residents are still lower than white residents.

Secondary Data

These are the six priority cancers identified by the CDC due to the level of preventability involved.

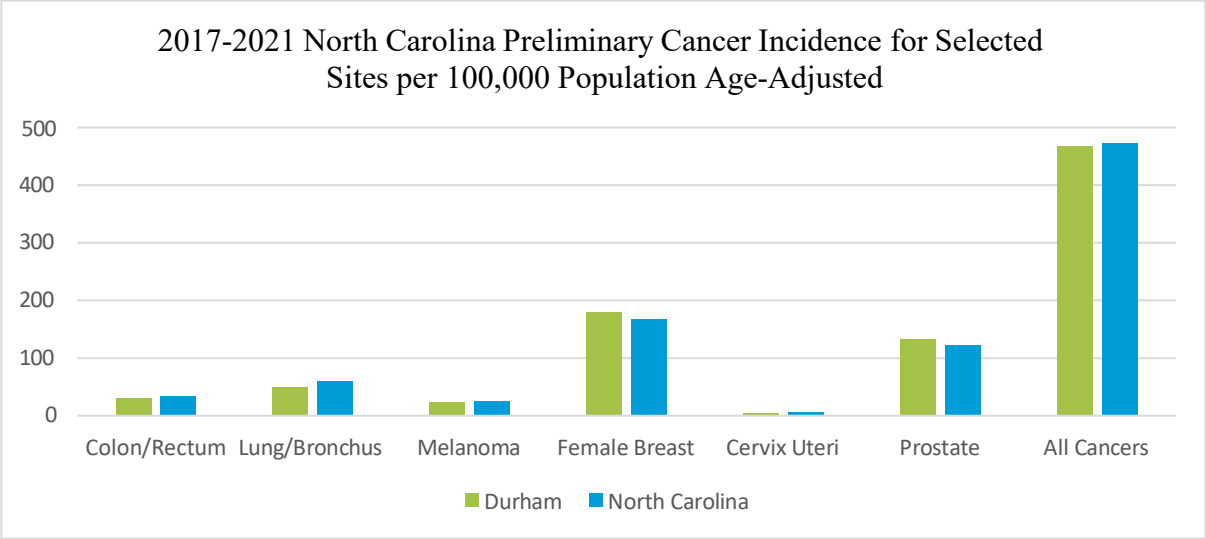


Figure 6.01(a): Durham vs N.C cancer incidence comparison[14]

According to the most recent reports from the North Carolina Center for Health Statistics, Cancer is the leading cause of death in Durham, accounting for nearly 22% of deaths.[15] It is estimated that Durham experienced 1,707 new cancer cases in 2023 with Female Breast Cancer leading in new cases (331) shortly followed by Lung Cancer (225), however for mortality Lung Cancer significantly leads in new cases with over 135 projected deaths.[16]

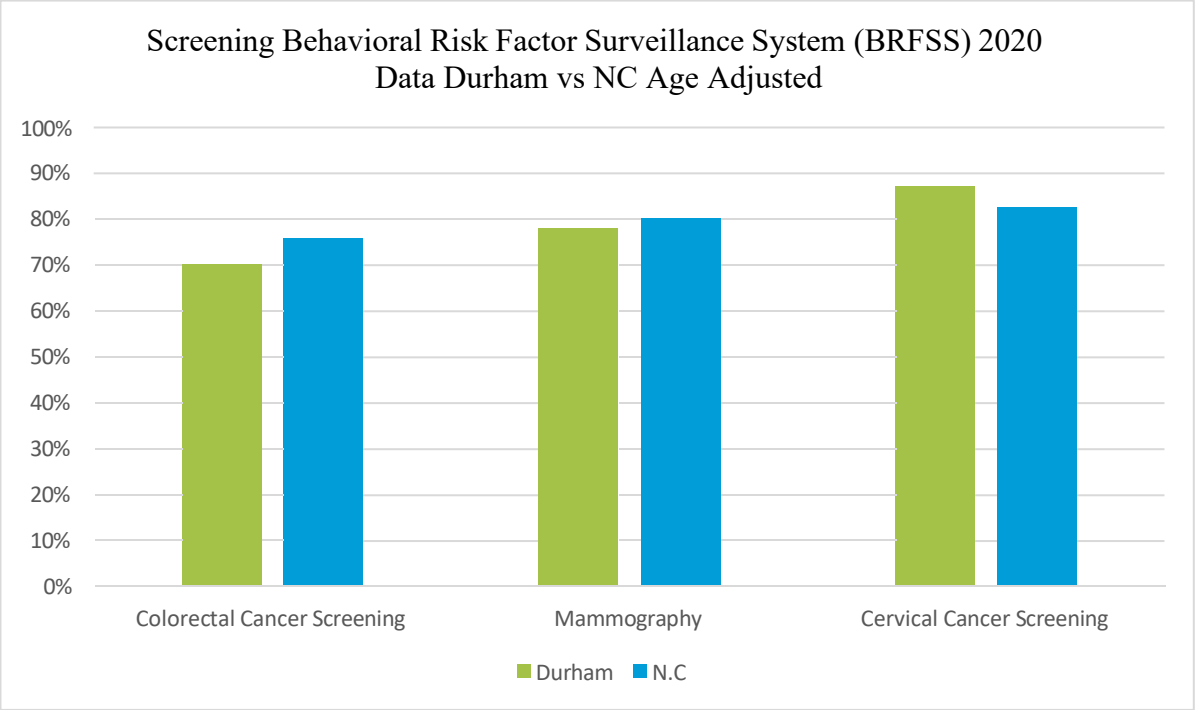


Figure 6.01(b): Screening Prevalence Durham vs NC across three identified cancers. Ages 50 + for Mammography and Colorectal Screening. Ages 13-17 for HPV/Cervical[17]

Age-Adjusted Incidence Rate cases per 100,000 2016-2020 Across Selected Cancer Sites by Race and Ethnicity in Durham and NC

	Durham				NC
	White (non-Hispanic)	African American	Asian	Latinx	All
Female Breast	153.1	135.2	103.7	105.9	137.6
Prostate	108.2	181.3	**	93.9	123.9
Lung/Bronchus	50.5	57.4	**	**	62.8
Colon/Rectum	31.4	35.6	28.5	22.6	34.9
Cervix Uteri	**	5.6	**	**	6.9
Melanoma	31.3	**	**	**	25.7

Table 6.01(a): Cancer Incidence for Selected Sites by Race and Ethnicity in Durham and NC[18]

DCI CREST Dashboard, DCI Patient Demographics (Patients from Durham, NC)

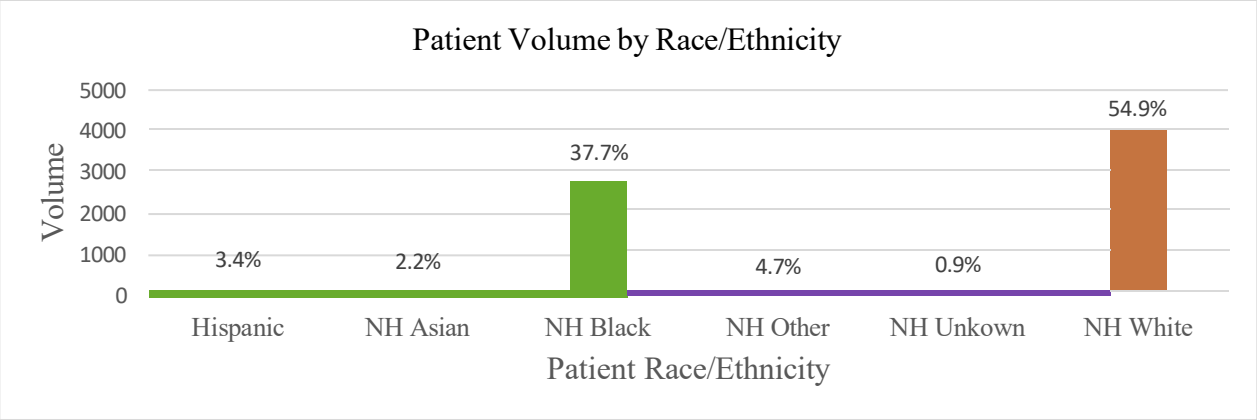


Figure 6.01(c): Duke Cancer Institute Patient Demographics. CREST Dashboard 2023[19]
*Percentages represent total percent of volume in the entire column

Insurance type at Diagnosis (DCI CREST Dashboard 2023)

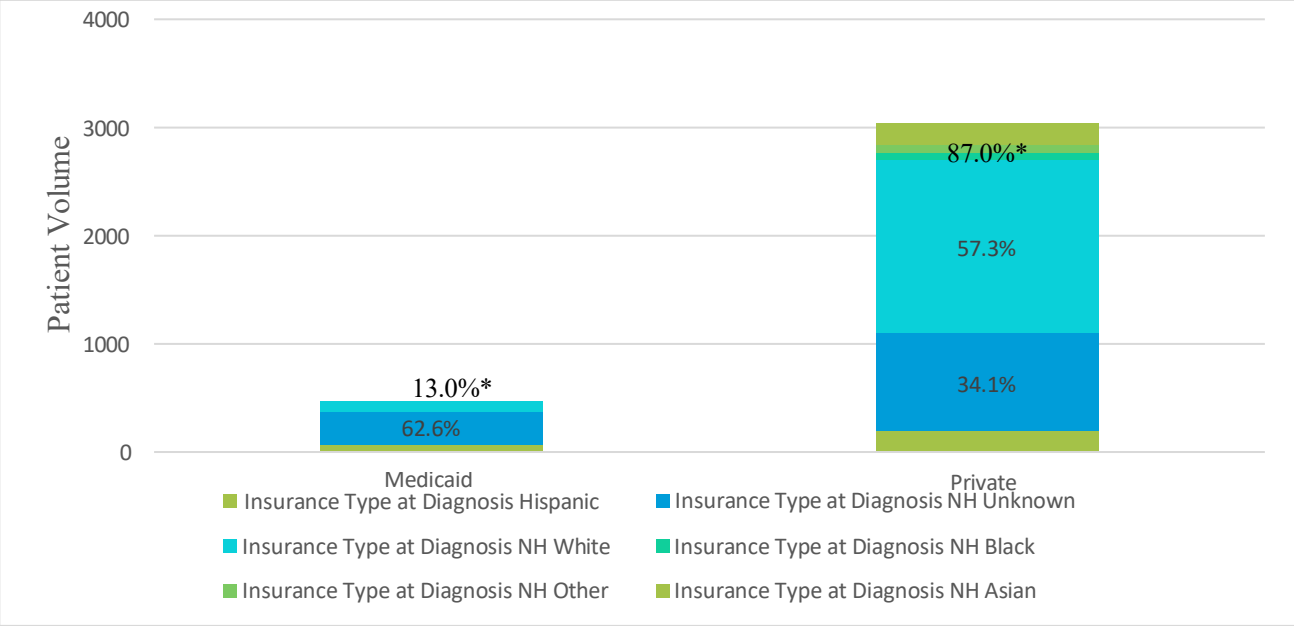


Figure 6.01(d): Duke Cancer Institute Patient Insurance Type at time of Diagnosis by race[19]
*Percentages represent total percent of volume in the entire column

Interpretations: Disparities, Gaps, Emerging Issues

Primary data suggests that many issues still affect cancer rates in Durham. One of the most leading causes is tobacco usage. While smoking rates are low many Durham residents report levels of secondhand smoke that they are exposed to in a variety of environments. It becomes an increasing issue when factors such as affordable housing inhibit residents from living in a smoke-free area.

Secondary data is presented from a variety of sources including the North Carolina Department of Health and Human Services, Center for Disease Control and Prevention (CDC), and National

Institute of Health (NIH). These data points highlight how Durham fares against North Carolina averages across different cancer types, including the six priority cancers. In Figure 6.01(a), Durham has a higher average incidence rate in both Prostate and Female Breast Cancer than the NC average, indicating the shortcomings of systems in place for screening, treatment, and prevention. In Figure 6.01(b), there are screening rates for Durham and NC showing that Durham falls short in two-thirds (Colorectal and Mammography) identified screening rates of the NC average. While showing a population set that was surveyed by the Duke Cancer Institute (DCI), Figure 6.01(d) shows the considerable discrepancy in terms of Medicaid and Private Insurance patient demographics. This prompts the question of disparities in access to care for patients that qualify for Medicaid. As shown earlier in the report many individuals with little to no income are more prone for certain cancers than others. Table 6.01(a) and Figure 6.01(c) highlight some of the disparities on a demographic level, while Black or African Americans make up a disproportionate amount of cancer patients.

As health disparities continue to exist particularly in Cancer incidence and mortality there are many avenues for improvement. This includes increased cancer screenings especially in underserved communities through mobile clinics, rapid diagnoses, affordable treatment, and survivorship resources. Moreover, an increase in data equity that includes involving underrepresented populations such as Native Americans, Latina/o/x, and Black or African Americans to gain a more complete picture of health status of Durham. Systemic barriers to care also must be addressed, many common examples include transportation, affordable housing, air and water quality, and food security all of which have an important role in Cancer prevention.[20]

Recommended Strategies

- Increased Screening with community-based organizations can increase community outreach and engagement to reduce stigma, increase transparency, and support patients with diagnosis. Leveraging the support of organizations such as Partnerships for Healthy Durham to increase support for patient navigation programs.
- Create spaces on the Community Health Assessment survey that assess cancer screening, diagnosis, treatment, and impact on quality of life by demographics.
- Prevention efforts especially pertaining to smoking that address secondhand smoke in at-risk communities should be increased. Many of the cancers reported in this section are preventable, therefore identifying at risk populations and building partnerships with local communities to implement necessary environmental regulations, nutrition and physical activity programming, and vaccinations are all key.
- Reducing out-of-pocket costs for screening and other preventative programs is especially important. For instance, providing vouchers, reimbursements, reduction in co-pays, or providing free health programs to underserved areas along with other CHA suggestions can be used to increase prevention efforts.
- Funding opportunities for Durham based providers to address the financial needs of cancer patients, especially for those who qualify under Medicaid and Medicare.
- Studies have shown increased Digital literacy and access efforts for Durham County residents will allow for better patient outcomes and patient autonomy especially during cancer care.[20]

Current Initiatives & Activities

Breast and Cervical Cancer Control Program (BCCCP)
Provides free or low-cost breast and cervical cancer screenings and follow up to eligible women in North Carolina www.bcccp.ncdhhs.gov

Durham County Department of Public Health
Provides primary care services, which can assist with referrals to cancer screening.
https://www.dcopublichealth.org/services/health-education/bull-city-breathes-3637

Lincoln Community Health Center
provides primary care services, which can assist with referrals to cancer screening. Provides accessible, affordable, high quality outpatient health care services to the medically underserved. www.lincolnchc.org

Durham County Department of Public Health Bull City Breathes Program
Offers free tobacco cessation classes and support services. www.dcopublichealth.org/services

Duke Smoking Cessation Program
Offers tobacco cessation assistance through medication management, research, counseling, and classes. www.Dukehealth.org/quit

Quitline NC
North Carolina has a free Quitline, which offers telephone counseling to help quit smoking and/or quit using tobacco products.

Colon Cancer Screening (Pilot) Program Durham Department of Public Health:
Pilot colon cancer screening program for eligible women in the BCCCP program. This program is through a partnership with the Office of Health Equity at Duke Cancer Institute. Email: angelo.moore137@duke.edu

Men's Health Screening:
A two-day annual community outreach and engagement health event specifically for men organized and led by Duke Cancer Institute Office of Health Equity. This program provides free health education, cancer screenings, chronic disease screening, and navigation services. http://dukecancerinstitute.org/OHE
https://www.dukecancerinstitute.org/events/annual-mens-health-screening-draws-crowd

Women's Health Awareness (WHA) Conference:
Free annual event provides health education, resources, and various on-site health and cancer screenings led and supported by the National Institute of Environmental Health Sciences/National Institutes of Health co-sponsored by Durham Alumnae Chapter of Delta Sigma Theta Sorority Inc. & NCCU,
www.niehs.nih.gov/whad

Community Health Ambassador Program
is managed by Duke Cancer Institute Office of Health Equity designed to train and educate selected community leaders of faith-based and other non-profit organization on cancer prevention and screening, hypertension, diabetes, and importance of participation in research. http://dukecancerinstitute.org/OHE

Sisters Network Inc

Offers financial assistance for breast prosthesis, medical bras, and compression arm sleeves. www.sistersnetworkinc.org/resources.html

Digital Durham and Durham Country Library

Digital literacy training and provides devices to qualifying individuals.
https://digitaldurham.net/ https://durhamcountylibrary.org/

Duke Cancer Institute Advisory Council

Duke Cancer Institute's Community Advisory Council (CAC) is a 13-member group that facilitates two-way communication between the community and DCI. It includes diverse members, such as lay community members, community leaders, cancer patients, survivors, and caregivers, representing a range of demographics, including race, age, and geographic diversity. https://sites.duke.edu/dcicoee/advisory-councils/

Duke Supportive Care and Survivorship Center

The Center provides cancer support and survivorship services to patients and their families. Our goal is to wrap these individuals in a community of support while providing high-quality services that improve health outcomes. https://www.dukecancerinstitute.org/center/supportive-care-and-survivorship-center

References

[1] National Cancer Institute. *What Is Cancer?* U.S. Department of Health and Human Services. https://training.seer.cancer.gov/disease/cancer/
[2] National Cancer Institute. (September 25, 2020). *Cancer Statistics*. National Institutes of Health. https://www.cancer.gov/about-cancer/understanding/statistics
[3] American Cancer Society. (2023). *Cancer Facts & Figures 2023*. https://www.cancer.org/content/dam/cancer-org/research/cancer-facts-and-statistics/annual-cancer-facts-and-figures/2023/2023-cancer-facts-and-figures.pdf
[4] National Center for Chronic Disease Prevention and Health Promotion. (June 7, 2022). *Cancer*. Centers for Disease Control and Prevention.
[5] Pinheiro, L. C., Reshetnyak, E., Akinyemiju, T., Phillips, E., & Safford, M. M. (2021). Social determinants of health and cancer mortality in the Reasons for Geographic and Racial Differences in Stroke (REGARDS) cohort study. *Cancer: An International Interdisciplinary Journal of the American Cancer Society*, *128*(1), 122-130. https://doi.org/10.1002/cncr.33894
[6] National Cancer Institute. (2022). *Cancer Disparities*. National Institutes of Health. https://www.cancer.gov/about-cancer/understanding/disparities
[7] Snyder, R. A., & Chang, G. J. (2019). *Financial toxicity: A growing burden for cancer patients*. https://www.facs.org/for-medical-professionals/news-publications/news-and-articles/bulletin/2019/09/financial-toxicity-a-growing-burden-for-cancer-patients/
[8] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[9] NC State Center for Health Statistics. (2021). *2021 BRFSS Survey Results: North Carolina, Tobacco Use, Smoking Status*. https://schs.dph.ncdhhs.gov/data/brfss/2021/nc/risk/_smoker3.html
[10] Centers for Disease Control and Prevention. (2022). *Health Problems Caused by Secondhand Smoke*. https://www.cdc.gov/tobacco/secondhand-smoke/health.html
[11] American Lung Association. (2023). *Top 10 Populations Disproportionately Affected by Cigarette Smoking and Tobacco Use* (State of Tobacco Control, Issue. https://www.lung.org/research/sotc/by-the-numbers/top-10-populations-affected
[12] ETC Institute. (2023). *2022 Durham County Resident Survey Findings Report*. https://www.dconc.gov/home/showpublisheddocument/38594/638137035308500000
[13] Partnership for a Health Durham, & Durham County Department of Public Health. (2022). *2022 Durham County State of the County Health Report*. https://healthydurham.org/cms/wp-content/uploads/2023/10/Durham-2022-SOTCH.pdf
[14] NC State Center for Health Statistics. (2023). *2017-2021 North Carolina Preliminary Cancer Incidence by County for Selected Sites Per 100,000 Population, Age-Adjusted to the 2000 U.S. Standard Population*. https://schs.dph.ncdhhs.gov/schs/CCR/incidence/2021/2021-PrelimIncidenceRatesFinal-ByCounty.pdf
[15] NC State Center for Health Statistics. (2019). *Leading Causes of Death in North Carolina 2019*. https://schs.dph.ncdhhs.gov/interactive/query/lcd/getleadcauses.cfm
[16] North Carolina Central Cancer Registry. (2023). *Projected New Cancer Cases and Deaths for Selected Sites by County, 2023*. https://schs.dph.ncdhhs.gov/schs/CCR/CancerProjectionsByCounty-2023.pdf
[17] National Cancer Institute. *State Cancer Profiles: North Carolina* https://statecancerprofiles.cancer.gov/quick-profiles/index.php?tabSelected=1&statename=northcarolina
[18] NC State Center for Health Statistics. (2023). *Cancer Incidence Rates 2016-2020 (Age-Adjusted to the 2000 US Census)* https://schs.dph.ncdhhs.gov/data/cancer/incidence_rates.htm
[19] Duke Cancer Registry, Duke EHR, state cancer registries (NC, S., VA),, & contextual measures of social determinants of health (SDOH). *CREST Dashboard*.
[20] National Academies of Sciences Engineering and Medicine, National Academy of Medicine, & Committee on the Future of Nursing 2020–2030. (2021). 2, Social Determinants of Health and Health Equity. In Flaubert JL, Le Menestrel S, Williams DR, & e. al. (Eds.), *The Future of Nursing 2020-2030:*

Charting a Path to Achieve Health Equity. National Academies Press (US). https://www.ncbi.nlm.nih.gov/books/NBK573923/

Section 6.02 *Diabetes*

Overview

Diabetes is a complex, diverse chronic condition characterized by elevated blood glucose (high blood sugar), relative or absolute insulin deficiency, and abnormal carbohydrate, fat, and protein metabolism.[1] While there are several types of diabetes, the most common types are: type one diabetes (T1D), type two diabetes (T2D), and gestational diabetes mellitus (GDM). T1D, previously referred to as juvenile-onset diabetes, is due to autoimmune destruction of the β-cells in the pancreas leading to a lack of insulin which leads to a rise in blood glucose. The destruction of the β-cells is thought to be genetic predisposition and/or environmental factors. However, the environmental factors are not well understood.[1] T2D, was once referred to as "noninsulin-dependent or adult onset", is caused by a defect in how insulin is secreted and it is related to inflammation, metabolic stress, genetics, and other factors.[1] The exact cause of T2D is unknown. However, people with T2D are often overweight, obese, or of average weight with high body fat, particularly around the abdominal area.[1] It is important to note that in both T1 and T2 diabetes, different genetic and environmental factors, such as lack of healthy foods, air pollution, and low physical activity, can cause the pancreatic cells to lose function which leads to high blood sugar.[1] GDM is a type of diabetes that is usually diagnosed in the 2nd or 3rd trimester of pregnancy. During pregnancy, the placenta produces different types of hormones causing insulin resistance and exhibits high blood sugar levels.[2] The pancreas is unable to overcome the insulin resistance resulting in GDM.

Prediabetes is a term used when individuals have blood sugar levels higher than normal, but do not meet criteria for a diagnosis of diabetes. In 2021, one in three adults or 97.6 million adults, 18 years and older, in the U.S. had prediabetes.[1; 3] Individuals with prediabetes are at risk for T2D and heart disease.[1] Intensive lifestyle changes, such as dietary changes, regular moderate physical activity of at least 150 minutes per week, and 7-10% of weight loss are recommended for individuals with prediabetes, as it will help delay the onset of diabetes and diabetes-related complications.[4; 5] Other interventions include behavioral counseling and medication.[4] Engaging in lifestyle changes, such as physical activity and healthy diet, those with prediabetes can delay the onset of T2D and associated complications.[6; 7]

Primary Data

Obesity, diabetes, and food access have been among the top five health priorities in Durham County since 2018.[8] In the 2022 County-Wide CHA Survey, mental health, COVID-19, and obesity were the top three conditions of concern reported by participants; diabetes ranked sixth when including "I don't know" and "Other" as the second and fifth most common responses, respectively.[9]

Diabetes Risk Factors

Tobacco use is another diabetes risk factor with smokers being 30%-40% more likely to develop T2D.[10] A total of 12% of respondents to the 2022 County-Wide CHA Survey reported smoking every day or some days.[9]

Secondary Data

According to the Centers for Disease Control and Prevention (CDC), 8.5% of adults in the U.S. population had been diagnosed with diabetes (type one and type two) in 2021.[11] The CDC reports that 11.1% of adults in North Carolina had diagnosed T1D/T2D in 2021.[11] In Durham County, 9.2% of adults ages 20+ had diagnosed diabetes in 2021, 9.1% in 2020, and 7.6% in 2019.[12]

Economic Burden

Diabetes continues to be an economic burden in the U.S. In 2022, the estimated cost of diagnosed diabetes was $413 billion.[13] In North Carolina, diagnosed diabetes costs the state approximately $10.6 billion each year.[13] Diabetes is directly responsible for more than an eighth of U.S. health care expenditure and generates additional indirect costs by reducing productivity.[14] Federal, state, and local government, and ultimately taxpayers, are burdened by these costs.[14]

Diabetes Risk Factors

There are many risk factors that lead to T2D including a BMI $\geq$ 25 kg/m^2; however, not all individuals with diabetes are obese or overweight.[1] In 2021, 34% of the Durham adult population was reported to be obese.[15]

Diabetes Complications

Individuals with T2D who are at high risk for complications are those who have had diabetes for more than ten years. They have an additional cardiovascular risk (e.g. age, hypertension, high cholesterol, tobacco use, or obesity) and are ten times more likely to require a lower limb amputation, have visual impairments, and develop chronic kidney disease.[16-19]

Interpretations: Disparities, Gaps, Emerging Issues

Diabetes disproportionately affects different racial and ethnic groups because of structural and institutional racism and historically racist policies. National data from 2019-2021 indicated that the percentage of diagnosed diabetes in the United States was highest among Indigenous or Native American adults at 14.5%. The percentage of Black or African American adults with diagnosed diabetes was 12.1%; Hispanic or Latina/o/x adults was 11.7%; Asian adults was 9.1%; white adults was 6.9%.[20] A history of unconsented medial experimentation, especially on Indigenous or Native American and Black or African American communities, has resulted in implicit bias within the medical community and in poor quality of care for these communities. It also has resulted in many Native American and Black or African American individuals avoiding preventative and timely medical care. Racial segregation and redlining have resulted in neighborhoods that lack access to healthy food, opportunities for physical activity, educational resources, medical resources, and adequate safe housing.[21]

Food insecurity, defined by the USDA as the limited or uncertain availability of nutritionally adequate and safe foods, has been found to correlate with diabetes status. In a study of the National Health and Nutrition Examination Survey (NHANES) from 2005-2014, those with prediabetes, diabetes, or undiagnosed diabetes were more likely to be food insecure (39%, 58%, 81% respectively) than those without diabetes.[22] Results from the 2022 Durham County-wide Community Health Assessment Survey showed that Blacks or African Americans reported more food insecurity than whites.[9]

Social determinants of health, including educational obtainment and socioeconomic status, are linked to the risk of being diagnosed with diabetes. Education level is associated with diabetes prevalence; about 13% of adults with less than a high school education, nine percent with a high school education, and seven percent with more than a high school education have a diagnosis of diabetes. In 2019-2021, adults in the U.S. with family income above 500% of the federal poverty level had the lowest prevalence of diabetes for both men (six percent) and women (four percent).[3]

Diabetes and COVID-19

Evidence suggests that COVID-19 disproportionately affects men, the elder population, Black or African American, Hispanic or Latina/o/x and Indigenous or Native American communities, and those with certain chronic conditions (i.e. diabetes, cardiovascular disease and obesity).[23] In addition, there is emerging data regarding the relationship on new-onset diabetes and COVID-19.[24]

Recommended Strategies

- Increase access to affordable, culturally appropriate nutritious foods and safe places to be physically activity.
- Advance and sustain organizational governance and leadership that promotes health equity through policy, practices and resources.[21]
- Offer language assistance to individuals who have limited English proficiency and/or other communication needs, at no cost to them, to facilitate timely access to all health care services. Inform all individuals of the availability of language assistance services clearly in their preferred language, verbally and in writing.[21]
- Partner with the community to design, implement, and evaluate policies, practices and services to address diabetes.[21]
- Increase access to Diabetes Self-Management Education and Support Programs (DSMES). DSMES facilitate skills and habits necessary for optimal self-care which can lead to improved health outcomes, quality of life, and reduced health care costs.[25; 26]
- Improve diabetes care coordination through shared electronic health platforms.[18; 19]
- Invest in school-based health centers and text-message based health interventions.[27]
- Provide more culturally adapted healthcare; provide more cultural competency and implicit bias training for medical providers. Invest in culturally relevant diabetes prevention programs.[28]
- Expand investment in Community Health Workers (CHWs).[29]
- Invest in mental health resources for people experiencing Diabetes.[26]

Current Initiatives & Activities

American Diabetes Association
Diabetes program directory.
https://professional.diabetes.org/content-page/diabetes-support-directory

Betr Health
Betr Health offers CDC-recognized diabetes prevention programs delivered through telehealth. May be covered through insurance. https://www.betrhealth.com

DiabetesFreeNC
DiabetesFreeNC is a website designed to assess risk, provide resources, and connect individuals to CDC-recognized diabetes prevention programs in North Carolina. https://www.Diabetesfreenc.com

Duke Primary Care Adult Diabetes Education Program
Duke Primary Care offers diabetes education and nutrition counseling with individual and group sessions. Physician's referral required. https://www.dukehealth.org/treatments/primary-care/diabetes-education-and-nutrition-counseling-program

Durham County Department of Public Health
DCoDPH offers many programs to help prevent diabetes and its complications.

- Living Healthy with Diabetes and Living Healthy with Chronic Disease are six-to-eight-week workshops that are offered in English and Spanish. https://www.dcopublichealth.org/services/health-education/health-promotion-and-wellness-3632
- Minority Diabetes Prevention Program (MDPP) is a yearlong program during which a trained coach will encourage participants as they explore how healthy eating, physical activity and behavior changes can help reduce their risk for diabetes and benefit their overall health. Offered in English and Spanish. Requires a referral. https://www.dcopublichealth.org/services/nutrition/cci
- A Diabetes Support Group led by a Health Educator that meets virtually on the 4th Tuesdays of every month. It is open to anyone diagnosed with diabetes or family members of people living with diabetes. https://us02web.zoom.us/meeting/register/tZcode2orDkpH9EJ3m_qPrLLmmMYr8TgaMHp
- Taking Care with Diabetes is a diabetes self-management education program led by a registered dietitian and certified diabetes educator. The program includes individual counseling appointments and group workshops. Requires a referral. https://www.dcopublichealth.org/services/nutrition/nutrition-clinic-3671

Eat Smart, Move More, Prevent Diabetes (ESMMPD)
ESMMPD is a 12-month CDC-recognized diabetes prevention program that is held online with a live instructor. One-on-one support available outside of class. Provided to North Carolina residents at low or no cost. https://www.esmmpreventdiabetes.com

Partnership for a Healthy Durham Physical Activity, Nutrition, and Food Access Committee (PANFA)
PANFA is a collaboration of individuals and organizations working to improve the health and wellbeing of Durham County residents through increasing access to physical activity opportunities, school nutrition, and nutritious food. healthydurham.org

Project Power
The American Diabetes Association's (ADA) Project Power aims to help adults and youth raise diabetes awareness, offers diabetes risk tests and lifestyle change programs. The youth

component is an afterschool program for children between five and twelve years old that is delivered virtually at no cost. https://diabetes.org/project-power

YMCA of the Triangle Diabetes Prevention Program
A year-long diabetes prevention program during which a trained coach encourages participants as they explore how healthy eating, physical activity and behavior changes can help reduce their risk for diabetes and benefit their overall health. Now offering virtual support.
https://www.ymcatriangle.org/programs/fitness-and-wellness/diabetes-prevention-program

References

[1] American Diabetes Association Professional Practice Committee. (2022). 2. Classification and Diagnosis of Diabetes: Standards of Medical Care in Diabetes-2022. *Diabetes care*, *45*, S17–S38. https://doi.org/10.2337/dc22-S002

[2] Mack, L. R., Tomich, P. G. (2017). Gestational Diabetes: Diagnosis, Classification, and Clinical Care. *Obstetrics and Gynecology Clinics of North America*, *44*(2), 207-217. https://doi.org/https://doi.org/10.1016/j.ogc.2017.02.002

[3] Centers for Disease Control and Prevention. (November 29, 2023). *National Diabetes Statistics Report: Estimates of Diabetes and Its Burden in the United States*. https://www.cdc.gov/diabetes/data/statistics-report/index.html

[4] American Diabetes Association. (2021). 3. Prevention or Delay of Type 2 Diabetes: Standards of Medical Care in Diabetes—2021. *Diabetes care*, *44*, 34-39. https://doi.org/10.2337/dc21-S003

[5] Gong, Q., Zhang, P., Wang, J., Ma, J., An, Y., Chen, Y., Zhang, B., Feng, X., Li, H., Chen, X., Cheng, Y. J., Gregg, E. W., Hu, Y., Bennett, P. H., Li, G., & Da Qing Diabetes Prevention Study Group. (2019). Morbidity and mortality after lifestyle intervention for people with impaired glucose tolerance: 30-year results of the Da Qing Diabetes Prevention Outcome Study. *The lancet. Diabetes & endocrinology*, *7*(6), 452-461. https://doi.org/10.1016/s2213-8587(19)30093-2

[6] Centers for Disease Control and Prevention. (July 7, 2022). *The Surprising Truth About Prediabetes*. https://www.cdc.gov/diabetes/library/features/truth-about-prediabetes.html

[7] Sallar, A., Dagogo-Jack, S. (2020). Regression from prediabetes to normal glucose regulation: State of the science. *Society for Experimental Biology and Medicine*, *245*(10). https://doi.org/doi.org/10.1177/15353702209156

[8] Partnership for a Healthy Durham, & Durham County Department of Public Health. (2022). *Obesity, Diabetes, and Food Access: Durham County, NC* (Top Health Priorities, Issue. https://healthydurham.org/cms/wp-content/uploads/2022/08/Obesity-Diabetes-and-Food-Access-FINAL-1.pdf

[9] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

[10] Centers for Disease Control and Prevention. (May 5, 2022). *Smoking and Diabetes*.

[11] United States Diabetes Surveillance System & Division of Diabetes Translation. *Diagnosed diabetes-total, adults aged 18+ years, age-adjusted percentage, national* https://gis.cdc.gov/grasp/diabetes/diabetesatlas-surveillance.html

[12] United States Diabetes Surveillance System, & Division of Diabetes Translation. *Diagnosed Diabetes - Total, Adults Aged 20+ Years, Crude Percentage, Durham County, North Carolina*. https://gis.cdc.gov/grasp/diabetes/diabetesatlas-surveillance.html#

[13] American Diabetes Association. (2023). *The burden of diabetes in North Carolina*. https://www2.diabetes.org/sites/default/files/2023-03/ADV_2023_State_Fact_sheets_all_rev_NC.pdf

[14] O'Connell, J. M., Manson, S.M. (2019). Understanding the economic costs of diabetes and prediabetes and what we may learn about reducing the health and economic burden of these conditions. *Diabetes Care*, *42*(9), 1609-1611. https://doi.org/https://doi.org/10.2337/dci19-0017

[15] Partnership for a Health Durham, & Durham County Department of Public Health. (2022). *2022 Durham County State of the County Health Report*. https://healthydurham.org/cms/wp-content/uploads/2023/10/Durham-2022-SOTCH.pdf

[16] Greenwood, D. A., Gee, P. M., Fatkin, K. J., & Peeples, M. (2017). A Systematic Review of Reviews Evaluating Technology-Enabled Diabetes Self-Management Education and Support. *Journal of Diabetes Science and Technology*, *11*(5), 1015-1027. https://doi.org/10.1177/1932296817713506
[17] Pereira, K., Phillips, B., Johnson, C., Vorderstrasse, A. . (2015). Internet Delivered Diabetes Self-Management Education: A Review. *Diabetes Technology & Therapeutics*, *17*(1), 55-63. https://doi.org/10.1089/dia.2014.0155
[18] Schmittdiel, J. A., Gopalan, A., Lin, M.W., et al. (2017). Population health management fr diabetes: health care system-level approaches for improving quality and addressing disparities. *Current Diabetes Reports*, *17*(31). https://doi.org/doi.org/10.1007/s11892-017-0858-3
[19] Chai, S., Yao, B., Xu, L., Wang, D., Sun, J., Yuan, N., Zhang, X., Ji, L. (2018). The effect of diabetes self-management education on psychological status and blood glucose in newly diagnosed patients with diabetes type 2. *Patient Education and Counseling*, *101*(8), 1427-1432. https://doi.org/doi.org/10.1016/j.pec.2018.03.020
[20] Centers for Disease Control and Prevention. (October 25, 2022). *By the Numbers: Diabetes in America*. https://www.cdc.gov/diabetes/health-equity/diabetes-by-the-numbers.html
[21] Golden, S. H., Joseph, J.J., Hill-Briggs, F. (2021). Casting a health equity lens on endocrinology and diabetes. *The Journal of Clinical Endocrinology & Metabolism*, *106*(4), e1909-e1916. https://doi.org/doi.org/10.1210/clinem/dgaa938
[22] Walker, R. J., Grusnick, J., Garacci, E., Mendez, C., Egede, L.E. (2018). Trends in Food Insecurity in the USA for Individuals with Prediabetes, Undiagnosed Diabetes, and Diagnosed Diabetes. *Journal of General Internal Medicine*, *34*, 33-35. https://doi.org/doi.org/10.1007/s11606-018-4651-z
[23] Singh, A. K., & Khunti, K. (2022). COVID-19 and Diabetes. *Annual Review of Medicine*, *73*, 129-147. https://doi.org/10.1146/annurev-med-042220-011857
[24] Khunti, K., Del Prato, S., Mathieu, C., Kahn, S.E., Gabbay, R.A., Buse, J.B. (2021). COVID-19, Hyperglycemia, and New-Onset Diabetes. *Diabetes Care*, *44*(12), 2645-2655. https://doi.org/doi.org/10.2337/dc21-1318
[25] American Diabetes Association. (2023). 5. Facilitating Positive Health Behaviors and Well-being to Improve Health Outcomes: Standards of Care in Diabetes-2023. *Diabetes Care*, *46*, S68-S96. https://doi.org/10.2337/dc23-S005
[26] Powers, M. A., Bardsley, J. K., Cypress, M., Funnell, M. M., Harms, D., Hess-Fischl, A., Hooks, B., Isaacs, D., Mandel, E. D., Maryniuk, M. D., Norton, A., Rinker, J., Siminerio, L. M., & Uelmen, S. (2020). Diabetes Self-management Education and Support in Adults With Type 2 Diabetes: A Consensus Report of the American Diabetes Association, the Association of Diabetes Care & Education Specialists, the Academy of Nutrition and Dietetics, the American Academy of Family Physicians, the American Academy of PAs, the American Association of Nurse Practitioners, and the American Pharmacists Association. *Diabetes Care*, *43*(7), 1636-1649. https://doi.org/10.2337/dci20-0023
[27] University of Wisconsin Population Health Institute. (2023). *What Works for Health*. https://www.countyhealthrankings.org/strategies-and-solutions/what-works-for-health/strategies?keywords=diabetes&sort_by=search_api_relevance
[28] Lagisetty, P. A., Priyadarshini, S., Terrell, S., Hamati, M., Landgraf, J., Chopra, V., & Heisler, M. (2017). Culturally Targeted Strategies for Diabetes Prevention in Minority Population:A Systematic Review and Framework. *The Diabetes Educator*, *43*(1), 54-77. https://doi.org/10.1177/0145721716683811

[29] Association, A. D. (2017). 1. Improving Care and Promoting Health in Populations: Standards of Medical Care in Diabetes—2018. *Diabetes Care*, *41*(Supplement_1), S7-S12. https://doi.org/10.2337/dc18-S001

Section 6.03 *Heart Disease and Stroke*

Overview

Globally, ischemic heart disease and stroke are the number one and number two causes of death, respectively, accounting for an estimated 17 million deaths annually.[1] Across the United States (US), heart disease was the number one cause of death and stroke the number five cause of death in 2017.[2] In 2019, an estimated 18.8% of deaths in Durham County were due to heart disease and 4.3% due to stroke or other causes of cerebrovascular disease.[3]

Despite being a leading cause of death globally, it is estimated that 80% of premature deaths from heart attacks and stroke could be avoided by addressing their most significant risk factors, including tobacco use, unhealthy diet, lack of physical activity, high blood pressure, high cholesterol, diabetes mellitus, and being overweight or obese.[4; 5] Addressing these risk factors can help decrease the risk of developing and dying from heart disease and stroke.

Primary Data

The 2022 Durham County County-wide Community Health Assessment (CHA) Survey asked the community to weigh in on the merits and needs of their community in an effort to help direct the selection of community health priorities. As in prior years, residents of Durham County surveyed in the county-wide sample identified obesity (18.5%) and diabetes mellitus (14.6%) as major diseases/conditions of concern.[6]

According to the American Heart Association (AHA), engaging in 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous aerobic activity can improve heart health and reduce the risk of developing heart disease.[7] According to the 2022 County-wide CHA, Durham County residents were less active in all types of exercise, compared to the 2019 CHA.[8] Notably, in 2022 67.8% of Durham residents walked for exercise (down from 81.8% in 2019), 20.0% hiked (down from 28.8%), 6.8% swam (down from 25.5%), and 12.7% participated in fitness classes (down from 17.9%).[8]

In addition, 19.5% of respondents identified cost as a barrier to eating healthy all the time (up from 16.3% in 2019) and 29.8% identified lack of time as an additional barrier (up from 23.8% in 2019). Lastly, 12.9% responded that they smoked cigarettes, which was down from 35.6% in 2019.[8]

Secondary Data

Some of the risk factors for heart disease and stroke continue to be very common in the US Between 2017 – 2020, nearly half of all adults in the US had high blood pressure or hypertension, defined as a systolic blood pressure greater than 130 mmHg, a diastolic blood pressure greater than 80 mmHg, or taking a medication for high blood pressure.[9] In 2019, almost 13% of the adult Durham County population was living with diabetes, with rates highest among those who identify as Black or African American (18.6%), followed by Hispanic or Latina/o/x (13.2%), white (9.3%), and Asian (8.1%).[10]

Heart Disease

In 2019, heart disease was the number two cause of death in North Carolina, accounting for 20.5% of all deaths for a total of 19,661 deaths.[11] Only cancer caused slightly more deaths in North

Carolinians (19,963). In Durham County, heart disease was the cause of 18.8% of deaths (410 deaths) in 2019.[3]

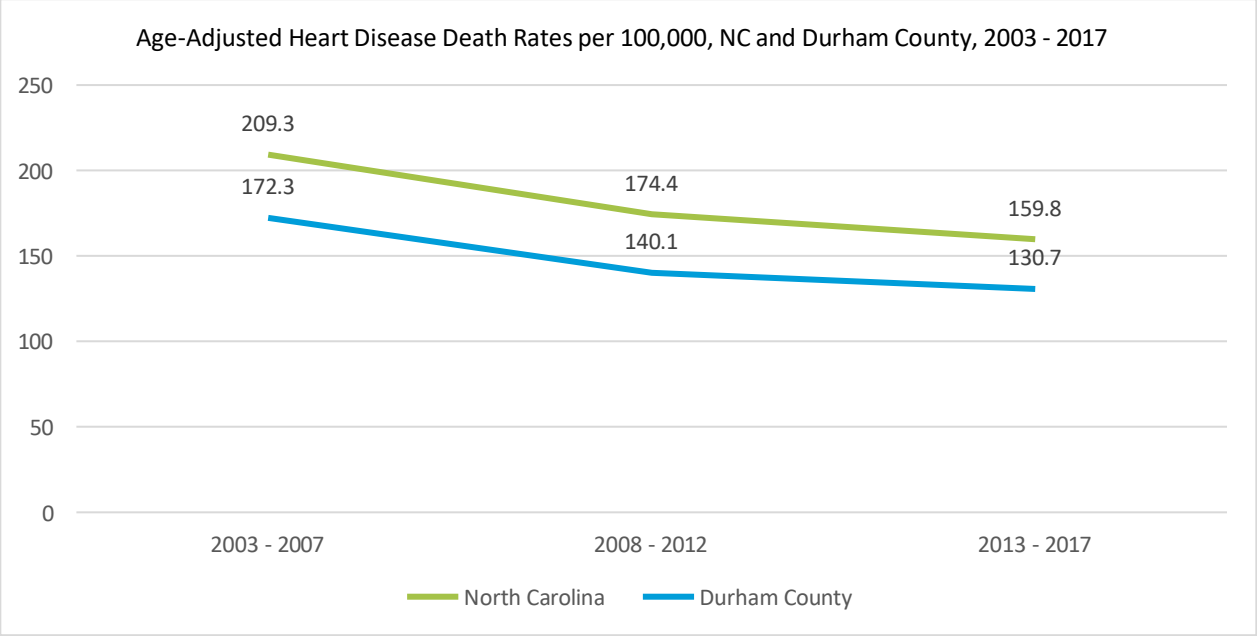


Figure 6.03a. Heart Disease Death Rates, 2003-2017[12]

In 2019, 3,537 adults in Durham County were diagnosed with a heart attack at Lincoln Community Health Center or Duke Health. Of these, 1,464 (41.4%) were Black or African American and 1,769 (50.0%) white. Furthermore, 2,029 (57.4%) of heart attacks occurred in males and 1,421 (40.2%) in females, with the remaining 347 (9.8%) with an unknown sex.[13]

Stroke

In 2019, stroke and other cerebrovascular diseases was the number four cause of death in North Carolina, accounting for 5.4% of all deaths (5203 deaths).[11] In Durham County, stroke and other cerebrovascular diseases was the cause of 4.3% of deaths (95 deaths) in 2019.[3]

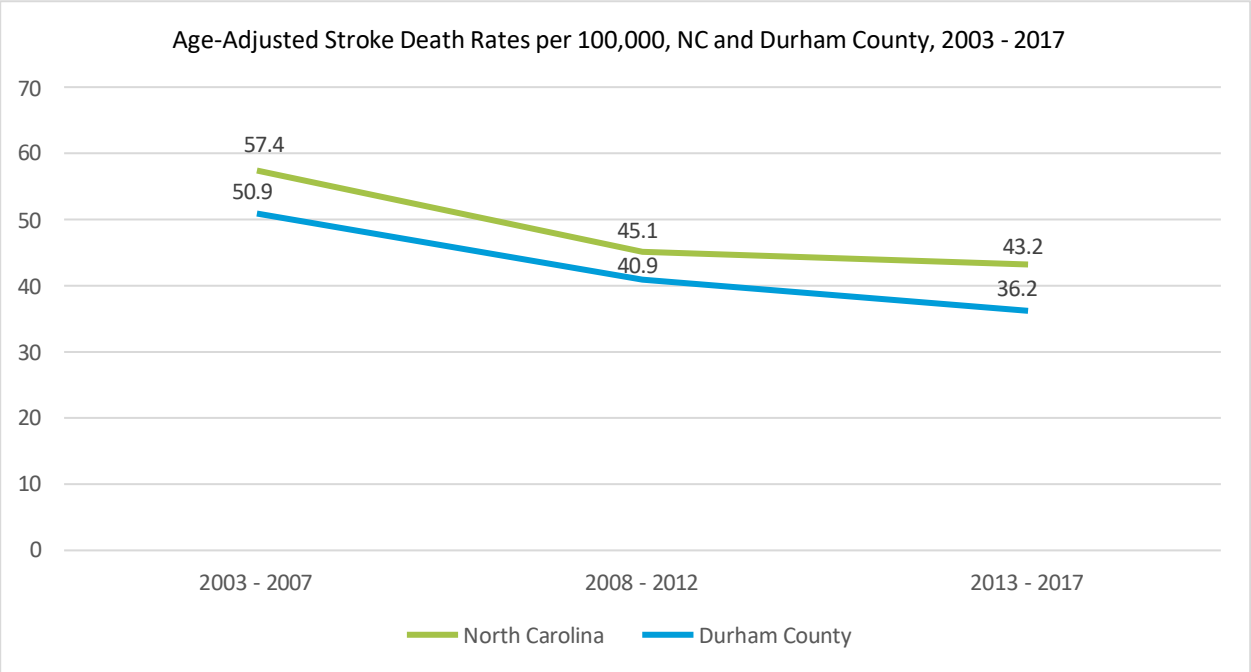


Figure 6.03b. Heart Disease Death Rates, 2003-2017[12]

In 2019, 5,136 adults in Durham County were diagnosed with a stroke in Durham County. Of these, 2,303 (44.8%) were diagnosed in Black or African Americans and 2,480 (48.3%) in whites. Furthermore, 2,392 (46.6%) occurred in males and 2,735 (53.3%) in females, with the remaining 98 (1.9%) with an unknown sex.[12]

Interpretations: Disparities, Gaps, Emerging Issues

Racial Disparities

Heart disease and stroke continue to disproportionately affect individuals who identify as Black, Indigenous, and People of Color (BIPOC). For example, from 2017-2021 in North Carolina, while the rate of fatal heart attacks in non-Hispanic whites was 25.9 per 100,000 population, it was 28.9 per 100,000 in those who identify as Black or African American and 41.3 per 100,000 in those who identify as American Indian.[14] Similarly, over the same time period in North Carolina the rate of death from stroke or other cerebrovascular diseases was 41.8 per 100,000 in non-Hispanic whites but 57.4 per 100,000 in those who identify as Black or African American.[14]

Why do these disparities in health outcomes exist? Those who identify as Black or African American are more likely to have high blood pressure, peripheral vascular disease, be overweight or obese, and are twice as likely to have diabetes mellitus than non-Hispanic whites. Diabetes mellitus is an important risk factor for heart disease and stroke in members of the American Indian/Alaska Native (AIAN) community, and hyperlipidemia, high blood pressure, kidney disease, and being overweight or obese is also common in this population. In addition, cigarette smoking and substance use (including alcohol misuse) are also prevalent in the AIAN population.[15] Members of the Hispanic or Latino population are more likely to have high blood pressure, be overweight or obese, and are more likely to have diabetes mellitus than non-Hispanic whites.[16] Why do these health disparities exist? Importantly, structural racism – ranging from interpersonal interactions between medical practitioners and patients to institutional/structural conditions and

practices – likely underlies many of these health disparities and has been linked to higher rates of cardiovascular disease among members of the BIPOC population.[17; 18]

Recommended Strategies

- Eating a healthy diet can significantly lower the risk of heart disease and stroke. This includes a diet rich in fruits, vegetables, omega-3 fatty acids, and fiber. It should be low in foods high in sugar and trans fatty acids or saturated fats.
- Cigarette smoking is the leading cause of premature death globally and is a major contributor to death and sickness from heart disease and stroke. Fortunately, even quitting smoking as an older adult can have significant benefits so it is never too late to quit.[19] A number of approaches exist including behavioral therapy, nicotine replacement therapy, and medications.
- High blood pressure is a significant contributor to heart disease and stroke, with optimal blood pressure depending on underlying medical conditions. All individuals diagnosed with high blood pressure should eat a healthy diet and increase physical activity, but if these interventions alone are not sufficient, there are a number of safe and effective medications to treat high blood pressure. All individuals should be screened regularly for high blood pressure when they see their medical practitioner.
- High cholesterol is another risk factor for heart disease and stroke. Age-appropriate screening can help diagnose high cholesterol. In addition to eating a healthy diet, maintaining a desirable body weight, and regular physical activity, there are medications to treat high cholesterol that can be prescribed by a medical practitioner, if needed.
- Regular physical activity can reduce the risk of heart disease and stroke and is recommended during childhood and throughout life. Engaging in 150 minutes per week of moderate-intensity aerobic activity or 75 minutes per week of vigorous aerobic activity will improve heart health and reduce the risk of heart disease.[20] Even brisk walking for 20 minutes a day has been shown to have significant benefits on the risk of heart disease and stroke.[21]
- Maintaining a healthy weight is also protective against heart disease and stroke. Conversely, being overweight increases the risk for other risk factors for heart disease and stroke such as high blood pressure, high cholesterol, and diabetes mellitus. A combination of behavior modification, diet, increased physical activity, medications and surgery can help individuals lose weight.
- Continuing to address underlying health disparities and the root causes of these disparities, such as unequal access to quality health care, systemic and structural racism, discrimination, and disparities in social determinants of health.

Current Initiatives & Activities

American Heart Association (AHA) is the nation's oldest and largest voluntary organization dedicated to fighting heart disease and stroke. In addition to the work of millions of volunteers and supporters and 2900 employees, the AHA has invested billions of dollars in cardiovascular and cerebrovascular disease research. https://www.heart.org/en/about-us

American Stroke Association (ASA) is committed to identifying and removing barriers for health care access and quality and advancing cardiovascular health for all. https://www.stroke.org/en/about-the-american-stroke-association

Community Health Coalition provides culturally sensitive and specific health education, promotion and disease prevention activities to Durham's disadvantaged and underserved community. Its goal is to improve the lives of the underserved and the most vulnerable populations. https://www.chealthc.org/about

Duke Heart Center, Duke University Health System offers state-of-the-art cardiovascular service with a dual focus on clinical services and cardiovascular research. The program includes a Community Outreach and Education Program that offers heart health screenings, discussions, and health-education events. https://www.dukehealth.org/treatments/heart

Durham County Department of Public Health and its health educators address issues related to health promotion/disease prevention, wellness, chronic diseases and injuries through evidence-based programs, webinars, and events. Intervention and educational activities are provided at community sites, schools, and clinics. https://www.dcopublichealth.org/

Healing with CAARE, Inc. was established in 1996 and offers an integrative approach to the delivery of health and wellness, education, counseling, treatment, and case management that leads to stability and sustainability. Its goal is to provide a healing space to address community needs and reduce health and socioeconomic disparities. CAARE's Free Clinic offers a variety of services provided by a rotation of volunteer health care providers, as well as a lab. CAARE focuses on the five most severe health disparities in the county - HIV/AIDS, diabetes, hypertension, obesity, and cancer. CAARE offers free blood pressure checks. https://www.caare-inc.org/

Lincoln Community Health Center (LCHC) provides Primary Care (routine and urgent care) from 11 sites around Durham County. As a Federally Qualified Health Center, LCHC offers medical services and medications on a sliding scale based on household income information provided by the individual. Primary Care Providers offer free blood pressure cuffs and free educational opportunities to patients with severe hypertension at high risk of heart attack or stroke. https://lincolnchc.org/

Partnership for a Healthy Durham: Physical Activity, Nutrition, Food Access Committee (PANFA)
PANFA is comprised of community members and organizations, both small and large, that have a common goal of working to improve the health and wellbeing of Durham County residents through physical activity, school nutrition, and improved food access. The group is housed in the Durham County Department of Public Health and meetings are held virtually each month for all that are interested in the work. www.healthydurham.org

Root Causes Fresh Produce Program- The Fresh Produce Program offers local, fresh produce and shelf stable pantry items to Duke patients with underlying chronic diseases, such as heart disease, and food insecurity in the Durham Community.

References

[1] World Health Organization. *The Global Health Observatory. Explore a world of health data.* https://www.who.int/data/gho/data/themes/mortality-and-global-health-estimates
[2] Tejada-Vera B. (2019). *Leading Causes of Death: United States, 1999–2017*. National Center for Health Statistics. https://www.cdc.gov/nchs/data-visualization/mortality-leading-causes/index.htm
[3] NC State Center for Health Statistics. (2019). *Leading Causes of Death in North Carolina 2019: Durham County*. https://schs.dph.ncdhhs.gov/interactive/query/
[4] National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP). (September 8, 2022). *Heart Disease and Stroke*. Centers for Disease Control and Prevention,. https://www.cdc.gov/chronicdisease/resources/publications/factsheets/heart-disease-stroke.htm
[5] World Health Organization. *Cardiovascular diseases*. https://www.who.int/europe/health-topics/cancer/cardiovascular-diseases#tab=tab_1
[6] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[7] American Heart Association. (2024, January 19, 2024). *American Heart Association Recommendations for Physical Activity in Adults and Kids*. https://www.heart.org/en/healthy-living/fitness/fitness-basics/aha-recs-for-physical-activity-in-adults
[8] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023*. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[9] Centers for Disease Control and Prevention. (July 6, 2023). *Facts About Hypertension*. https://www.cdc.gov/bloodpressure/facts.htm
[10] Durham Neighborhood Compass. (2019). *Diabetes (Adult Population), 2019*. https://compass.durhamnc.gov/en/compass/DIABETES_TOTAL/tract/
[11] NC State Center for Health Statistics. (2019). *Leading Causes of Death in North Carolina 2019: All Counties*. https://schs.dph.ncdhhs.gov/interactive/query/
[12] North Carolina Department of Health and Human Services Division of Public Health/State Center for Health Statistics. (2019). *North Carolina Statewide and County Trends in Key Health Indicators: Durham County* (North Carolina Trends Reports, Issue. https://schs.dph.ncdhhs.gov/data/keyindicators/reports/Durham.pdf
[13] Durham Neighborhood Compass. (2019). *Heart Attack (Female), 2019*. https://compass.durhamnc.gov/en/compass/HEARTATTACK_FEMALE/tract/
[14] Division of Public Health N.C. Department of Health and Human Services State Center for Health Statistics. (2023). *2017-2021 NC Resident Race/Ethnicity-Specific and Sex-Specific Age-Adjusted Death Rates Standard = Year 2000 U.S. Population ; *Rates Per 100,000 Population*. https://schs.dph.ncdhhs.gov/data/databook/CD12B-2017-2021-RaceSpecificAndSexSpecificRates.html
[15] Breathett, K., Sims, M., Gross, M., Jackson, E. A., Jones, E. J., Navas-Acien, A., Taylor, H., Thomas, K. L., & Howard, B. V. (2020). Cardiovascular Health in American Indians and Alaska Natives: A Scientific Statement From the American Heart Association. *Circulation,*(141), e948-e959. https://doi.org/10.1161/cir.0000000000000773
[16] Graham, G. (2015). Disparities in Cardiovascular Disease Risk in the United States. *Current Cardiology Reviews*, *11*(3). https://doi.org/10.2174/1573403x11666141122220003
[17] Lukachko, A., Hatzenbuehler, M. L., & Keyes, K. M. (2014). Structural racism and myocardial infarction in the United States. *Soc Sci Med*, *103*, 42-50. https://doi.org/10.1016/j.socscimed.2013.07.021
[18] Banerjee, S., Aaysha Cader, F., Gulati, M., & Capers, Q. t. (2021). Racism and Cardiology: A Global Call to Action. *CJC Open*, *3*(12 Suppl), S165-s173. https://doi.org/10.1016/j.cjco.2021.09.014

[19] LaCroix, A. Z., Lang, J., Scherr, P., Wallace, R. B., Cornoni-Huntley, J., Berkman, L., Curb, J. D., Evans, D., & Hennekens, C. H. (1991). Smoking and mortality among older men and women in three communities. *N Engl J Med*, *324*(23), 1619-1625. https://doi.org/10.1056/nejm199106063242303

[20] American Heart Association. (January 19, 2024). *American Heart Association Recommendations for Physical Activity in Adults and Kids*. https://www.heart.org/en/healthy-living/fitness/fitness-basics/aha-recs-for-physical-activity-in-adults

[21] Manson, J. E., Hu, F. B., Rich-Edwards, J. W., Colditz, G. A., Stampfer, M. J., Willett, W. C., Speizer, F. E., & Hennekens, C. H. (1999). A prospective study of walking as compared with vigorous exercise in the prevention of coronary heart disease in women. *N Engl J Med*, *341*(9), 650-658. https://doi.org/10.1056/nejm199908263410904

Section 6.04 *Obesity and Weight Bias*

Overview

Obesity is a complicated and often misunderstood term that describes a potential correlation between weight and health. The prevailing definition of obesity provided by the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC) and National Institutes of Health (NIH), states that obesity is a Body Mass Index (BMI) classification that can be used to determine risk of disease.[1,2,3] BMI measurements are based on a ratio of weight to height. A person with a BMI of 30 or greater is classified as obese. BMI was developed to describe populations, not individuals.[4]

Many Americans believe that obesity is a choice.[5] However, as noted in several sections throughout the 2022 Durham County-Wide Community Health Assessment, there are many environmental factors that may contribute to weight gain. These factors include living in areas with chronic disinvestment, poor infrastructure, marketing of calorically dense, nutrient poor foods, high crime rates, food insecurity, and food apartheid, many of which increase difficulty for improving dietary intake and increased physical activity.[6,7] Additionally, there are biological and situational risk factors for weight gain including genetic predisposition, chronic conditions such as polycystic ovarian syndrome, hypothyroidism and lipedema; taking medications such as antidepressants, corticosteroids and some diabetes medications; smoking cessation; sleep deprivation; and chronic stress.[6,8,9,10,11]

Leading health organizations classify obesity as a chronic disease, a concept debated in the public health and medical communities, implying that those in heavier bodies are sick, regardless of metabolic abnormalities or symptoms. A common belief is that obesity is a measure of body fatness and can be used as an indicator or predictor of health. However, in adapting a new policy in June 2023 that BMI alone was not sufficient to assess health status or diagnose obesity, the American Medical Association (AMA) noted, "Numerous comorbidities, lifestyle issues, gender, ethnicities, medically significant familial-determined mortality effectors, duration of time one spends in certain BMI categories and the expected accumulation of fat with aging are likely to significantly affect interpretation of BMI data, particularly in regard to morbidity and mortality rates."[12]

From a public health perspective, as documented throughout this section, when Durham residents living in larger bodies are classified as "obese" based on their BMI, it leads to the following:[13]

- Weight bias and its consequences
- Attempts at weight loss that often result in weight gain and adverse health outcomes.
- Poor medical care for individuals living in larger bodies.
- An excessive fixation on weight and individual choices, overlooking systemic health determinants.

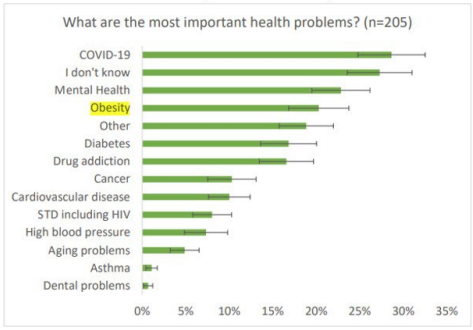
Primary Data

Obesity Data

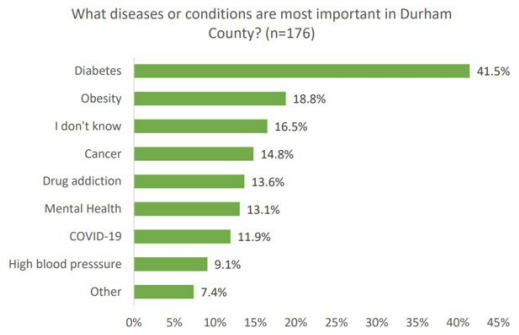
In the 2022 Durham County-Wide Community Health Assessment Survey (2022 County-Wide CHA Survey), respondents were asked their top health concerns from a list of diseases, conditions,

and health concerns. The respondents identified "obesity" as the fourth "most important health problem" in Durham County after COVID-19, "I don't know", and Mental Health.[14]

2022 Durham County Community Health Assessment



2023 Durham County Comunidad Latina Survey



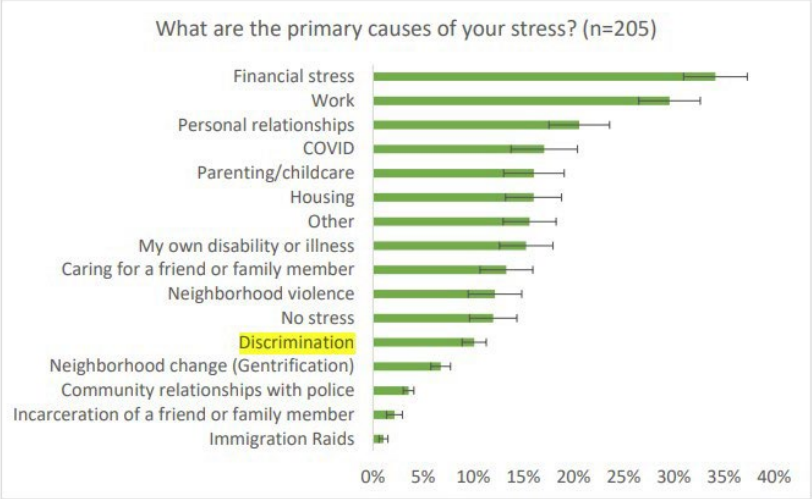
CHA Survey Year	Percentage of CHA respondents who selected Obesity as a health concern
2010	39.3%
2013	27.0%
2016	45.0%
2019	17.7%
2022	18.5%

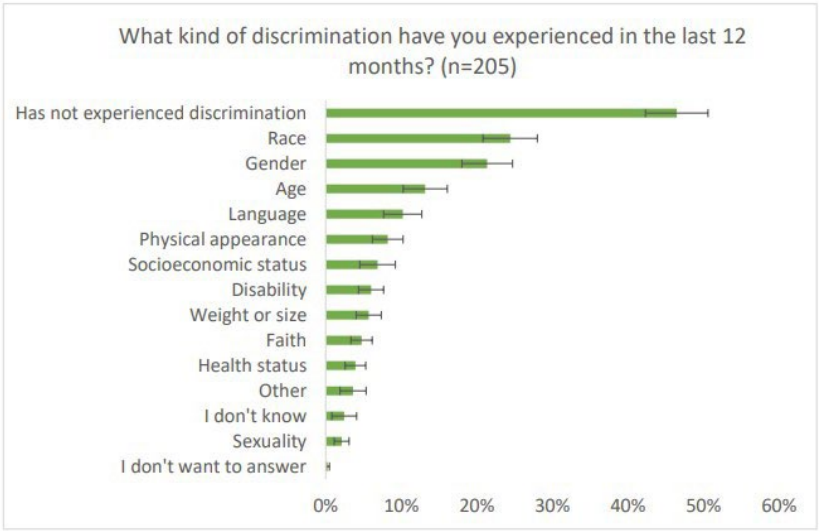
In the 2022 Durham County-Wide CHA Survey, 18.5% of participants selected obesity as a health concern. In the 2023 Durham County Comunidad Latina Health Assessment Survey the percentage was similar at 18.8%.[15] The chart above shows the change over time of the percentage of CHA Survey respondents selecting obesity as a health concern.[16]

"Obesity" was not defined in the CHA Survey, nor data given to provide context for why obesity was listed in the top diseases and conditions in Durham County. No data on obesity, weight, or specific heath status information is gathered as part of the CHA process.

Weight Bias Data

In the 2022 Durham County-Wide CHA Survey, respondents were provided a list of stressors and were then asked to select what they perceived to be their primary causes of stress. The primary cause of stress for 9.3% of respondents was "Discrimination".[14]





Of those who experienced discrimination in the last year, two of the top ten reasons residents cited for discrimination were physical appearance (8.2% of respondents) and weight or size (5.7% of respondents).

Secondary Data

According to the 2023 Robert Wood Johnson Foundation County Health Rankings for North Carolina, 36% of Durham County residents (ages 18 and older) reported a body mass index (BMI) of 30 or greater. This is consistent with the percentage across North Carolina, which is 34%. The 2023 County Health Rankings use data from 2020 for these measurements.[17]

There is a scarcity of data regarding weight bias and discrimination at the city, county, or state level. [18] Thus, assessing weight bias and discrimination is an important topic for future research.

Interpretations: Disparities, Gaps, Emerging Issues

Recommending weight loss interventions is the pervasive approach to addressing obesity. Recent data shows that 42% of Americans in total and over 26% of "normal weight" and "underweight" adults report trying to lose weight.[19,20] Yet, most dieters regain more than half of all weight lost within two years of dieting and more than 80% of weight lost within five years.[21] Frequent dieting is a predictor of future weight gain, even in those with "normal" body mass index (BMI 18.5-24.9).[22]

Weight loss attempts are linked to weight cycling, internalized weight bias, and poorer health among those dissatisfied with their weight.[23] Weight cycling, or "yo-yo dieting", occurs when patients repeatedly lose and regain weight. Historically, it was believed that white women experience body image dissatisfaction at significantly higher rates than Black or African American women. More recent studies show that it is more common for Black or African American women to experience body size dissatisfaction and weight cycling than was previously recognized.[24] This cycling is associated with negative psychological outcomes and health effects, including increased risk of fractures, gallstone attacks, muscle loss, hypertension, inflammation, some cancers, and, in some cases, higher mortality rates.[23,25] Alternatively, satisfaction with weight is associated with healthier behaviors like balanced eating, avoiding yo-yo dieting, physical activity, and non-smoking.[26]

Weight bias is a growing issue, harming Durham residents and the nation. More than 40% of U.S. adults, regardless of their body size, report experiencing weight stigma at some point in their life.[27] Women, Black or African Americans, Hispanic or Latina/o/x, and people living with multiple stigmatized identities, such as gay or transgender people, are more likely to experience weight bias.[28,29,30] Unlike racial bias, which has seen improvements, weight bias has increased.[31] It negatively impacts healthcare quality, with health professionals often displaying unconscious weight discrimination, affecting patient interactions.[32,33,34] Weight bias can lead to both missed diagnoses (false negatives) and incorrect diagnoses (false positives).[23] The notion that weight stigma motivates weight loss is refuted by research.[32] Discriminating against patients with higher BMI can also reinforce racial health disparities.[35] Due to this bias, heavier individuals may avoid or delay healthcare, leading to reduced utilization of services like cancer screenings. Patients report that physicians attribute all health problems to excess weight and assume negative health behaviors, such as overeating or binge eating.[36]

Weight bias can contribute to weight bias internalization (WBI), in which an individual applies negative stereotypes (e.g., that high weight individuals are lazy, lack self-control) to themselves, regardless of their BMI. WBI is strongly associated with worsened health-related quality of life including the following: increased risk for depression, anxiety, substance use, and suicidality; lower frequency of routine check-ups, and avoidance of exercise, especially in public.[25,37,38] This potentially undermines medical diagnosis, treatment, and health outcomes.[32]

Experiencing weight stigma is correlated with binge eating, unhealthy weight control behaviors, and emotional overeating and may be the true driver of morbidity and mortality associated with

obesity.[39] Weight stigma can negatively impact cortisol levels, blood sugar control, and inflammatory markers, ultimately increasing the risk of death independently of weight. [32,40]

Discrimination against higher-weight people extends to employment, affecting hiring and pay. This consequently impacts socioeconomic status (SES), which creates a pathway exposing heavier people to greater risk of experiencing more stressors and poorer health.[18, 41, 42] Lower SES in turn is associated with lower access to healthy food and exercise, further exacerbating weight gain.[43]

Recommended Strategies

Ethical reviews of public health interventions have found potential harms of obesity-related public health efforts including limited or poor-quality evidence of effectiveness, a focus on preventing one extreme outcome at the expense of another, lack of community engagement, and avoidance of the root causes of problems.[23] Current weight-normative obesity interventions have focused on individual behavior change and have neither reduced obesity rates nor improved health.[44] Policy and built environmental factors significantly influence an individual's ability to maintain a healthy lifestyle, including access to nutritious foods, exposure to environmental stressors, and societal norms. See physical activity and nutrition sections for strategies addressing these factors.

Healthcare providers and health promoting organizations play a significant role in how weight is communicated in clinical and community settings. Here are strategies for healthcare providers, health promoting organizations, and policy makers to address weight bias:

- **Embrace inclusivity** by encouraging weight-inclusive practices focused on health promotion independent of body size, that support person-centered, health-promoting behaviors. Promoting weight-inclusive language that did not mention weight in public health messages was found to be a low-cost method with a high level of public acceptability and political feasibility.[23]
- **Engage supportively** by focusing on health behaviors instead of weight. Interventions that focus on improved health behaviors instead of weight lead to statistically and clinically significant improvements for participant's physiological measures (including cardiorespiratory fitness) with reduced dropout rates and no adverse outcomes.[23] Patients report higher motivation and compliance with health recommendations when health care providers engage in supportive conversations on specific health behaviors, such as replacing sugary drinks with water, and less on weight and the word "obesity". [45,46]
- **Reduce harm of weight bias** by acknowledging the dangers of a weight-normative approach. County Health Rankings researchers state, "An individual's BMI cannot independently distinguish them as being healthy, unhealthy or at risk for disease." [47] Hyper-focusing on extremes and categorizing individuals based on their weight can be detrimental to an individual's progress in adopting positive health behavior changes.

Current Initiatives & Activities

For initiatives regarding nutrition and food security, refer to the 'Nutrition and Food Access" section. For initiatives regarding physical activity, refer to the "Physical Activity" section.

Below are several organizations that prioritize health and well-being and are accessible to people that have experienced weight bias.

Durham County Department of Public Health

- ***Durham's Innovative Nutrition Education (DINE)*** program offers school- and community-based anti-diet nutrition education and culinary workshops in a variety of settings for all ages. http://www.dcopublichealth.org/services/nutrition/dine
- ***Clinical Nutrition Services*** offers one-on-one nutrition counseling with a Registered Dietitian for a variety of nutrition issues. https://www.dcopublichealth.org/services/nutrition/nutrition-clinic-3671
- ***Health Promotion and Wellness*** provides educational programs to adults in community, faith-based and workplace settings, covering a range of topics on physical activity, stress management, and chronic diseases. https://www.dcopublichealth.org/services/health-education/health-promotion-and-wellness-3632

Partnership for a Healthy Durham is a coalition of local organizations and community members with the goal of collaboratively improving the physical, mental, and social health and well-being of Durham residents. Committee meetings are open to the public. https://healthydurham.org/

Duke Center for Childhood Obesity Research (DCCOR) conducts interdisciplinary research related to obesity (including weight stigma) that seeks to change practice and policy to help children lead healthier lives. https://pediatrics.duke.edu/research/institutes-centers-and-programs/duke-center-childhood-obesity-research-dccor

Duke Health and Fitness Center offers a wide variety of resources including fitness classes, a pool, wellness classes, nutritional consultations, massage therapy, and medically based exercise programs. https://www.dukehealth.org/locations/duke-health-and-fitness-center

North Carolina Alliance for Health is a coalition of partners aiming to advance equitable policies to improve health and promote health equity. Their primary focus areas include healthy food access and active living. www.ncallianceforhealth.org/

The Academy of Nutrition and Dietetics' Find a Nutrition Expert is a database of credentialed nutrition and dietetics practitioners. Durham residents can seek out a dietitian and self-advocate to identify a provider focused on behaviors rather than weight. https://www.eatright.org/find-a-nutrition-expert

Intuitive Eating Counselor Directory enables North Carolina residents to find trained and certified healthcare providers that abide by the principles of intuitive eating. Counselor Directory - Intuitive Eating

Health At Every Size (HAES) provides resources for community members seeking more information on weight-inclusive approaches.

- North Carolina Department of Health and Human Services presentation on weight inclusive practice https://www.youtube.com/watch?v=AnSvVXUJ-tQ

- Weight inclusive healthcare cards https://more-love.org/resources/free-dont-weigh-me-cards/
- Education and self-advocacy resources https://haeshealthsheets.com/resources/
- Guides to weight inclusive disease management https://haeshealthsheets.com/the-health-sheet-library/
- Association for Size Diversity and Health https://asdah.org/

References

[1] World Health Organization. (2020). *Obesity.* https://www.who.int/health-topics/obesity
[2] Centers for Disease Control and Prevention. (June 3, 2022). *Defining Adult Overweight and Obesity.* https://www.cdc.gov/obesity/basics/adult-defining.html
[3] National Institute of Diabetes and Digestive and Kidney Diseases. (2023). *Definition & Facts for Adult Overweight & Obesity.* https://www.niddk.nih.gov/health-information/weight-management/adult-overweight-obesity/definition-facts
[4] Nuttall F. Q. (2015). Body Mass Index: Obesity, BMI, and Health: A Critical Review. *Nutrition Today, 50*(3). https://doi.org/10.1097/nt.0000000000000092
[5] ASMBS and NORC at the University of Chicago. (2021). *Obesity Survey.* https://www.norc.org/content/dam/norc-org/pdfs/ASMBS%202021%20Obesity%20Survey%20Topline%20Report.pdf
[6] National Institute of Diabetes and Digestive and Kidney Diseases. (2023). *Factors Affecting Weight & Health.* https://www.niddk.nih.gov/health-information/weight-management/adult-overweight-obesity/factors-affecting-weight-health
[7] Kahan, L. G., & Mehrzad, R. (2020). Environmental factors related to the obesity epidemic. *Obesity.* (pp. 117–139). In Elsevier eBooks. https://doi.org/10.1016/b978-0-12-818839-2.00010-7
[8] Mayo Clinic. (July 22, 2023). *Obesity.* https://www.mayoclinic.org/diseases-conditions/obesity/symptoms-causes/syc-20375742
[9] American Diabetes Association (n.d.). *What Are My Options for Type 2 Diabetes Medications?* https://diabetes.org/health-wellness/medication/oral-other-injectable-diabetes-medications#:~:text=All%20sulfonylurea%20drugs%20have%20similar,blood%20glucose%20and%20weight%20gain.
[10] Kos, K. (2020). Smoking cessation, weight gain, and cardiovascular risk. *The Lancet Diabetes & Endocrinology, (8)*2, 93-95. https://www.thelancet.com/journals/landia/article/PIIS2213-8587(19)30424-3/fulltext
[11] Hewagalamulage, S. D., Lee, T. K., Clarke, I. J., & Henry, B. A. (2016). Stress, cortisol, and obesity: a role for cortisol responsiveness in identifying individuals prone to obesity. *Domestic Animal Endocrinology, (56),* S112–S120. https://doi.org/10.1016/j.domaniend.2016.03.004
[12] American Medical Association. (June 14, 2023). *Use of BMI Alone is an Imperfect Clinical Measure.* https://www.ama-assn.org/delivering-care/public-health/ama-use-bmi-alone-imperfect-clinical-measure
[13] American Psychological Association. (March 1, 2022). *The burden of weight stigma: Weight gain is on the rise, but shaming people won't reverse the trend.* https://www.apa.org/monitor/2022/03/news-weight-stigma
[14] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). 2022 Durham County County-Wide Community Health Assessment Survey Report. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[15] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). 2023 Durham County Comunidad Latina Data Report. https://healthydurham.org/cms/wp-content/uploads/2023/12/Comunidad-Latina-Data-Report-Final.pdf
[16] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. Durham County Community Health Assessment County-wide Dashboard: Data Trends from 2010 – 2022. https://app.powerbigov.us/view?r=eyJrIjoiMjEwMjNjZDgtNzg5Zi00YjRmLThhMGItZTMzOThjMGJlOTE2IiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[17] University of Wisconsin Population Health Institute. (2023). County Health Rankings and Roadmaps: *Durham, NC* https://www.countyhealthrankings.org/explore-health-rankings/north-carolina/durham?year=2023

[18] Puhl, R. & Heuer, C. (2009). The Stigma of Obesity: A Review and Update. *Obesity 17*(5), 941-964. https://doi.org/10.1038/oby.2008.636
[19] Santos, I., Sniehotta, FF., Marques, MM., Carraça, EV., & Teixeira, PJ. (2016). Prevalence of personal weight control attempts in adults: a systematic review and meta-analysis. *Obesity Reviews, 18*(1), 32-50. https://doi.org/10.1111/obr.12466
[20] Martin, C., Herrick, K., Sarafrazi, N., & Ogden, C. (2018). Attempts to Lose Weight Among Adults in the United States, 2013-2016. *NCHS Data Brief 313.* https://www.cdc.gov/nchs/data/databriefs/db313.pdf
[21] Hall, KD., Kahan, S. (2018). Maintenance of Lost Weight and Long-Term Management of Obesity. *Med Clin North Am, 102*(1), 183-197. https://pubmed.ncbi.nlm.nih.gov/29156185/
[22] Jacquet, P., Schutz, Y., Montani, J., & Dulloo, A. G. (2020). How dieting might make some fatter: modeling weight cycling toward obesity from a perspective of body composition autoregulation. *International Journal of Obesity, 44*(6), 1243–1253. https://doi.org/10.1038/s41366-020-0547-1
[23] Tylka, T., Annunziato, R., Burgard, D., Daníelsdóttir, S., Shuman, E., Davis, C., & Calogero, R. (2014). The Weight-Inclusive versus Weight-Normative Approach to Health: Evaluating the Evidence for Prioritizing Well-Being Over Weight Loss. *Journal of Obesity*, *2014*, 18 pages. https://doi.org/10.1155/2014/983495
[24] Osborn, R. L., Forys, K. L., Psota, T. L., & Sbrocco, T. (2011). Yo-yo dieting in African American women: weight cycling and health. *Ethnicity & Disease, 21*(3), 274–280.
[25] Hagan, S., Nelson, K. (2023). Are Current Guidelines Perpetuating Weight Stigma? A Weight-Skeptical Approach to the Care of Patients with Obesity. *J Gen Intern Med, 38*, 793–798. https://doi.org/10.1007/s11606-022-07821-w
[26] Blake, C., Hebert, J., Lee, D., Adams, SA., Steck, SE., Sui, X., Kuk, JL., Baruth, M., & Blair S. (2013). Adults with Greater Weight Satisfaction Report More Positive Health Behaviors and Have Better Health Status Regardless of BMI. *Journal of Obesity*, *2013*, 13 pages. https://doi.org/10.1155/2013/291371
[27] Lee, K.M., Hunger, J.M., & Tomiyama, A.J. (2021). Weight stigma and health behaviors: evidence from the Eating in America Study. *International Journal of Obesity*, 1499-1509. https://doi.org/10.1038/s41366-021-00814-5
[28] Obesity Action Coalition. (January 12, 2021). *Obesity Action Coalition Takes a Stand Against Weight Bias Through National Public Awareness Campaign- Stop Weight Bias.* https://www.obesityaction.org/obesity-action-coalition-takes-a-stand-against-weight-bias-through-national-public-awareness-campaign-stop-weight-bias/
[29] Spahlholz, J., Baer, N., König, HH., Riedel-Heller, SG., & Luck-Sikorski, C. (2016). Obesity and discrimination - a systematic review and meta-analysis of observational studies. *Obes Rev., 17*(1), 43-55. https://doi.org/10.1111/obr.12343
[30] Puhl, R. M., Himmelstein, M. S., & Watson, R. J. (2019). Weight-based victimization among sexual and gender minority adolescents: Implications for substance use and mental health. *Health Psychology, 38*(8), 727–737. https://doi.org/10.1037/hea0000758
[31] Nutter, S., Russell-Mayhew, S., Alberga, A.S., Arthur, N., Kassan, A., Lund, D.E., Sesma-Vazquez, M., & Williams, E. (2016).Positioning of Weight Bias: Moving towards Social Justice, *Journal of Obesity*, *2016*, 10 pages. https://doi.org/10.1155/2016/3753650
[32] Talumaa, B., Brown, A., Batterham, R., & Kalea, AZ. (2022). Effective Strategies in Ending Weight Stigma in Healthcare. *Obes Rev*, 23(10). https://doi.org/10.1111/obr.13494
[33] Gudzune, K. A., Beach, M. C., Roter, D. L., & Cooper, L. A. (2013). Physicians build less rapport with obese patients. *Obesity, 21*(10), 2146–2152. http://doi.org/10.1002/oby.20384
[34] Persky, S., & Eccleston, C. P. (2011). Medical student bias and care recommendations for an obese versus non-obese virtual patient. *International Journal of Obesity, 35*(5), 728–735. https://www.nature.com/articles/ijo2010173

[35] National Academies of Sciences, Engineering, and Medicine. (2023). *Translating Knowledge of Foundational Drivers of Obesity into Practice: Proceedings of a Workshop Series*. Washington, DC: The National Academies Press. https://doi.org/10.17226/26942
[36] Alberga, A., Edache, I., Forhan, M., & Russell-Mayhew, S. (2019). Weight bias and health care utilization: A scoping review. *Primary Health Care Research & Development, 20*, E116. https://pubmed.ncbi.nlm.nih.gov/32800008/
[37] Pearl, R. L., & Puhl, R. M. (2018). Weight bias internalization and health: a systematic review. *Obesity Reviews*, *19*(8), 1141-1163. https://doi.org/10.1111/obr.12701
[38] Vartanian, L. R., & Novak, S. A. (2012). Internalized societal attitudes moderate the impact of weight stigma on avoidance of exercise. *Obesity, 19*(4), 757-762. https://doi.org/10.1038/oby.2010.234
[39] Puhl, R., Pearl, R., & Himmelstein, M. (2020). Weight Stigma as a Psychosocial Contributor to Obesity. *American Psychologist, 75*(2), 274-289. https://doi.org/10.1027/amp0000538
[40] Sutin, A. R., Stephan, Y., & Terracciano, A. (2015). Weight discrimination and risk of mortality. *Psychological Science 26*(11), 1803-1811. https://journals.sagepub.com/doi/10.1177/0956797615601103
[41] Brewis, A. A. (2011). *Obesity: Cultural and biocultural perspectives.* Rutgers University Press.
[42] Adler, N. E., & Snibbe, A. C. (2003). The role of psychosocial processes in explaining the gradient between socio-economic status and health. *Current Directions in Psychological Science, 12*(4), 119–123. http://doi.org/10.1111/1467-8721.01245
[43] Carroll-Scott, A., Gilstad-Hayden, K., Rosenthal, L., Peters, S. M., McCaslin, C., Joyce, R., & Ickovics, J. R. (2013). Disentangling neighborhood contextual associations with child body mass index, diet, and physical activity: The role of built, socio-economic, and social environments. *Social Science & Medicine, 95*, 106–114. https://doi.org/10.1016/j.socscimed.2013.04.003
[44] Centers for Disease Control and Prevention. (n.d.). *BRFSS Prevalence and Trends Data.* https://nccd.cdc.gov/BRFSSPrevalence/rdPage.aspx?rdReport=DPH_BRFSS.ExploreByLocation&rdProcessAction=&SaveFileGenerated=1&irbLocationType=States&islLocation=37&islState=&islCounty=&islClass=CLASS14&islTopic=TOPIC09&islYear=2022&hidLocationType=States&hidLocation=37&hidClass=CLASS14&hidTopic=TOPIC09&hidTopicName=BMI+Categories&hidYear=2022&irbShowFootnotes=Show&rdICL-iclIndicators=_BMI5CAT&iclIndicators_rdExpandedCollapsedHistory=&iclIndicators=_BMI5CAT&hidPreviouslySelectedIndicators=&DashboardColumnCount=2&rdShowElementHistory=&rdScrollX=0&rdScrollY=0&rdRnd=20711
[45] Hayward, L.E., Neang, S., Ma, S., Vartanian, LR. (2020). Discussing Weight with Patients with Overweight: Supportive (Not Stigmatizing) Conversations Increase Compliance Intentions and Health Motivation. *Stigma and Health 5*(1), 53-68. https://psycnet.apa.org/doi/10.1037/sah0000173
[46] Puhl, R., Peterson, J. L., & Luedicke, J. (2013). Motivating or stigmatizing? Public perceptions of weight-related language used by health providers. *International journal of obesity*, *37*(4), 612–619. https://www.nature.com/articles/ijo2012110
[47] University of Wisconsin Population Health Institute. (2024). *County Health Rankings and Roadmaps: Adult Obesity.* https://www.countyhealthrankings.org/explore-health-rankings/county-health-rankings-model/health-factors/health-behaviors/diet-and-exercise/adult-obesity?year=2023

Section 6.05 *Mental Health and Substance Use*

Overview

The World Health Organization explains "mental health as a state of mental well-being that enables people to cope with the stresses of life, realize their abilities, learn well and work well, and contribute to their community."[1] Mental health is shaped by our social surroundings such as family circumstances, our psychological structures such as coping skills, and our biological make-up including genetics. Adverse childhood experiences (ACEs) are described by the CDC as potentially traumatic events that occur in childhood and are associated with increased risk of developing mental illness, chronic health problems, and substance use disorder in adulthood.[2] Mental health disorders are associated with reductions in life expectancy largely due to higher rates of chronic physical disease, including heart disease.[3] The Substance Abuse and Mental Health Services Administration (SAMHSA) is a governmental agency under the U.S. Department of Health and Human Services with many resources at www.samhsa.gov.

Primary Data

Durham County Community Health Assessment Survey

In the 2022 Durham County-Wide Community Health Assessment (CHA) Survey, 40% of participants reported their mental health worsened since March 2020.[4] When asked about the number of poor mental health days in the past month, 67% of participants said they had fewer than six bad days.[4] Women and people less than 36 years old more often reported more than 20 bad days.[4] The 2023 Comunidad Latina CHA Survey showed that 40% of the Hispanic or Latina/o/x population always get what the social/emotional support they need. This figure was 24% in 2019.[5] However 20% reported they never get the support that they need.[5] Since the survey methodologies for the two surveys were different, the figures are not directly comparable. Amongst this same population, the survey showed that 70% said they disagree that people in their community would think less of a person who has a mental health problem.[5] The percentage that disagreed with that statement was 50% in 2019.[5] One third of the respondents of the 2022 County-Wide CHA Survey believe that the community would judge a person for having a mental health problem.[4]

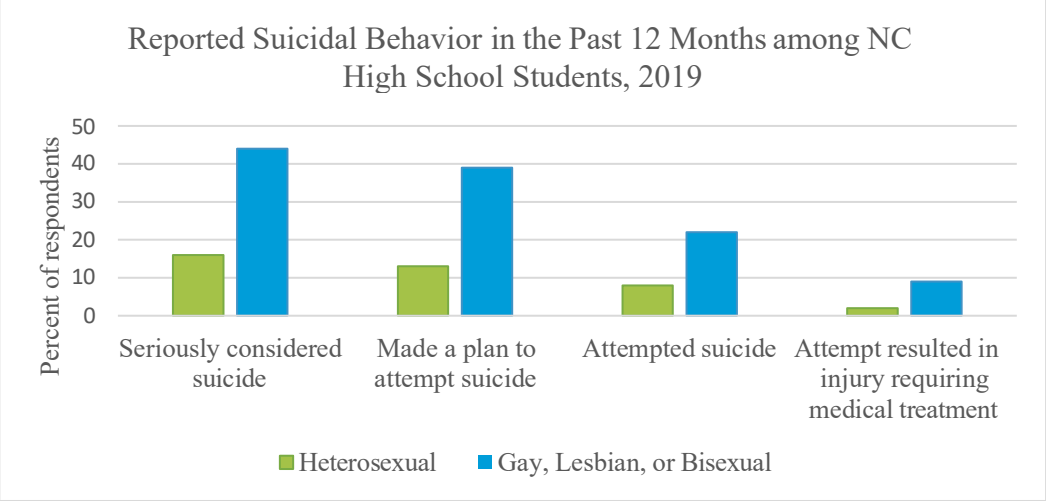
Youth Mental Health and Substance Use

In 2019 the City of Durham Office on Youth launched the Durham Youth Listening Project. Young people shared that they need more mental health resources to address pressures such as violence, bullying, and discrimination.[6] They believed current mental health resources were difficult to access and unaffordable, that providers did not have a good understanding of their background and culture, and that more mental health resources were needed in schools.[6]

The 2021 Youth Risk Behavior Survey included the following statistics for Durham County:[7]

- 34.3% of middle schoolers and 41.3% of high schoolers reported symptoms of depression.
- 23.7% of middle schoolers and 19.2% of high schoolers considered suicide.
- 12.2% of middle schoolers attempted suicide at least once in their lives while 9.8% of high schoolers attempted suicide within the past 12 months.
- Of the LGBTQ+ students, Bisexual students were at greater risk for suicidal ideation.
- 16% of middle schoolers reported ever drinking alcohol other than a few sips.

- 6.1% of middle schoolers and 25.7% of high schoolers reported ever using marijuana and 10.6% of high schoolers reported vaping marijuana in the past 30 days.



6.00 (b) Suicidal behavior among high school students by sexual identity[8]

Secondary Data

Mental Health Access

In 2022, North Carolina became the 40th state to expand Medicaid. This is expected to increase access to mental health services. NC still faces workforce shortages, however. As of September 2023, the U.S. Department of Health and Human Services Bureau of Health workforce report that NC is only meeting 13% of the mental health care professional needs compared to 27% nationally.[9] Primary care providers (PCPs) are often the first to detect, diagnose, and treat common mental health conditions in our country. According to the 2023 County Health Rankings, PCPs are 810:1 in Durham County compared to 1410:1 in North Carolina as a whole and Mental Health Providers are 140:1 in Durham compared to 340:1 in NC as a whole.[10]

Access to mental health services for some disorders increased by as much as 20% in 2020 with the rise of telehealth during the COVID-19 pandemic.[11] Telehealth helps expand access to people lacking transportation or in rural areas. There is ongoing legislation to make COVID-19 waivers permanent for telehealth healthcare delivery, vital to improving mental health access. [12]

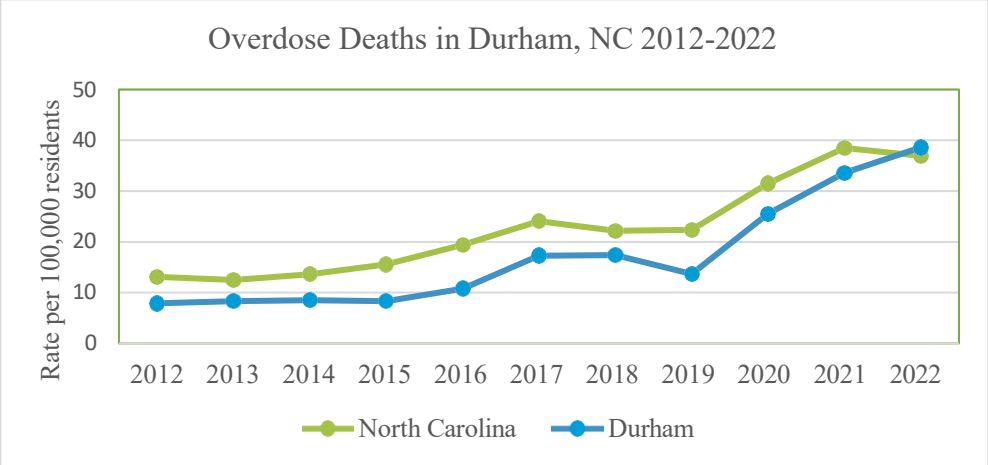
Suicide

In 2020 in North Carolina, there were 1,436 deaths by suicide. For those with data, 36% were under the circumstances of alcohol or other substance use problems. Between 2016-2020, nearly half of suicide methods in Durham County were attributable to firearms. Males had a three-fold higher rate of suicide as females and 45–54-year-olds saw the highest rates of suicide.[13]

Substance use

Overall, overdose deaths are on the rise. Provisional data from the NC Opioid and Substance Use Action Plan suggest that over 11 North Carolinians died each day of a drug overdose in 2022 compared to six per day in 2018.[14] In Durham County, white residents remain those with the highest recorded number of overdose deaths with 135 deaths in 2022.[15] However, Hispanic or

Latina/o/x and Black or African American residents have seen a steeper increase in rates of overdose deaths (+124% and +105% respectively compared to +92% in the white population).[15] Opioid overdose emergency department visits are disproportionately higher amongst Black or African American residents of Durham County than white residents. The figure below depicts deaths of all types of medications and drugs including opioids, stimulants, benzodiazepines, and others. Over 90% of these deaths were unintentional.[15]



6.00 (a) Comparison of overdose deaths in Durham and North Carolina from 2012-2022[15]

Medication-assisted treatment (MAT) is the use of medications plus counseling to help treat opioid dependence. One of the main medications used to treat opioid use disorder is called buprenorphine. In January of 2023, SAMHSA and the Drug Enforcement Administration removed the federal requirement to obtain an X-waiver previously required to prescribe buprenorphine.[16] This greatly expands the number of practitioners who can treat patients and hence expands access to MAT. In addition, in July 2021 the National Opioid Settlement passed which puts $26 billion towards treatment, recovery, harm reduction, and other programs for communities harmed by the opioid epidemic. Durham County is expected to receive nearly $11.6 million over an 18-year period.[17]

Alcohol Use

Excessive alcohol use is the third leading preventable cause of death in NC. Half of NC adults reported being current drinkers in 2021; 11% of current drinkers said they heavily drink and 29% said they binge drink at least once a month.[18] Between 2019 and 2021, there was a 9% increase in the rate of alcohol related deaths in Durham County.[18] Acute alcohol-attributable death rates were higher for Black or African American residents than white residents across every age group in Durham County. This could be explained in part by the fact that Black or African American, Hispanic or Latina/o/x, and Indigenous or Native American communities are more likely to have a higher density of alcohol retailers than white communities. In 2022, 25% of all traffic fatalities in NC were alcohol related with an even higher percentage, 28%, in Durham County.[19]

Interpretations: Disparities, Gaps, Emerging Issues

Addressing the rising rates of mental health disorders starts with recognizing how illness affects certain communities disproportionately. Racism can affect mental well-being from a young age and requires a culture shift. One study conducted in Durham, NC found that Black or African

American patients seeking emergency psychiatric care were more likely to be physically and chemically restrained than white patients.[20] Stigma and discrimination related to sexual orientation is also a major risk factor for suicide, which is the second leading cause of death among young people. LGBTQ youth are four times more likely to attempt suicide than their peers.[21] For transgender youth, gender affirming care has been shown to decrease the odds of depression and suicide by over 50%.[22]. In August 2023, North Carolina banned gender-affirming care for minors, a restriction that blocks a lifesaving intervention for transgender youth.

It is increasingly difficult to find care for those who are affected by mental health. Improving public perception and stigma is paramount. Medicaid expansion in NC will increase access to care for many residents. Even so, finding a provider will remain an issue. While Durham County has almost double the ratio of primary care and mental health providers per person compared to NC, wait times for outpatient providers or for state psychiatric bed availability still far exceeds the standard of care and cannot keep up with the growing need. In the 2022 COVID-19 Practitioner Impact Survey conducted by the American Psychological Association, 60% of psychologists reported having no openings for new patients.[23] Keeping telehealth services available is one strategy to improve access but training more practitioners will also need to be a priority.

Recommended Strategies

- Increase state funding for mental health services provided through local systems.
- Implement policies targeted to decrease access to lethal means.
- Improve access to social services and other support.
- Increase programs that provide mental health services and support for LGBTQ youth.
- Increase programs that provide mental health services and support for veterans.
- Continue to support the integration of physical and mental health.
- Expand access to tele-mental health services.
- Create trauma informed schools with access to mental health providers.
- Reduce the supply of prescription and illicit opioids.
- Avert future opioid addiction by supporting youth and families.
- Address the needs of justice-involved populations.
- Increase distribution of naloxone.
- Implement needle exchange programs.
- Improve access to drug treatment programs, including medication-assisted treatment.
- Increase use of the NC Controlled Substance Reporting System.
- Increase training for health care providers on safe prescribing practices.
- Adopt and fund evidence-based interventions that prevent opioid prescribing.
- Support policies that decriminalize and promote treatment of substance use disorder.

Current Initiatives & Activities

Alliance Health

Provides services for mental illness, substance use disorders, and intellectual/developmental disabilities for people who have Medicaid or are uninsured. Includes the Durham Community Collaborative which implements a System of Care approach and builds an array of services and supports to help children and families. Also includes the Durham Recovery Response Center, a 24/7 behavioral health facility that provides crisis services. alliancehealthplan.org

Carolina Outreach Behavioral Health Urgent Care
A walk-in clinic for people experiencing a mental health crisis and/or substance use issues. carolinaoutreach.com/urgent-care

Durham ACEs Resilience Task Force (DART)
DART advances an equitable and culturally responsive approach to prevent and respond to toxic stress and trauma. pacesconnection.com/g/durham-county-nc-aces-connection

Durham Crisis Response Center (DCRC)
DCRC offers free services to victims of sexual assault including 24-hour help lines and support groups in English and Spanish, case management, crisis intervention, advocacy, and accompaniment to the police, court, hospital, and medical appointments. thedcrc.org/

Durham Joins Together to Save Lives (DJT)
Coalition that supports a post-overdose response team, connects justice-involved people to care and works to expand housing resources. dcopublichealth.org/resources/durham-joins-together

El Futuro
El Futuro provides bilingual and culturally responsive mental health services including therapy, psychiatry, substance use treatment, and case management. elfuturo-nc.org

Holistic Empathetic Assistance Response Teams (HEART)
Unarmed mental health professionals who respond to nonviolent behavioral and mental health crisis 911 calls. durhamnc.gov/4576/Community-Safety

Partnership for a Healthy Durham Mental Health Committee
The committee seeks to increase public awareness of mental health challenges and resources and improve access to mental health services. Healthydurham.org

The Lifeline and 988.
A 24/7 hotline for people who are in crisis. 988lifeline.org/

Together for Resilient Youth (TRY)
TRY works to prevent ACEs, racism and trauma that can result in substance use, suicide, violence, and other behaviors among youth by creating a resilient community. durhamtry.org

References

[1] World Health Organization. (2022). *Mental Health*. https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response
[2] Centers for Disease Control and Prevention. (June 29, 2023). *Fast Facts: Preventing Adverse Childhood Experiences*. https://www.cdc.gov/violenceprevention/aces/fastfact.html
[3] Richmond-Rakerd, L. S., D'Souza, S., Milne, B. J., Caspi, A., & Moffitt, T. E. (2021). Longitudinal Associations of mental disorders with physical diseases and mortality among 2.3 million New Zealand citizens. *JAMA Network Open*, *4*(1). https://doi.org/10.1001/jamanetworkopen.2020.33448
[4] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). 2022 Durham County County-Wide Community Health Assessment Survey Report. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[5] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[6] Durham City Office on Youth. (2021). *Durham Youth Listening Project.* https://www.durhamnc.gov/4423/Durham-Youth-Listening-Project
[7] Durham County Department of Public Health. (2021). *2021 Durham County Youth Risk Behavior Survey.* https://healthydurham.org/cms/wp-content/uploads/2023/09/YRBS-Report-FINAL.pdf
[8] NC Division of Public Health. *Suicide Among School Aged Youth in North Carolina ages 10-18, 2020.* https://injuryfreenc.dph.ncdhhs.gov/DataSurveillance/SIIED/School-Aged-Youth-Suicide.pdf
[9] Bureau of Health Workforce; Health Resources and Service Administration (HRSA); U.S. Department of Health & Human Services. (February 2, 2024). *Designated Health Professional Shortage Areas Statistics. First Quarter of Fiscal Year 2023*. https://data.hrsa.gov/Default/GenerateHPSAQuarterlyReport
[10] University of Wisconsin Population Health Institute. (2023). *Durham, NC County Snapshot.* https://www.countyhealthrankings.org/explore-health-rankings/north-carolina/durham?year=2023
[11] McBain, R. K., Cantor, J., Pera, M. F., Breslau, J., Bravata, D. M., & Whaley, C. M. (2023). Mental Health Service utilization rates among commercially insured adults in the US during the first year of the COVID-19 pandemic. *JAMA Health Forum*, *4*(1). https://doi.org/10.1001/jamahealthforum.2022.4936
[12] North Carolina Healthcare Association (2023). *2023 NCHA Legislative Brief: Telehealth.* https://www.ncha.org/wp-content/uploads/2023/01/Telehealth_Legislative_Brief_2023.pdf
[13] NC Department of Health and Human Services. (2023). *NC Violent Death Reporting System Dashboard.* https://dashboards.ncdhhs.gov/t/DPH/views/NCVDRSDashboard/NC-VDRSDashboard?%3Adisplay_count=n&%3Aembed=y&%3AisGuestRedirectFromVizportal=y&%3Aorigin=viz_share_link&%3AshowAppBanner=false&%3AshowVizHome=n
[14] NC Department of Health and Human Services. (n.d.). *North Carolina's Opioid and Substance Use Action Plan.* https://www.ncdhhs.gov/nc-osuapopioid-and-substance-use-action-plan-3010192021/download?attachment
[15] NC Department of Health and Human Services. (2023). *The NC Opioid and Substance Use Action Plan Data Dashboard*. https://www.ncdhhs.gov/opioid-and-substance-use-action-plan-data-dashboard

[16] Substance Abuse and Mental Health Services Administration. (2023). *Waiver Elimination Act.* https://www.samhsa.gov/medications-substance-use-disorders/waiver-elimination-mat-act
[17] Durham County NC. (2023). *North Carolina Opioid Settlement.* https://www.dconc.gov/county-departments/departments-a-e/county-manager/north-carolina-opioid-settlement
[18] NC Department of Health and Human Services (2023). *Alcohol and the Public's Health in North Carolina.* https://dashboards.ncdhhs.gov/t/DPH/views/AlcoholDashboard_2020Update_04042021/Story?%3Aembed=y&%3AisGuestRedirectFromVizportal=y

[19] NC Division of Motor Vehicles. (2023). *North Carolina 2022 Traffic Crash Facts*. https://connect.ncdot.gov/business/DMV/CrashFactsDocuments/2022%20Crash%20Facts.pdf
[20] Smith, C. M., Turner, N. A., Thielman, N. M., Tweedy, D. S., Egger, J., & Gagliardi, J. P. (2022). Association of Black Race With Physical and Chemical Restraint Use Among Patients Undergoing Emergency Psychiatric Evaluation. *Psychiatric services (Washington, D.C.)*, *73*(7), 730–736.
[21] The Trevor Project. (2021). *Facts about LGBTQ Youth Suicide*. https://www.thetrevorproject.org/resources/article/facts-about-lgbtq-youth-suicide/
[22] Tordoff, D.M., Wanta, J.W., Collin, A, Stepney, C, Inwards-Breland, D.J., Ahrens, K. Mental Health Outcomes in Transgender and Nonbinary Youths Receiving Gender-Affirming Care. *JAMA Netw Open.* 2022;5(2):e220978. doi:10.1001/jamanetworkopen.2022.0978
[23] American Psychological Association. *Psychologists struggle to meet demand amid mental health crisis; 2022 COVID-19 Practitioner Impact Survey.* https://www.apa.org/pubs/reports/practitioner/2022-covid-psychologist-workload

Section 6.06 *Tobacco Use*

Overview

Nicknamed the "Bull City," drawn from an old tobacco company logo, Durham's history centers the production of tobacco products.[1] Throughout this history, the tobacco industry has strategically targeted populations that experience higher levels of stress and discrimination. This targeting explains why overall tobacco use has steadily decreased since the 1960s, while tobacco use and tobacco-related illnesses remain higher among groups like people with behavioral health problems, people with low socio-economic status, and LGBTQ people.[2]

The explosion of e-cigarettes and vape products, sometimes collectively referred to as electronic nicotine delivery systems (ENDS), in the last 10 years has revolutionized the tobacco market. ENDS are the most used tobacco product among youth nationwide and in North Carolina.[3] Youth cite the array of appealing flavors, the accessibility, and the perception of low harm as top reasons why they use ENDS.[4] The COVID-19 pandemic intensified an already looming youth mental health crisis, and this has driven many young people to seek quick relief from stress, anxiety, and depression through a dopamine-boosting substance like nicotine. However, research consistently shows that nicotine can worsen symptoms of depression and anxiety.[5]

Building on the legacy of the 2012 Durham County Board of Health Smoking Rule, which prohibits smoking and e-cigarette use in outdoor public spaces like parks, trails, and bus stops, Durham County continues to implement evidence-based initiatives to prevent and address tobacco use. In 2021, Durham County agreed to house the Region Five Tobacco Prevention and Control Manager position, previously hosted by Guilford County. This position oversees four main objectives in the nine counties of Region five: preventing tobacco use initiation, eliminating secondhand smoke exposure, helping tobacco users quit, and eliminating tobacco-related inequities.[6] In 2022, Durham County's Board of Health became one of the first in North Carolina to sign a Tobacco 21 Resolution, urging state lawmakers to increase the minimum age of sale of tobacco products, implement tobacco retailer licensing, and remove local preemption of tobacco product regulation.[7]

Primary Data

According to the 2022 Durham County County-wide Community Health Assessment (CHA) Survey, 12% of adults in Durham reported smoking cigarettes every day or on some days, which is more than what was reported in the 2019 County-wide survey (10.8%), but less than the percentage of North Carolinians who reported smoking every day or on some days (14.4%).[8-10] Since 2013, the percentage of people in Durham who report smoking cigarettes has trended downward. Exposure to secondhand smoke (SHS) among respondents in the Durham County CHA County-wide Survey also decreased from 71% in 2016 to 54% in 2022.[9; 11]

Secondary Data

Adult tobacco use

The rate of adult cigarette smoking in the US and in NC continues to go down, from 13.7% in 2018 to 11.5% in 2021 nationally and from 17.4% in 2018 to 14.4% in 2021 in NC.[12; 13] However, the percentage of adults reporting use of other tobacco products like ENDS has grown. According to the 2021 NC Behavioral Risk Factor Surveillance Survey (BRFSS), overall tobacco use is higher

among people who do not have a high school diploma or GED (33.4%), people with a disability (25.6%), people who are unable to work (37.4%), people who do not own their home (28.4%), and people who have no health insurance (30.8%).[10] A combination of tobacco industry targeting of these populations and the increased levels of stress these communities experience has caused, and continues to cause, higher use rates.[14]

Youth tobacco use

ENDS continues to be the tobacco product most used by youth and young adults in North Carolina, with 17.1% of youth ages 13-17 and 19.5% of young adults ages 18-24 reporting current e-cigarette use.[15] The increase in the popularity of ENDS corresponds with an increase in nicotine strength in these products, from an average of 2.5% nicotine in 2017 to 4.5% in 2022.[16]

The landscape of ENDS and vape devices has grown to include hemp-derived products, due to the removal of hemp from the federal schedule of controlled substances in 2018 and the state Controlled Substances Act in 2022.[17] Youth vaping, of both nicotine products and hemp-derived products, has followed a similar trend over the past five years. Use rates of both among teens increased from 2017 to 2019, then levelled off or decreased during the COVID-19 pandemic.[18]

In October 2021, the Food and Drug Administration (FDA) finalized the process for premarket tobacco product applications in which they will review all newly deemed tobacco products, including ENDS, for risks and benefits to the public. As of August 2023, the FDA has authorized 23 ENDS products to be sold in the US and has issued marketing denial orders to approximately 277 companies.[19]

Interpretations: Disparities, Gaps, Emerging Issues

In the last 50 years, cigarette smoking has steadily decreased in the US, but cigarette smoking in certain populations remains high. These populations include Native Americans, the LGBTQ community, individuals with low socioeconomic status, people with a behavioral health condition, and people who are in the military. High levels of stress, systemic oppression, and targeted marketing by tobacco companies drive these inequities. Tobacco control measures have succeeded in reducing tobacco use rates for many groups but still fall short in addressing populations that have the highest use.[20]

Menthol-flavored cigarettes continue to be an issue, particularly in Black and African American communities, where close to 90% of African Americans who smoke choose a menthol product. According to the FDA, menthol makes it easier for youth and young adults to initiate smoking because it reduces the irritation and harshness of the smoke in the throat and lungs. Additionally, menthol helps nicotine more easily bind with nicotinic receptors in the brain, which can lead to a stronger addiction, making it even more difficult for people to quit. Due to these concerns, the FDA proposed a tobacco standard that will prohibit characterizing flavors (other than tobacco) in all cigars, cigarettes, and their components and parts. The proposed ban focuses on the manufacturers, wholesalers, distributers, importers, and retailers that sell menthol and flavored cigar products in the US, as the FDA does not have the power to regulate or punish individual possession of these products. The FDA proposed the rule on April 28, 2022, and the public had until August 2, 2022, to submit public comment. As of September 2023, the FDA has not taken any further action on this. The menthol ban could potentially save 255,000 Black and African Americans from premature death within the next 40 years. Black Americans make up over one third of the lives that could be saved.[21]

On December 20, 2019, Federal Tobacco 21 "T21" legislation became effective immediately. This legislation made it illegal to sell any tobacco products, including traditional cigarettes, cigars, smokeless tobacco, hookah tobacco, pipe tobacco, e-liquids, and ENDS to anyone under the age of 21. Currently, 44 jurisdictions, including 40 states, 3 territories, and the District of Columbia have passed a state or local T21 law.[22] NC is one of a few states that have not, which causes confusion among retailers and does not allow state officials to conduct compliance checks using purchasers between 18 and 21 years of age. If NC is not able to conduct proper compliance checks and demonstrate a less than 20% fail rate to the federal government, the state could lose millions of dollars in Substance Abuse Prevention and Treatment Block Grant money.[23]

Recommended Strategies

The following recommended strategies are based on the Community Preventative Services Task Force recommended findings for preventing and reducing tobacco use and secondhand smoke exposure:[24]

- Implement a comprehensive state tobacco 21 law that includes raising the minimum age of sale of tobacco products to 21 years of age, implementing tobacco retailer licensing, and removing local preemption.
- Increase access to evidence-based cessation medications and tobacco treatment for people with behavioral health problems.
- Increase tobacco-free policies, especially in places impacting those most exposed to secondhand smoke, such as Medicaid-funded health and behavioral health facilities.
- Increase funding to evidence-based tobacco treatment interventions like Quitline NC.

Current Initiatives & Activities

QUITLINE NC provides free cessation coaching services to any North Carolina resident who needs help quitting tobacco use. Quit Coaching is free, confidential, and available 24 hours a day, seven days a week at 1-800-QUIT-NOW (1-800-784-6889) http://www.QuitlineNC.com./

LiveVapeFree NC is a free and confidential service provided to NC teenagers ages 13 to 17 who want to quit vaping by using text to access 24 hours, 7 days a week coaching and support via text. https://www.ncdhhs.gov/divisions/public-health/you-can-live-vape-free

Truth campaign This is Quitting is a free and anonymous text messaging program designed to help young people stop vaping. https://truthinitiative.org/thisisquitting

QuitSmart is an evidence-based tobacco cessation program developed by Dr. Robert Shipley and facilitated by Tobacco Treatment Specialist **(TTS)** trained staff at the Durham County Department of Public Health. Contact: Olivia Cunningham or ocunningham@dconc.gov.
https://quitsmart.com/

Durham T.R.Y. (Together for Resilient Youth) is a community coalition of parents, youth, representatives from the business, government, religious, and non-profit sectors working to prevent substance use, including tobacco, among youth in Durham. https://try4resilience.org/

Quit at Duke offers tobacco cessation resources including medications, counseling, and classes. Cost varies, depending on the patient's insurance. https://www.dukehealth.org/treatments/smoking-cessation.

Smokefree TXT for Teens is a specific program to help teens quit vaping. There is also a SmokefreeTXT program and the QuitStart App. All these resources are provided by the National Cancer Institute as part of the Smokefree.gov series. https://teen.smokefree.gov/quit-vaping.

Ex Program by Truth Initiative is a premium digital health program for tobacco addiction for employers and health plans. The Ex-Program combines Mayo Clinic's treatment model with scientific leadership in digital tobacco solutions. https://www.theexprogram.com/

CATCH My Breathe Program is a peer-reviewed, evidence-based youth vaping prevention program that provides updated information to teachers, parents, and health professionals to equip students with the knowledge and skills they need to make informed decisions about using e-cigarettes. https://catch.org/program/vaping-prevention/

Duke UNC TTS is an evidence-based medical, behavioral, and community tobacco treatment training approaches, presented in a cohesive and interactive online course. https://www.dukeunctts.com/

Breathe Easy NC: Becoming Tobacco Free is an initiative to help service providers implement tobacco use treatment and tobacco free campuses. https://breatheeasync.org/

Stanford Medicine Tobacco Prevention Toolkit is a theory-based and evidence-informed curriculums and resources created by educators, parents, youth, and researchers aimed at preventing middle and high school students' use of tobacco and nicotine. https://med.stanford.edu/tobaccopreventiontoolkit.html

INDEPTH Intervention for Nicotine Dependence: Education, Prevention, Tobacco, and Health is a program that is an alternative to suspension or citation program that is offered as an option to students who face suspension for violation of school tobacco or e-cigarette use policies. https://www.lung.org/quit-smoking/helping-teens-quit/indepth

ASPIRE (A Smoking Prevention Interactive Experience) is an interactive, multimedia smoking prevention and cessation curriculum for culturally diverse high school students. https://ebccp.cancercontrol.cancer.gov/programDetails.do?programId=2440327

The quitSTART app is a product of Smokefree.gov, a smoking cessation resource created by the Tobacco Control Research Branch at the National Cancer Institute in collaboration with the U.S. Food and Drug Administration and input from tobacco control professionals, smoking cessation experts, and ex-smokers. https://smokefree.gov/tools-tips/apps/quitstart

N-O-T (Not on Tobacco) a program designed with teenagers in mind and addresses issues that are specifically important to them. The program takes a holistic approach with each session using different interactive learning strategies based on Social Cognitive Theory of behavior change that

can then be applied and practiced in everyday life and encourages a voluntary change for youth ages 14 to 19. https://www.lung.org/quit-smoking/helping-teens-quit/not-on-tobacco

NOT for Me (my path to quit) Is a voluntary online program that helps teens that want to stop using tobacco. It is a self-paced curriculum that helps you understand your relationship with tobacco and nicotine addiction and gives you the tools to quit tobacco for good. https://notforme.org/

Durham County Tobacco Treatment Classes are offered in partnership with agencies and organizations in Durham that serve populations most impacted by tobacco use. For more information, email ocunningham@dconc.gov or call 919-560-7769.

References

[1] Richardson, L. (2021). *The Bull City—A Short History of Durham, North Carolina*. https://durhamcountylibrary.org/wp-content/uploads/2021/06/NCC-The-Bull-City%E2%80%94A-Short-History-of-Durham.pdf?lang=es

[2] Office on Smoking and Health, & National Center for Chronic Disease Prevention and Health Promotion. (May 4, 2023). *Current Cigarette Smoking Among Adults in the United States*. https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm

[3] National Cancer Institute Division of Cancer Control and Population Sciences. (October 27, 2022). *Electronic Nicotine Delivery Systems (ENDS) Use*. National Cancer Institute,. https://cancercontrol.cancer.gov/brp/tcrb/electronic-nicotine-delivery-systems

[4] Nicksic, N. E., Snell, L. M., & Barnes, A. J.,. (2019). Reasons to use e-cigarettes among adults and youth in the Population Assessment of Tobacco and Health (PATH) study. *Addictive behaviors*, *93*, 93-99. https://doi.org/10.1016/j.addbeh.2019.01.037

[5] truth initiative. (2021). *Colliding Crises: Youth Mental Health and Nicotine Use* (Emerging Tobacco Products, Issue. https://truthinitiative.org/research-resources/emerging-tobacco-products/colliding-crises-youth-mental-health-and-nicotine-use

[6] North Carolina Department of Health and Human Services. (January 14, 2022). *Tobacco Prevention and Control Branch About Us: Mission Statement*. https://tobaccopreventionandcontrol.dph.ncdhhs.gov/about/index.htm

[7] Tobacco 21 Resolution: Protecting our kids from vaping and nicotine addiction (activity 10.4), (2022). https://www.dcopublichealth.org/home/showpublisheddocument/38278/638095509815730000

[8] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2021). *Durham County Community Health Assessment 2020*. https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000

[9] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

[10] NC State Center for Health Statistics. (2022). *2021 BRFSS Survey Results: North Carolina Tobacco Use, Smoking Status* https://schs.dph.ncdhhs.gov/data/brfss/2021/nc/all/_smoker3.html

[11] Durham County Department of Public Health. (2016). *Durham County 2016 Community Health Assessment Survey results*. https://nursing.duke.edu/sites/default/files/media/main/durham_county_2016_community_health_assessment_survey_results1.pdf

[12] American Lung Association. *Overall Tobacco Trends*. https://www.lung.org/research/trends-in-lung-disease/tobacco-trends-brief/overall-tobacco-trends

[13] Office on Smoking and Health National Center for Chronic Disease Prevention and Health Promotion. (May 4, 2023). *Current Cigarette Smoking Among Adults in the United States*. https://www.cdc.gov/tobacco/data_statistics/fact_sheets/adult_data/cig_smoking/index.htm

[14] Office on Smoking and Health National Center for Chronic Disease Prevention and Health Promotion. (June 27, 2022). *Health Disparities Related to Commercial Tobacco and Advancing Health Equity*. Centers for Disease Control and Prevention. https://www.cdc.gov/tobacco/health-equity/index.htm

[15] NC Department of Health and Human Services Division of Public Health. (2021). *Youth Tobacco Use During Covid-19*. https://tobaccopreventionandcontrol.dph.ncdhhs.gov/data/yts/docs/CDCF-2021FactSheet-TobaccoUseDuring-Covid19.pdf

[16] Wang, X., Ghimire, R., Shrestha, S. S., Borowiecki, M., Emery, S., & Trivers, K. F.,. (2023). Trends in Nicotine Strength in Electronic Cigarettes Sold in the United States by Flavor, Product Type, and Manufacturer, 2017-2022. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*, *25*(7), 1355-1360. https://doi.org/10.1093/ntr/ntad033

[17] Harrison, S. (2023). All marijuana is still illegal in North Carolina. But getting high on cannabis is easy — and legal. *wunc 91.5 North Carolina Public Radio*. https://www.wunc.org/2023-07-27/all-marijuana-is-still-illegal-in-north-carolina-but-getting-high-on-cannabis-is-easy-and-legal

[18] Miech, R. A., Johnston, L. D., Patrick, M. E., O'Malley, P. M., & Bachman, J. G. (2023). *Monitoring the Future: National Survey Results on Drug Use, 1975-2023: Secondary School Students*. https://monitoringthefuture.org/wp-content/uploads/2023/12/mtf2023.pdf

[19] U.S. Food & Drug Administration. (January 22, 2024). *Tobacco Products Marketing Orders*. https://www.fda.gov/tobacco-products/market-and-distribute-tobacco-product/tobacco-products-marketing-orders#Marketing%20Denial

[20] American Lung Association. (January 18, 2024). *Top 10 Communities Disproportionately Affected by Cigarette Smoking and Tobacco Use*. https://www.lung.org/research/sotc/by-the-numbers/top-10-populations-affected

[21] Myers, M. L. (2023). *FDA Must Finalize Rules to Prohibit Menthol Cigarettes and Flavored Cigars Without Delay -- They Will Have a Profound Impact on the Nation's Health, Especially Among Black Americans* https://www.tobaccofreekids.org/press-releases/2023_04_28_fda-must-finalize-rules-to-prohibit-menthol-cigarettes-and-flavored-cigars

[22] U.S. Food & Drug Administration. (2021). *Tobacco 21*. https://www.fda.gov/tobacco-products/retail-sales-tobacco-products/tobacco-21

[23] Herndon, S., & Martin, J. (2022). Preventing and Reducing Tobacco Use and Nicotine Addiction: Focus on Age of Sale and Retailer Permitting. In: Tobacco Prevention and Control Branch Division of Public Health Chronic Disease and Injury Section.

[24] The Community Guide. (October 5, 2021). *Guide to Community Preventive Services. CPSTF Findings for Tobacco*. https://www.thecommunityguide.org/pages/task-force-findings-tobacco.html

Chapter 7
Reproductive Health

Photo Courtesy of Discover Durham

This chapter includes:

- Pregnancy, Fertility, and Abortion

Section 7.01 *Pregnancy, Fertility, and Abortion*

Overview

Reproductive health ensures individuals are able to have safe and satisfying sexual relationships, with the capacity to make informed and autonomous decisions about family planning, contraception, and pregnancy.[1] Addressing reproductive health remains vital, as it directly impacts the well-being of individuals, families, and the community. Access to high-quality prenatal care, nutrition, and medical support are essential factors in promoting healthy pregnancies and births.[2]

The COVID-19 pandemic has continued to impact reproductive health and planning in ways that have evolved since 2020. Disruptions to healthcare services, economic challenges, and shifts in social dynamics have contributed to this complex landscape. Moreover, North Carolina's Senate Bill 20 has already and will likely continue to impact access to reproductive life planning for individuals and families.[3]

Primary Data

2022 Durham County Community Health Assessment Survey

The 2022 Durham County Community Health Assessment County-Wide Survey asked participants if they had problems getting the healthcare they needed for them personally or for someone in their household from any type of healthcare provider, dentist, or pharmacy. From this sample, 14.8% of participants reported "yes". Of those who responded yes, 3.6% reported having trouble accessing their Primary Care Provider (PCP), 1.2% reported having trouble accessing care from an OBGYN (compared to 0.9% in the 2019 Durham County Health Assessment County-Wide Survey), 0.3% reported having trouble accessing care from a sexual health clinic, and 5.8% chose "other", which may include specialists involved with reproductive and sexual health.[4,5]

2022 Durham City/County Resident Survey

The 2022 Durham City/County Resident Survey asked participants if they had trouble accessing the healthcare they needed in the past year, either for them personally or for someone in their household. In 2022, 14.4% of respondents who answered the question responded "yes", compared to 13.6% in 2021, 9.5% in 2020, and 13.2% in 2017.[5] Data from 2019 was not available for comparison.

Secondary Data

Pregnancy, Fertility, and Abortion

Figure 7.01(a) gives an overview of North Carolina's and Durham County's 2021 pregnancy, fertility, and abortion rates per 1,000 population by race and ethnicity for females aged 15-44. To note, these abortion rates refer to induced abortions and do not include spontaneous abortions (i.e. miscarriages or stillbirths). In Durham County, Hispanic or Latina/o/x birthing people have significantly higher rates of pregnancy and fertility than all other reported races. The overall induced abortion rate for women in Durham County is higher than North Carolina as a whole.

Pregnancy, Fertility, and Abortion Rates per 1000, Ages 15-44, Durham County, North Carolina, 2021

	Durham County			North Carolina		
	Pregnancy Rate	Fertility Rate	Abortion Rate	Pregnancy Rate	Fertility Rate	Abortion Rate
Asian/Pacific Islander (Non-Hispanic)	56.5	49.9	6.5	65.7	55.7	9.8
Black (Non-Hispanic)	72.1	44.3	27.5	82.7	54.9	27.3
Hispanic	113.5	94.7	18.5	101.8	85.3	16.2
Multiracial (Non-Hispanic)	73.5	54.6	18.4	84.5	64.3	19.8
White (Non-Hispanic)	57.5	52.9	4.4	60.1	53.5	6.3
Total	70.7	55.5	15.0	71.6	58.1	13.2

Figure 7.01(a) Pregnancy, fertility, and abortion rates per 1,000 population[6]

Preterm Births

Figure 7.01(b) shows the percentage of all live births born preterm for Durham County, North Carolina, and the United States in 2021.

Preterm Birth Rates, Durham County, North Carolina, United States, 2021

	Durham County	North Carolina	United States
Preterm birth percentages (defined as gestation <37 weeks)	10.3%	10.8%	10.5%

Figure 7.01(b) Preterm Birth Percentages[7]

Figure 7.01(c) shows the percentage of all live births born preterm by race and ethnicity for North Carolina.

Preterm Birth Rates by Race/Ethnicity, North Carolina, 2021

	Preterm birth percentages in North Carolina
All Races	10.8%
Non-Hispanic White	9.6%
Non-Hispanic Black	14.8%
Hispanic	10.0%

Figure 7.01(c) Preterm Birth Percentages by Race/Ethnicity[8]

Infant Mortality

Figure 7.01(d) shows the infant mortality rates by race and ethnicity for Durham County and North Carolina.

Infant Mortality Rates by Race and Ethnicity, Durham County and North Carolina, 2021

	Durham County	North Carolina
Black (Non-Hispanic)	10.9	12.6
Hispanic	4.9	5.4
White (Non-Hispanic)	2.9	4.8
Total	6.0	6.9

Figure 7.01(d) Infant Mortality Rates per 1,000 live births[8]

Interpretations: Disparities, Gaps, Emerging Issues

Reproductive justice is the human right to maintain personal bodily autonomy, have children, not have children, and parent the children in safe and sustainable communities.[9] It is critical that maternal healthcare providers operate from a place of reproductive justice, educating and supporting women without judgement or bias, with a sensitivity to the individual and community level trauma that many women of childbearing age have experienced.

In Durham County, Hispanic or Latina/o/x birthing people have significantly higher rates of pregnancy than all other reported races, and higher infant mortality rates compared with white women or birthing people. Inequities in infant mortality rates by race are evident across Durham County, North Carolina, and the United States, with Black or African American and Hispanic or Latina/o/x populations experiencing higher rates compared to white populations. Infant death rates are measured by deaths per 100,000 live births. In 2021, the Northeastern region of NC, that includes Durham County, the infant mortality rate was 9.9 for Black or Africans, 4.3 for Hispanic or Latina/o/x individuals, and 4.7 for whites. Infant mortality rates reflect the quality of and access to sufficient prenatal, maternity, and neonatal care.[10]

The overall rate of preterm births in Durham County is comparable to the state and national averages. In North Carolina, preterm birth rates are higher for Black or African American women than white and Hispanic or Latina/o/x women, and higher than the national average for all birthing people. Data stratification by race is not available for Durham County at this time. It may be useful to collect and include this data in the future. Infant mortality, preterm birth, and poor birth outcomes are all related to lack of access to adequate healthcare, delayed prenatal care, and racial bias for women of color.[11] Risk factors for preterm birth include inadequate birth spacing, smoking, obesity, multiple births, and access to health insurance. These, among other social and economic factors, are rooted in the existence of institutions that have historically and presently negatively impacted Black and Brown women at a disproportionate rate. Addressing these disparities, which are shown to be prevalent in Durham County, will require comprehensive community efforts to support maternal and child well-being.[12]

Durham County has higher abortion rates than North Carolina broadly, 15.0 and 13.2 per 1,000, respectively. Black or African American women in Durham County have higher abortion rates and higher infant mortality rates than other reported races in the county. High abortion rates in a specific region might reflect inequities in access to healthcare, contraception, or comprehensive sex education, as well as differences in socioeconomic conditions or cultural attitudes or stigma

towards abortion.[13] As previously mentioned, these disparities stem from and are propelled by injustices that must be addressed by implementing systems-level approaches.[14]

Furthermore, the passing of North Carolina's Senate Bill 20 (SB20) may create additional barriers for families seeking abortion as the bill bans most abortions after 12 weeks of pregnancy, unless there is a life-limiting anomaly as determined and documented by a specialist.[3] These restrictions have been shown to compound existing racial, ethnic, and socioeconomic health inequities, such as with barriers to accessing care from a reproductive health specialist.[15] Studies show that when women experience an unintended pregnancy and are forced to carry to term, they are likely to also have delayed prenatal care. This can result in poor maternal and infant health outcomes including an increased rate of infant mortality and preterm births.[16] Monitoring the impact of this legislation on abortion rates and women's healthcare in the upcoming years is crucial to understanding its full effects on Durham County specifically.

Recommended Strategies

Given the existing disparities and recent passing of SB20, it is imperative that investment in improving access to maternity care, contraceptives, family planning, and other reproductive health care services is prioritized. Additional investments to achieve reproductive justice, expand linkage to care, and create an environment that supports breastfeeding families are needed. Below are recommended strategies that could address these issues:

- CenteringPregnancy© has been shown to increase breastfeeding, decrease preterm birth rates, and promote wellbeing throughout pregnancy and beyond.[18] Encouraging more residents to utilize this program offered by the Durham County Department of Public Health could improve maternal and child health outcomes.
- NC Medicaid has extended coverage for postpartum care up to 12 months after delivery, which improves access to postpartum mental health and contraceptive care.[19] It is essential that individuals are aware of this legislative update and are enrolled to these benefits appropriately. Additionally, further advocacy for similar legislation to increase access to adequate maternal health and contraceptive care is recommended.
- Since onset of the COVID-19 pandemic, NC Department of Health and Human Services (NCDHHS) has supported use and reimbursement of telehealth for patients and providers.[20,21] Increasing use of telehealth interventions for women's health, such as for consultation with specialty services, family planning, and other services, have been shown to improve health outcomes.[22] Continued support for the infrastructure of telehealth and virtual services for reproductive health education and services can help decrease barriers to accessing care.

Additional funding and support to achieve reproductive justice, expand linkage to care, and create an environment that supports women and families are essential to improving the mental and physical demands of pregnancy and childbearing.

Current Initiatives & Activities

Durham Department of Public Health Maternal Health Clinic provides prenatal and postpartum services, including physical examinations, ultrasounds, and educational classes, for patients of childbearing age. https://www.dcopublichealth.org/services/women-services/maternity-clinic

Durham Department of Public Health Family Planning Services provides confidential reproductive health and family planning services, including education, counseling, and birth control methods, to avoid unwanted pregnancies or prepare for healthy pregnancies. https://www.dcopublichealth.org/services/women-services/family-planning-services-3658

Improving Community Outcomes for Maternal and Child Health Initiative Durham County has been awarded funding through the Improving Community Outcomes for Maternal and Child Health Initiative, which is intended to improve birth outcomes, reduce infant mortality, and improve the health status of children ages zero to five using evidence-based strategies.[17] https://www.dcopublichealth.org/services/health-education/communicable-disease-maternal-child-health/icomch

Lincoln Community Health Center provides accessible, affordable, high quality outpatient health care services to the medically underserved at one central clinic and four satellite clinics at Lyon Park, Holton, Walltown, and Urban Ministries. http://www.lincolnchc.org

Presumptive Medicaid is offered in North Carolina for patients to access timely prenatal care while in the process of obtaining Medicaid coverage during pregnancy. It ensures short-term coverage for services, including prenatal care, labs, ultrasound, and medications. Eligibility can be determined by visiting any qualified provider through local health departments, federally qualified health centers, hospitals, or clinics. https://files.nc.gov/ncdma/documents/files/Pregnancy_Presumptive_Eligibility.pdf

The Samaritan Health Center provides comprehensive medical care to underserved members of the community, regardless of their ability to pay. https://www.samaritanhealthcenter.org

Care Management for At Risk Children connects social workers and nurses to families to improve the health of young children. Care managers link families to health promoting programs and services. https://www.dcopublichealth.org/services/child-health/cc4c-3631

Bedsider.org is an online birth control support network that provides online educational information, as well as resources for seeking local health care, for women ages 18-29 operated by The National Campaign to Prevent Teen and Unplanned Pregnancy. https://www.bedsider.org/

Family Connects Durham offers a free home visit by a nurse to families of newborns in Durham County. https://www.ccfhnc.org

Planned Parenthood offers in-person and virtual health services, including birth control, pregnancy testing and services, STD testing and treatment, along with other general women's health care services. https://www.plannedparenthood.org

Durham Volunteer Doulas provides birth doula care at no cost to pregnant individuals who would otherwise be unable to afford doula services. www.durhamvolunteerdoulas.org

MAAME (Mobilizing African American Mothers through Empowerment) provides doula support, access to educational workshops, family planning guidance, and referrals to community resources to support Black, Indigenous, and other Birthing People of Color from birth and beyond. https://maameinc.org/

Welcome Baby provides parenting and car seat safety classes, maternity clothes, breastfeeding supplies, and Pack 'n Play cribs to support families with young children. https://www.welcomebaby.org

References

1 World Health Organization. (2023). Family planning/contraception methods. https://www.who.int/news-room/fact-sheets/detail/family-planning-contraception

2 U.S. Department of Health and Human Services. Pregnancy and Childbirth. https://health.gov/healthypeople/objectives-and-data/browse-objectives/pregnancy-and-childbirth

3 Senate Bill 20 Ratified Bill: An Act to Amend the Law Regarding Abortion after 20 Weeks and to Establish the Pain-Capable Unborn Child Protection Act, (2023). https://www.ncleg.gov/Sessions/2023/Bills/Senate/PDF/S20v5.pdf

4 Durham County Department of Public Health. (2023). 2022 Durham County County-Wide Community Health Assessment Survey Report. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

5 ETC Institute. (2023). 2022 Durham County Resident Survey Findings Report. https://www.dconc.gov/home/showpublisheddocument/38594/638137035308500000

6 Statistics, N. S. C. f. H. (2023). 2021 Reported Pregnancies. https://schs.dph.ncdhhs.gov/data/vital/pregnancies/2021/

7 March of Dimes. (2021). 2021 March of Dimes Report Card. https://onprem.marchofdimes.org/materials/March-of-Dimes-2021-Full-Report-Card.pdf

8 NC State Center for Health Statistics. (2021). 2021 Infant Mortality Statistics for North Carolina. https://schs.dph.ncdhhs.gov/data/vital/ims/2021/

9 Sister Song, W. o. C. R. J. C. Reproductive Justice. https://www.sistersong.net/reproductive-justice

10 Centers for Disease Control and Prevention. (2023). Infant Mortality. https://www.cdc.gov/reproductivehealth/maternalinfanthealth/infantmortality.htm

11 Taylor, J., Novoa, C., Hamm, K., & Phadke, S. (2019). Eliminating Racial Disparities in Maternal and Infant Mortality. https://www.americanprogress.org/article/eliminating-racial-disparities-maternal-infant-mortality/

12 Jones-Vessey, K. (2023). North Carolina Infant & Child Deaths: 2021 Data Update. https://webservices.ncleg.gov/ViewDocSiteFile/75667

13 Dehlendorf, C., Harris, L. H., & Weitz, T. A. (2013). Disparities in Abortion Rates: A Public Health Approach. American Journal of Public Health, 103. https://doi.org/10.2105/AJPH.2013.301339

14 National Academies of Sciences, E., and Medicine; Health and Medicine Division; Board on Population Health and Public Health Practice; Committee on Community-Based Solutions to Promote Health Equity in the United States. (2017). The Root Causes of Health Inequity. In A. Baciu, Y. Negussie, A. Geller, & J. N. Weinstein (Eds.), Communities in Action: Pathways to Health Equity. National Academies Press. https://www.ncbi.nlm.nih.gov/books/NBK425845/

15 Redd, S. K., Rice, W. S., Aswani, M. S., Blake, S., Julian, Z., Sen, B., Wingate, M., & Hall, K. S. (2021). Racial/ethnic and educational inequities in restrictive abortion policy variation and adverse birth outcomes in the United States. BMC Health Services Research(21), Article 1139 (2021). https://doi.org/10.1186/s12913-021-07165-x

16 Ravi, A. (2018). Limiting Abortion Access Contributes to Poor Maternal Health Outcomes. https://www.americanprogress.org/article/limiting-abortion-access-contributes-poor-maternal-health-outcomes/

17 North Carolina Department of Health and Human Services. (2021). Request for Applications: Improving Community Outcomes for Maternal and Child Health. Raleigh, North Carolina Retrieved from https://wicws.dph.ncdhhs.gov/docs/A393ImprovingCommunityOutcomesforMaternalandChildHealth.pdf

18 Thielen, M., Kathleeen RN. (2012). Exploring the Group Prenatal Care Model: A Critical Review of the Literature. The Journal of Perinatal Education, 21(4). https://doi.org/10.1891/1058-1243.21.4.209

19 Avram, C. M., & Swartz, J. J. (2022). Sidebar: The Fourth Trimester: Promising Possibilities through Postpartum Medicaid Coverage Expansion. North Carolina Medical Journal, 83(5), 332-335. https://ncmedicaljournal.com/article/55404

20 North Carolina Department of Health and Human Services. (2020). NCDHHS Helps Make Telehealth More Accessible for Millions of North Carolinians. https://www.ncdhhs.gov/blog/2020-07-28/ncdhhs-helps-make-telehealth-more-accessible-millions-north-carolinians

21 Services, U. S. C. f. M. M. (2020). Meicare Telemedicine Health Care Provider Fact Sheet. https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet

22 DeNicola, N. M., MSHP; Grossman, Daniel MD; Marko, Kathryn MD; Sonalkar, Sarita MD, MPH; Butler Tobah, Yvonne S. MD; Ganju, Nihar MD; Witkop, Catherine T. MD, MPH; Henderson, Jillian T. PhD; Butler, Jessica L. MPH; Lowery, Curtis MD. (2020). Telehealth Interventions to Improve Obstetric and Gynecologic Health Outcomes. Obstetrics & Gynecology, 135(2), 371-382.

Chapter 8

Communicable Disease

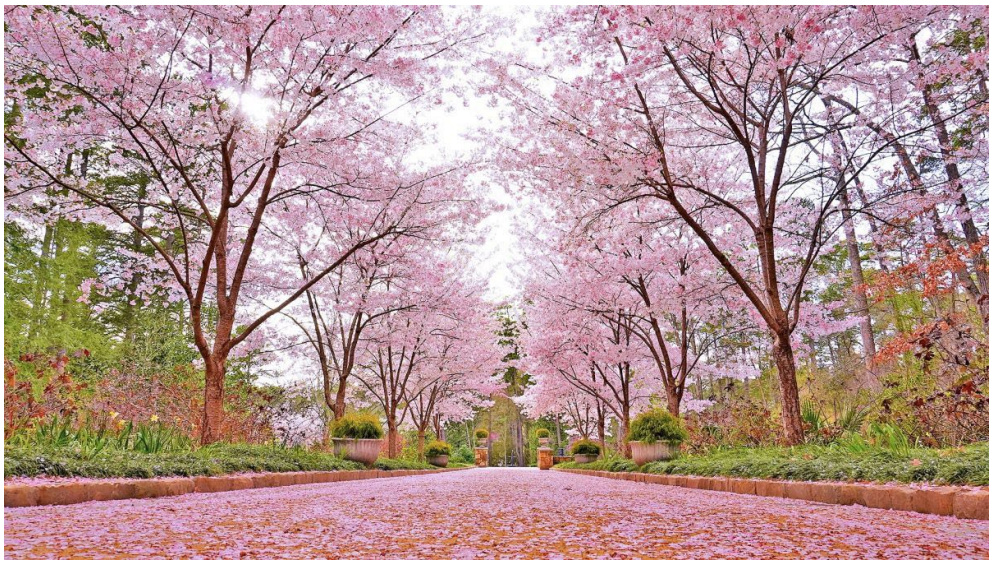


Photo Courtesy of Discover Durham

This chapter includes:

- Vaccine-Preventable Diseases
- Sexually Transmitted Infections

Section 8.01 *Vaccine Preventable Disease*

Overview

Vaccines are tools used in public health to prevent serious life-threatening diseases at the individual and population level.[1] Vaccination is a human right and is a key part of primary health care.[1] With vaccines for 20 diseases, global immunizations prevent 3.5-5 million deaths every year.[1] The vaccination of children between 1994 and 2021 in the US prevented over one million deaths and saved an estimated $2.2 trillion.[2] The COVID-19 vaccine saved an estimated $2.6 billion from reduced Medicare hospitalizations associated with COVID-19 in early 2021.[3]

Humans are exposed to pathogens (disease causing agents like bacteria or viruses) every day.[4] Pathogens can make you sick if they break through human immune defenses.[4] Some human immune defenses include physical defenses such as skin and stomach acid, as well as your immune system cells (often called white blood cells).[4] Vaccines introduce small, non-threatening parts of the pathogen to the body which reacts by telling immune cells to create the specific antibodies for that pathogen.[4] Antibodies are designed by your immune system to find and flag the pathogen as dangerous.[4] Without antibodies, the immune system doesn't know if the pathogen is dangerous or not.[4] Once the antibodies are made, you have successfully built up an immune response to that pathogen.[4] The next time you (or a vaccinated person) is exposed to the pathogen, the body knows that the pathogen shouldn't be there thanks to the antibodies and the immune cells can attack and kill the pathogen before it spreads and makes you sick.[4] Without the vaccine, it would take too long to identify the pathogen, make antibodies, cause an immune response, and kill the pathogen before you got sick.[4]

The ultimate goal of vaccinating at the individual level is to develop herd immunity.[4] Herd immunity happens when most of the population is vaccinated against the same pathogen.[4] When the number of unvaccinated people is small enough in a population due to mass vaccination, the pathogen has a hard time spreading to other people.[4] Herd immunity is what keeps vaccine-preventable diseases from causing outbreaks, including diseases like measles and polio.[4] Achieving 100% vaccination in a population is impossible in practice because there are individuals in each population that cannot receive the vaccine due to underlying health conditions or allergies to the vaccine ingredients.[4] Therefore, these individuals rely on the rest of the population to get vaccinated.[4] Diseases can be removed from the planet using vaccines and achieving herd immunity.[5] For example, Smallpox was eradicated in 1980 thanks to a massive international vaccination effort many consider the biggest achievement in international public health.[5]

Vaccine schedules

The Centers for Disease Control and Prevention (CDC) has multiple vaccine schedules for children, adults, refugees, travelers, and pregnant individuals.[6] A full schedule for childhood vaccinations can be found here: https://www.cdc.gov/vaccines/parents/index.html. COVID-19 vaccines are approved for children as young as six months old.[6] Adults are recommended to get boosters of Tdap, the annual flu vaccine, and COVID-19 booster(s).[6] Additional vaccines suggested for adults are needed for international travel to some countries, for refugees entering the US as adults, and before, during, and after pregnancy.[6] It's important for pregnant individuals to receive the Tdap, flu, and COVID-19 vaccines as well as Hepatitis B and A if medically

necessary.[6] These vaccines are crucial to prevent poor birth outcomes because the maternal immune response from the vaccine can protect the infant for months after birth.[6]

Several vaccinations are needed to return to school for kindergartners, seventh graders, and twelfth graders for Durham Public Schools (DPS).[7] These include, tetanus diphtheria pertussis (Tdap), polio, hepatitis B, measle mumps rubella (MMR), varicella (chickenpox), and pneumococcal conjugate for four-year-olds, and meningococcal conjugate (seventh and twelfth graders).[8] Durham public school districts offer immunization clinics to ensure children entering school have all the required vaccinations.[7]

Vaccine compliance

Durham Public Schools (DPS) saw over 90% of children receiving the required immunizations for school pre-pandemic, however, vaccination compliance rates are declining since March 2020.[7] North Carolina accepts the following vaccine exemptions: medical reasons, religious beliefs, and personal beliefs.[9] The continued acceptance of non-medical exemptions threatens the achievement of herd immunity and can put children at risk for life-threatening disease.[7]

Types of Vaccines

There are many types of vaccines.[10] Not all vaccines are created using the same technology, but all vaccines have been thoroughly researched, most of which have decades of data showing how beneficial vaccines are.[10] Below is a list of the different technologies used to create the common vaccines. None of the following technologies can be used to infect a person with the disease the vaccine is trying to prevent.[10] It's always a good idea to talk to your doctor if you have questions about vaccines.

Types of vaccines:[10]

Type of Vaccine	About	Examples
Inactivated vaccines	Use the killed version of the pathogen. Boosters are recommended.	Hepatitis A, Influenza, Polio
Live-attenuated vaccines	Use a weakened (attenuated) version of the pathogen. Offers life-long immunity with one or two doses.	Measles, mumps, rubella (MMR), Varicella (Chickenpox)
Messenger RNA (mRNA)	New research using mRNA	COVID-19
Conjugate vaccines	Use pieces of the pathogen. Safe for most people, even those with health issues that can't get other vaccines.	Hepatitis B, Pertussis (Whooping Cough)
Toxoid	Use a toxin made by the pathogen. Boosters are recommended.	Diphtheria and Tetanus (part of TdaP vaccine).

Table 8.01(a) List of the different types of vaccines, how they work, and examples of vaccines for each type.[10]

More information on vaccines and the safety of their ingredients can be found here: https://www.hhs.gov/immunization/basics/vaccine-ingredients/index.html.

Primary Data

The two questions directly related to vaccines in the 2023 Community Health Assessment (CHA) surveys are 'what are the most important health problems?' and 'If you did not get at least one dose of the COVID-19 vaccine, why not?'[10] In both the county-wide and Comunidad Latina surveys, the spread of communicable diseases was not a considered to have the greatest impact on quality of life and was not considered an important disease or condition in Durham County. In the County-wide CHA, 93.9% of participants reported getting at least one dose of the COVID-19 vaccine.[11] In the Comunidad Latina CHA survey, 83.2% of participants reported getting at least one dose of the COVID-19 vaccine.[11] Reasons for not getting the COVID-19 vaccine include: not trusting or wanting the vaccine, not wanting to get COVID-19 from the vaccine, and not wanting the adverse effects of the COVID-19 vaccine.[11,12] Vaccine hesitancy was not captured in any other question in the 2023 Durham County Community Health Assessment surveys.

Secondary Data

Mpox

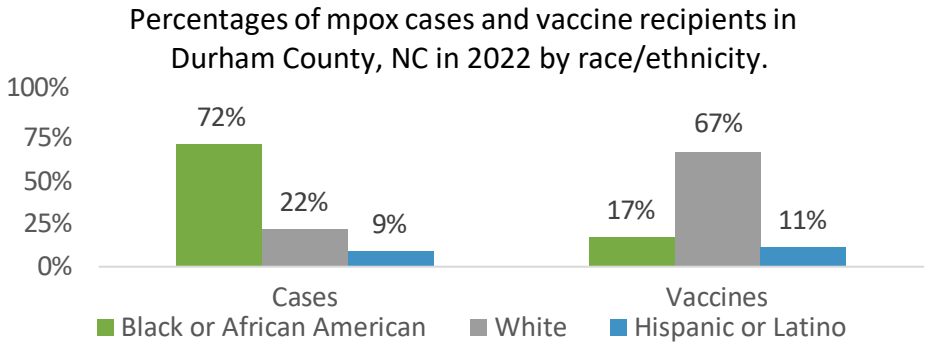


Figure 8.03(c) Percentages of mpox cases and vaccine recipients in Durham County, NC in 2022 by race/ethnicity.

Mpox (formerly known as monkeypox) is the disease that results in a distinct rash which develops blisters filled with liquid that are itchy or painful.[12] Mpox is endemic in certain countries such as those in West and Central Africa. However, in 2022, non-endemic countries such as the United States began to see the mpox virus circulating in communities where mpox is not normally found. Durham County confirmed its first case of mpox in July 2022 and the last case was confirmed in November 2022. As the vaccine became more available, DCoDPH set up a mass vaccination clinic at the health department in downtown Durham. DCoDPH partnered with Duke Health, the LGBTQ Center of Durham, and North Carolina Central University to provide education to the community and promote mpox vaccination. DCoDPH attended Durham Pride in September to encourage the LGBTQ+ population to get vaccinated for mpox. In Durham County, 46 cases of mpox were identified. Figure 8.03 (c) illustrates the racial disparities in mpox vaccine recipients and cases. There are large disparities among Black or African Americans who make up nearly three quarters of cases but received less than one fifth of the vaccines. The vaccine inequities observed during mpox mirrored those exposed during the COVID-19 vaccine rollout.[13] Whether these inequities were caused by vaccine hesitancy in certain populations, lack early access to the Jynneos Vaccine, or other barriers caused the disparities between mpox cases and mpox vaccine recipients is

unclear.[14] More information on the mpox outbreak in North Carolina can be found here: https://www.ncdhhs.gov/mpox.

Flu

Monitoring adult vaccines is just as crucial as childhood vaccines because many vaccines do not offer lifelong immunity, so the threat of the disease is still present throughout the lifecycle. A vital vaccine necessary for people of all ages is the annual flu vaccine.[14] Though the flu is not a required vaccine for school or employment in North Carolina, it has many advantages.[15] Like all vaccines, the annual influenza vaccine helps to prevent illness or at least lessen the impact of the illness such as manageable symptoms, no hospitalization or death.[15] Several studies demonstrate how the flu vaccine can help people with other chronic illnesses.[15] One study found that receiving the flu vaccine lowered the risk of cardiac events, worsening chronic lung disease, and diabetes.[15] Overall, Durham County has higher percentages of flu vaccinations than North Carolina across 2019-2022 (Figure 8.02(b)).[15] This data clearly shows inequities across race and ethnicity for flu vaccination.[16] Across 2019-2022, Black or African American and Hispanic or Latino Durham County residents were less likely to receive a flu vaccine than whites and asians.[16]

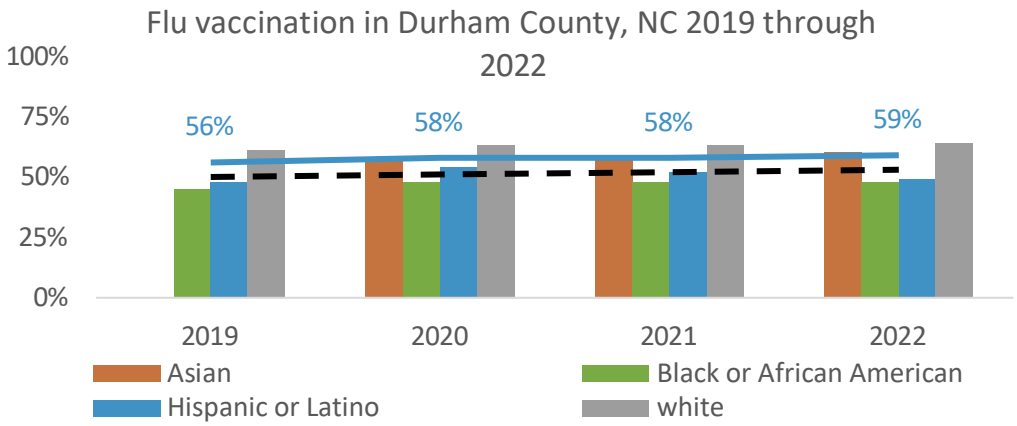


Figure 8.02 (2) Percentages of Durham County's population by race/ethnicity that received a flu shot 2019-2022.[15] Note: data for the Asian population was not available in 2019.

Interpretations: Disparities, Gaps, Emerging Issues

Vaccine hesitancy and structural racism in healthcare

Vaccine hesitancy is more frequently used as a scapegoat for structural racism in the healthcare system.[16] The term 'vaccine hesitancy' puts the focus on the individual rather than the system, policies, and practices of inequitable healthcare.[17] Structural responses to combat health inequities include building relationships with trusted community leaders, mobile and pop up clinics, and addressing the digital divide.[17] One study found that perceived discrimination was associated with 98% higher odds of medical mistrust while discrimination due to racial/ethnic background and language was associated with a 25% increase in the odds of medical mistrust.[17] Structural barriers, such as things impacting the ability to access vaccines include language barriers, lack of transportation, immigration status, internet access, and lack of accessible and trusted points of access such as a clinic location.[18] Increases in medical mistrust and structural barriers leads to a decrease in vaccine administration.[19]

As described above, inequities in the flu vaccine are clearly visible.[16] Compared to whites, Black or African Americans are 80% higher, ore more likely, to be hospitalized for flu.[19] BIPOC populations are more at risk for having no health insurance, no personal healthcare provider, and no health check up in the past year due to systemic racism at the structural and interpersonal level.[20] The Ad Council, American Medical Association, and CDC have supported vaccine campaigns focused on Black or African American and Hispanic or Latino populations.[20] At the interpersonal level, healthcare providers should be ready to provide culturally appropriate vaccine recommendations and be educated on how to discuss vaccination without racial bias.[20]

Resurgence of vaccine preventable diseases

Globally, vaccination rates are on the rise.[20] In the United States, childhood vaccination rates have dropped below what they were pre-pandemic.[21] Kindergarten vaccine compliance decreased from 95% to 94% from 2019 to 2021.[21] A case for higher vaccination rates can be made for many vaccines, including the MMR vaccine which requires at least 95% of the population be vaccinated to achieve herd immunity.[22] In 2019, the CDC recorded the highest number of measles cases in the US since 1992.[22] The CDC has a schedule available for children that missed important childhood vaccines.[22]

Recommended Strategies

- Develop and disseminate culturally competent educational materials on vaccines, where to get them, what to expect, and their importance in English, Spanish, and Mandarin.
- Train healthcare providers on cultural competence to address any questions regarding vaccines from people of other backgrounds and cultures.
- Foster relationships with community leaders to gain trust from BIPOC populations.
- Include vaccination hesitancy and accessibility questions on the Community Health Assessment as a means to analyze the community's willingness to receive vaccinations.
- Helping children and adults catch up on their vaccines can help prevent a resurgence of vaccine preventable diseases.[23]

Current Initiatives & Activities (Century, size 14)

NC DHHS Immunization Branch Strategic Plan 2023-2030: Committed to improve routine vaccination coverage and maintain preparedness for future public health events. Focuses on readiness, continuous improvement, culture and capabilities, equity, and technology and data modernization.https://immunization.dph.ncdhhs.gov/pdf/NC_DHHS_Immunization_BranchStrategicPlan_2023-2030.pdf

North Carolina Immunization Program (NCIP): This program works in conjunction with the federal vaccine supply program, called Vaccines for Children. This was created to help families of children who may not otherwise have access to vaccines by providing free vaccines to doctors who serve them. https://immunization.dph.ncdhhs.gov/family/nc_immnz_program.htm

Durham County Department of Public Health (DCoDPH): The mission of the Durham County Department of Public Health (DCoDPH) is Partnering with our community to advance health equity, protect the environment, and promote health and wellness for all. https://www.dcopublichealth.org

Durham County Refugee Clinic: Housed in the Durham County Public Health building, the refugee clinic helps connect new refugees to Durham with resources in the community. The clinic also offers communicable disease screening and treatment. https://www.dcopublichealth.org/services/communicable-diseases/refugees

References

[1] World Health Organization. 2023. Vaccines and Immunization. https://www.who.int/health-topics/vaccines-and-immunization
[2] Vaccinate your family. 2023. Vaccine benefits. https://vaccinateyourfamily.org/why-vaccinate/vaccine-benefits
[3] Tarazi, W., Samson, L. W., Sheingold, S., De Lew, N., Sommers, B. D. May 4, 2022. Hospitalization cost savings associated with COVID-19 vaccinations among medicare beneficiaries in early 2021. Health and Human Services. https://aspe.hhs.gov/reports/hospitalization-cost-savings-covid-19-vaccinations
[4] World Health Organization. 2023. How do vaccines work? https://www.who.int/news-room/feature-stories/detail/how-do-vaccines-work
[5] Centers for Disease Control and Prevention. 2021, February 1. History of Smallpox. https://www.cdc.gov/smallpox/history/history.html
[6] Centers for Disease Control and Prevention. 2023. Vaccines and Immunizations. https://www.cdc.gov/vaccines/
[7] Durham Public Schools. 2023. Back to School: Immunizations and Vaccines. https://www.dpsnc.net/Page/7197
[8] North Carolina Department of Health and Human Services. 2023. NC Immunization Requirements. North Carolina Immunization Branch. https://immunization.dph.ncdhhs.gov/family/nc_immnz_requirements.htm
[9] North Carolina Department of Health and Human Services. 2023. NC Exemptions. North Carolina Immunization Branch. https://immunization.dph.ncdhhs.gov/schools/ncexemptions.htm
[10] Partnership for a Health Durham; Durham County Department of Public Health. 2023. 2022 Durham County Community Health Assessment County-wide survey data report. https://healthydurham.org/
[11] Partnership for a Health Durham; Durham County Department of Public Health. 2023. 2023 Durham County Community Health Assessment Comunidad Latina survey data report. https://healthydurham.org/
[12] World Health Organization. 2021, April 18. Mpox (monkeypox). https://www.who.int/news-room/fact-sheets/detail/monkeypox
[13] Carrico, S., Zitta, J.P., Stevens, E., Jenkins, R., Mortiboy, M., Jenks, J. 2023, June 26. Mpox vaccination and the role of social vulnerability in Durham County, North Carolina, USA. Journal of Racial and Ethnic Health Disparities. https://link.springer.com/article/10.1007/s40615-023-01827-8
[14] Centers for Disease Control and Prevention. 2023. Vaccine Effectiveness: How Well Do Flu Vaccines Work? https://www.cdc.gov/flu/vaccines-work/vaccineeffect.htm
[15] County Health Rankings. 2023. Durham, NC. https://www.countyhealthrankings.org/explore-health-rankings/north-carolina/durham?year=2023
[16] Corbie-Smith, G. 2021, March 5. Vaccine hesitancy is a Scapegoat for Structural Racism. JAMA Health Forum. https://jamanetwork.com/journals/jama-health-forum/fullarticle/2778073
[17] Bazargan, M., Cobb, S., Assaria, S. 2021, January. Discrimination and Medical Mistrust in a Racially and Ethnically Diverse Sample of California Adults. Annals of Family Medicine. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7800756/#:~:text=For%20racial%2Fethnic%20minorities%2C%20medical,patients'%20past%20experience%20of%20discrimination.&text=An%20extensive%20review%20of%20the,behaviors%2C%20and%20undesired%20health%20outcomes.
[18] Njoku, A., Joseph, M., Felix, F. 2021, September 18. Changing the Narrative: Structural Barriers and Racial and Ethnic Inequities in COVID-19 vaccination. International Journal of Environmental Research and Public Health. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8470519/
[19] Centers for Disease Control and Prevention. 2022, October 18. Inequities in Flu Vaccine Uptake. Vital Signs. https://www.cdc.gov/vitalsigns/flu-inequities/index.html#:~:text=Access%3A%20People%20from%20some%20racial,vaccine%20compared%20with%20those%20without.

[20] Feldman, A. G., O'Leary, S. T., Danziger-Isakov, L. 2021, November 16. The Risk of Resurgence in Vaccine-Preventable Infections Due to Coronavirus Disease 2019-related Gaps in Immunization. Clinical Infectious Disease.https://pubmed.ncbi.nlm.nih.gov/33580243/#:~:text=As%20a%20result%20of%20these,morbidity%20and%20mortality%20in%20children.

[21] Balch, B. 2022, August 2. How distrust of childhood vaccines could lead to more breakouts of preventable diseases. AAMC News. https://www.aamc.org/news/how-distrust-childhood-vaccines-could-lead-more-breakouts-preventable-diseases

[22] Pfizer. 2023. Skipped Childhood Immunizations Could Lead to Resurgence of Vaccine Preventable Diseases. https://www.pfizer.com/news/articles/skipped_childhood_immunizations_could_lead_to_resurgence_of_vaccine_preventable_diseases#:~:text=Cases%20of%20and%20deaths%20due,are%20down%2080%25%20or%20more.

Section 8.02 *Sexually Transmitted Infections*

Overview

Sexually transmitted infections (STIs), including Human Immunodeficiency Virus (HIV), continue to be a significant health issue in Durham County as well as at the state, national, and international levels.[1; 2] The burden of infection disproportionately affects sexual and gender minorities as well as communities of color.[1] While over 30 different pathogens can be sexually transmitted, eight pathogens account for most of the burden of infection: gonorrhea, chlamydia, syphilis, trichomonas, hepatitis B, HIV, herpes simplex virus, and human papillomavirus (HPV). Of these pathogens, only gonorrhea, chlamydia, trichomonas, and syphilis can be cured, and antibiotic resistance is steadily increasing to many infections.[3]

In 2022, Mpox (formerly called monkeypox) re-emerged as a global threat, causing over 30,000 cases and 55 deaths in the US, including over 700 cases in North Carolina.[4] Although Mpox can be spread through non-sexual contact, most cases were seen in men who have sex with men (MSM). While Mpox vaccination exists to decrease the severity of infection, only 23% of the US population at risk is fully vaccinated.[5] Mpox is covered in more detail in Section 8.01 Vaccine Preventable Diseases.

Rates of STI screening, access to care and treatment, and public health case investigations declined during the COVID-19 pandemic in 2020 as communities were sheltering in place and workforce resources were diverted to the COVID-19 response.[6] Routine medical care was delayed or deferred, thus limiting detection of asymptomatic infections which are quite common. "The COVID-19 pandemic significantly affected trends in STDs– resulting in likely underreporting of infections and possibly increased STD transmission."[6] While the impact of COVID-19 on STD testing and rates may not be fully known for several years, 2021 data show that chlamydia, gonorrhea, and syphilis have continued to rise in the United States, with more than 2.5 million cases reported that year.[7] These rising rates of STIs both locally, nationally, and internationally demand public health attention and implementation of effective and accessible strategies for prevention and treatment.

Primary Data

According to the 2022 Durham County Community Health Assessment Survey Report, a sample of Durham County residents were asked to state their three most important health problems, that is, diseases or condition in Durham County. Approximately 8% of community members listed STI's including HIV as a priority health problem.[8]

Secondary Data

Three-Year HIV Trends among Adults and Adolescents in North Carolina, Durham, and Peer Counties, 2019-2021

Rank*	County/State	New Cases			Incidence Rate**			3-year AVG Rate
		2019	2020	2021	2019	2020	2021	
10	**Durham**	68	51	61	24.8	18.5	21.9	21.7
4	Cumberland	69	60	82	25.2	22.0	30.0	25.7
5	Guilford	121	92	135	26.7	20.2	29.4	25.4
3	Mecklenburg	275	209	278	29.7	22.5	29.6	27.3
22	Wake	137	134	162	14.8	14.2	16.8	15.3
	NC	1378	1081	1400	15.6	12.3	15.7	14.5

Table 8.03 (a) Three-year HIV trends among adults and adolescents in North Carolina, Durham and Peer Counties, 2019-2021[9]

Durham's three-year average HIV rate is ranked 10th highest in the state and is higher than both Wake County and the North Carolina state average.[9]

Three-Year Newly Diagnosed Early Syphilis Trends in North Carolina, Durham, and Peer Counties, 2019-2021

Rank*	County/State	New Cases			Incidence Rate**			3-year AVG Rate
		2019	2020	2021	2019	2020	2021	
1	**Durham**	164	178	192	50.8	54.8	58.9	54.8
5	Cumberland	115	115	176	34.2	34.4	52.5	40.3
4	Guilford	182	183	290	33.8	33.8	53.5	40.4
2	Mecklenburg	472	576	721	42.4	51.6	64.2	52.8
9	Wake	318	320	362	28.6	28.3	31.5	29.5
	NC	2135	2363	3162	20.3	22.6	30	24.3

Table 8.03 (b) Three-year newly diagnosed syphilis trends in North Carolina, Durham and Peer Counties, 2019-2021[10]

The number of new early syphilis cases diagnosed in Durham in 2021 was 192, a rate of 58.9 per 100,000 population. This is an increase from previous years. In 2019, there were 164 cases and rate of 50.8 per 100, 000; in 2020, there were 178 cases and a rate of 54.8 per 100, 000.[10]

Five-Year Chlamydia and Gonorrhea Trends in Durham, 2019-2021

	New Cases					Incidence Rate*				
	2017	2018	2019	2020	2021	2017	2018	2019	2020	2021
Chlamydia	2740	2862	2999	2423	2388	876.9	901.5	928.6	745.9	732.2
Gonorrhea	1073	1108	1139	1242	1054	343.4	349	352.7	382.4	323.2

Table 8.03 (c) Five-year chlamydia and gonorrhea trends in Durham, 2019-2021[10]

The COVID-19 pandemic affected chlamydia and gonorrhea testing; testing decreased in 2020 and diagnosis did not return in 2021 to pre-2020 numbers.[10]

Interpretations: Disparities, Gaps, Emerging Issues

Although STIs affect millions of Americans nationwide from all social, economic, and racial and ethnic groups, they disproportionately impact certain populations and communities.[11] According to the 2021-2025 STI Strategic Plan compiled by the Department of Health & Human Services, populations that are disproportionally impacted by sexually transmitted infections are Black or African American and Latina/o/x adolescents and young adults, men who have sex with men (MSM), and pregnant women.[11] There are many factors as to why this inequality continues to affect certain populations, but the main factors are material poverty, barriers to education, stigma, and lack of resources.

Socioeconomic status (SES) encompasses not just income but also educational attainment, financial security, and subjective perceptions of social status and social class. Socioeconomic status can encompass quality of life attributes as well as the opportunities and privileges afforded to people within society.[12] Inequities in education, poverty, and systemic racism impact the care People of Color receive and the resources available. There are myths that Black or African American and Hispanic or Latina/o/x people are more tolerant of pain compared to their white counterparts. Primary care providers are less likely to adhere to patient requests, partially because of this myth and dismiss complaints a patient may have; ultimately deterring patients from seeing a doctor.[12]

According to a report published in January 2023, 11.9% of African American or Black, Non-Hispanic Americans were uninsured in 2021; 19.1% of Hispanic or Latina/o/x Americans were uninsured; 7.4% of white, Non-Hispanic Americans were uninsured.[13] Lack of health insurance imposes a large barrier for routine screenings and affordable care. Healthcare is privatized, meaning high prices for necessary screenings and procedures which keeps patients from obtaining these medical services.

Emerging issues that have been listed as priority on the 2021-2025 STI Strategic Plan are slowing the spread of gonorrhea infections, chlamydia infections, and new congenital syphilis cases.[11] In 2021, Black or African American men and women had the “highest chlamydia rates among

race/ethnicity groups (864 and 1,352 per 100,000, respectively) and accounted for 39% of people diagnosed with chlamydia" in North Carolina.[10] The reported number of gonorrhea cases in 2021 was 29,177, a rate of 277 per 100,000, an increase from 28,075 cases in 2020 (rate of 269 per 100,000). Gonorrhea cases have also been increasing in North Carolina for the past few years. There were 29,177 cases reported in 2021 compared to 22,730 cases reported (221 per 100,000) in 2017.[10] The number of early syphilis (primary, secondary, and early non-primary non-secondary) cases diagnosed in North Carolina in 2021 was 3,162, an increase from previous years (2019: 2,135 cases; 2020: 2,363 cases).[10] Per the CDC, congenital syphilis cases have more than tripled in recent years. In 2021, there were more than 2,000 cases reported within the United States, which was the highest number reported in one year since 1994.[14]

Recommended Strategies

The Sexually Transmitted Infections Federal Implementation Plan for the United States for 2021 – 2025 provides an overview for STI reduction divided into five goals: new STI prevention, health promotion by reducing harm from STIs, promoting STI research and innovation, reduction of STI-related health inequities and disparities, and coordination of efforts to end the STI epidemic.[11] Current programs in Durham are addressing these areas to promote health in our community.

Strategies to address prevention of new STIs includes Expedited Partner Therapy (EPT), which is provided at the Durham County Department of Public Health (DCoDPH) and other local clinics to treat the partners of patients diagnosed with gonorrhea or chlamydia without requiring a clinic visit or exam. Many community agencies provide STI testing kits, including free at-home HIV testing, which can reduce the overall burden of STIs in the community due to rapid identification and therefore potential for treatment. Confidential STI testing kits are available for delivery free of charge via takemehome.org, at the DCoDPH, or coupled with education through the I Take Testing Seriously (ITTS) program.[15] Anonymous partner notification via tellyourpartner.org assists patients who aren't comfortable disclosing STI diagnoses to their partners.

Clinics offering PrEP – Pre-exposure Prophylaxis for HIV Prevention – have expanded services to increase access to those that could benefit from HIV prevention services. Monthly or bi-monthly injections for PrEP were approved in 2021 to expand available methods for HIV prevention from only oral pills**.** DoxyPEP, a strategy for post-exposure prophylaxis for patients with frequent STIs, is an innovative method of harm reduction by prevention of STIs other than HIV. Guidelines from the CDC regarding best practices for use of DoxyPEP are forthcoming.[16] Coordination of efforts to end the STI epidemic is being achieved through partnerships between Duke Health, DcoDPH, and the community by organization of events such as the Queer Health Fair and Pride Festival.

Current Initiatives & Activities

Alliance of AIDS Services- Carolinas (AAS-C) serves people by "improving the health of communities impacted by HIV/AIDS through compassionate and non-judgmental prevention, support services, and connection to care." https://www.aas-c.org/

CAARE the Healing Center is a nonprofit community-based organization that encourages health equity and improving the quality of life for members of vulnerable populations, including those experiencing HIV/STIs. https://www.caare-inc.org/

Duke Children's Health Center Infectious Diseases Clinic provides comprehensive care to children with common, unusual, or severe infections including sexually transmitted infections. This clinic provides both HIV pre- and post-exposure prophylaxis to youth and adolescents as well as care for patients living with HIV, Hepatitis B and Hepatitis C. https://www.dukehealth.org/locations/duke-childrens-health-center-infectious-diseases-clinic

Duke PrEP Clinic for HIV Prevention specializes in offering pre-exposure prophylaxis (PrEP) to HIV-negative individuals most vulnerable to HIV infection who are interested in PrEP as a means to prevent HIV. https://www.dukehealth.org/locations/duke-prep-clinic-hiv-prevention

Duke Infectious Disease Clinic 1K provides care for adult patients (18 years and older) with all types of infectious diseases and offers HIV pre-exposure prophylaxis (PrEP) to all HIV-negative individuals most vulnerable to HIV infection. https://www.dukehealth.org/locations/duke-infectious-diseases-clinic-clinic-1k

Duke Infectious Disease Clinic South Durham diagnose, evaluate, and treat adults living with HIV. https://www.dukehealth.org/locations/duke-infectious-disease-south-durham

Duke Student Wellness Center was thoughtfully designed to deliver a broad approach to wellness in an integrated manner that supports our students holistically. Services include offering free, confidential STI Testing to all Duke students. No appointment necessary. https://students.duke.edu/wellness/duwell/sexualhealth/

Durham County Department of Public Health provides confidential HIV/STI Testing and Counseling, sexual health education and outreach, PrEP, and PrEP referrals, and distributes internal and external condoms. https://www.dcopublichealth.org/services/std-hiv-testing; https://www.dcopublichealth.org/services/std-hiv-testing/prep-dcodph

Fast Track Cities Durham This initiative aims to attain the target goals of 95% of people living with HIV knowing their HIV status; 95% of people who know their HIV-positive status being on treatment and 95% of people on treatment with suppressed viral loads by the year 2030. DCoDPH is fully committed to ending the HIV/AIDS epidemic. https://fast-trackcities.org/training/durham-county

HIV/STD Prevention & Care Branch aims to "1) eliminate morbidity and mortality due to sexually transmitted diseases — syphilis, gonorrhea, chlamydia, HIV/AIDS; and 2) assure that an up-to-date continuum of care services is available for all people living with HIV residing in North Carolina." https://epi.dph.ncdhhs.gov/cd/stds/program.html

Lincoln Community Health Center: Early Intervention clinic provides medical treatment and social work services to people living with HIV/AIDS. https://lincolnchc.org/

NCCU Student Health Center: The mission of the Student Health Center is to provide a collaborative and holistic health climate that provides service, care, wellness, and education. These services include general medical care, women's health services, men's health services,

STI testing, and immunizations. https://www.nccu.edu/life-nc-central/health-and-well-being/student-health-center#health-center-services

North Carolina Safer Syringe Initiative: Through the North Carolina Division of Public Health, this initiative aims to increase access to clean needles, hypodermic syringes and other injection supplies, facilitate the safe disposal of used needles and syringes, provide information about harm reduction and preventative health and connect people who inject drugs or otherwise use drugs with treatment and medical and social services. https://www.ncdhhs.gov/divisions/public-health/north-carolina-safer-syringe-initiative

Ready, Set, PrEP "program provides free PrEP HIV-prevention medications to thousands of people living in the United States, including tribal lands and territories, who qualify. It expands access to daily oral PrEP medications to help reduce the number of new HIV transmissions and bring us one step closer to ending the HIV epidemic in the United States." https://www.hiv.gov/federal-response/ending-the-hiv-epidemic/prep-program/

The Region VI Network of Care and Prevention offers HIV prevention and treatment programs to customers in Durham County as well as 10 other counties around education, housing, testing and linkages to Pre-Exposure Prophylaxis (PrEP) and STI treatment. https://accessnetworkofcare.org/

TakeMeHome is a free sexual health home testing program. We provide free HIV tests, STI tests, and PrEP panel tests (where available) that you can take in a place you're most comfortable without going to a clinic or testing site. https://takemehome.org/

References

[1] U.S. Department of Health and Human Services. (2020). *Sexually Transmitted Infections National Strategic Plan for the United States: 2021–2025*.

[2] World Health Organization. (2023, 10 July, 2023). *Sexually transmitted infections (STIs)*. https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis)

[3] Centers for Disease Control and Prevention. (2022, December 28, 2022). *Antimicrobial-Resistant Gonorrhea Basic Information*. https://www.cdc.gov/std/gonorrhea/drug-resistant/basic.htm

[4] Centers for Disease Control and Prevention. (October 23, 2023). *2022-2023 U.S. Map & Case Count*. Retrieved November 11, 2023 from https://www.cdc.gov/poxvirus/mpox/response/2022/us-map.html

[5] Centers for Disease Control and Prevention. (2023, October 24 2023). *JYNNEOS Vaccine Coverage by Jurisdiction*. https://www.cdc.gov/poxvirus/mpox/cases-data/mpx-jynneos-vaccine-coverage.html

[6] Centers for Disease Control and Prevention. (2021, April 11, 2023). *Impact of COVID-19 on STDs*. Retrieved November 2023 from https://www.cdc.gov/std/statistics/2021/impact.htm

[7] Centers for Disease Control and Prevention. (2022, April 11, 2023). *Infections continue to forge ahead, compromising the nation's health*. https://www.cdc.gov/std/statistics/2021/default.htm

[8] Partnership for a Health Durham. (2022). *2022 Durham County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

[9] HIV/STD/Hepatitis Surveillance Unit Division of Public Health. (2021). *2021 North Carolina HIV Surveillance Report*. https://epi.dph.ncdhhs.gov/cd/stds/figures/2021-HIV-AnnualReport.pdf?ver=1.0

[10] HIV/STD/Hepatitis Surveillance Unit. (2022). *2021 North Carolina STD Surveillance Report*. https://epi.dph.ncdhhs.gov/cd/stds/figures/2021-STD-AnnualReportFinal.pdf

[11] U.S. Department of Health and Human Services. (2020). *Sexually Transmitted Infections National Strategic Plan for the United States: 2021–2025*. https://www.hhs.gov/sites/default/files/STI-National-Strategic-Plan-2021-2025.pdf?

[12] American Psychological Association. (2017). *Ethnic and Racial Minorities & Socioeconomic Status*. https://www.apa.org/pi/ses/resources/publications/minorities

[13] Aiden Lee, J. R., Arielle Bosworth, Christie Peters, Nancy De Lew, Benjamin D. Sommers. (2023). *Changes in Health Insurance Coverage, 2019-2021: Geographic and Demographic Patterns in the Uninsured Rate.* https://aspe.hhs.gov/sites/default/files/documents/c70c558101dae57f0946dc880499f71b/aspe-uninsured-2021-acs-ib.pdf

[14] Centers for Disease Control and Prevention. (April 11, 2023). *Congenital Syphilis – CDC Fact Sheet*. Retrieved November 2023 from https://www.cdc.gov/std/syphilis/stdfact-congenital-syphilis.htm

[15] Durham County Department of Public Health. *Community Testing.* https://www.dcopublichealth.org/services/health-education/communicable-disease-maternal-child-health/community-testing

[16] Centers for Disease Control and Prevention. (2023). *Primary Prevention Methods*. Retrieved September 29, 2023 from https://www.cdc.gov/std/treatment-guidelines/clinical-primary.htm#CautionsForDoxyPEP

Chapter 9

Injury and Violence

Photo Courtesy of Discover Durham

This chapter includes:

- Vaccine-Preventable Diseases
- Sexually Transmitted Infections

Section 9.01 *Intimate Partner Violence*

Key Terms
Intimate Partner Violence (IPV): Physical, sexual, or psychological aggression within an intimate relationship[1]
Victimization: The experience of being a target of violence[4]
Perpetration: Behavior carried out with the intent of inflicting violence[4]
Protective Factors: Strengths, skills, and resources that help prevent or reduce violence[4]
Risk Factors: Contributing factors that increase the likelihood of violence[1]

Overview

Intimate partner violence (IPV) refers to physical, sexual, or psychological aggression, as well as threats of harm, within an intimate relationship.[1] Intimate partners can be spouses, dating partners, sexual partners, or persons with a child regardless of marital status.[2] Examples of IPV include sexual coercion, stalking, and controlling behaviors.[3] Violence in dating or intimate relationships during adolescence is referred to as teen dating violence (TDV).[1] According to data from the National Intimate Partner and Sexual Violence Survey (NISVS), IPV often begins before the age of 18 and continues to have an impact throughout the lifespan.[4] IPV can have detrimental physical and mental health implications for victims, perpetrators, families, and youth.[1] IPV is preventable and can be addressed through the implementation of relevant preventative strategies and the cooperation of various sectors.[4]

IPV is highly prevalent in the U.S.[1] Approximately one in three adult women and one in four adult men report having experienced IPV in their lifetime.[1] IPV can happen to anyone, regardless of ability, age, gender, race, ethnicity, socioeconomic status, or sexual orientation. Though, some populations are more vulnerable than others. Adults and youth from marginalized groups, such as people of sexual and gender identities, and Black, Indigenous, People of Color (BIPOC) are at a higher risk of experiencing IPV.[1] Various risk factors increase the likelihood of IPV on the individual, interpersonal, community, and systems levels. On an individual level, adverse childhood experiences (ACEs), drug use, low educational attainment, and poor mental health can increase the risk of IPV.[1] Furthermore, communities with high rates of poverty and lack of access to educational and economic opportunities can foster an unhealthy environment that increases the risk of IPV for community members.[1] There are several factors that can prevent or decrease the risk of violence exposure, known as protective factors. Community-level protective factors for IPV include community connectedness, coordination of resources among community agencies, access to safe and stable housing, access to medical care, and access to financial help.[1]

Primary Data

Primary data on IPV in Durham County is limited. It is challenging to capture IPV data from self-report surveys. Discussions around IPV can solicit feelings of shame and guilt due to existing social stigma. For this reason, it is important to work towards addressing stigma around IPV.

IPV has associated risk factors that impact population health. In the 2022 Durham County County-Wide Community Health Assessment survey, when asked about primary causes of stress, 12.2% of respondents said violence.[5] Relational stressors and exposure to violence can increase the likelihood of IPV.[1; 5] Intimate partners who undergo interpersonal stress with friends or family are

more likely to engage in psychological IPV.[6] Examples of psychological abuse are humiliation, insulting name-calling, and threatening harm. Furthermore, other types of violence are connected to IPV through shared risk factors.[1; 5] When asked about the top diseases or conditions in Durham County, 19.5% of residents said violent crime and 22.9% said mental health.[5] High rates of crime and violence are a community-level risk factor for IPV.[6]

Secondary Data

According to the 2011-20 North Carolina Violent Death Reporting System (NC-VDRS), 43.3% of female and 6.0% of male homicides in Durham County were contributed to IPV.[7]

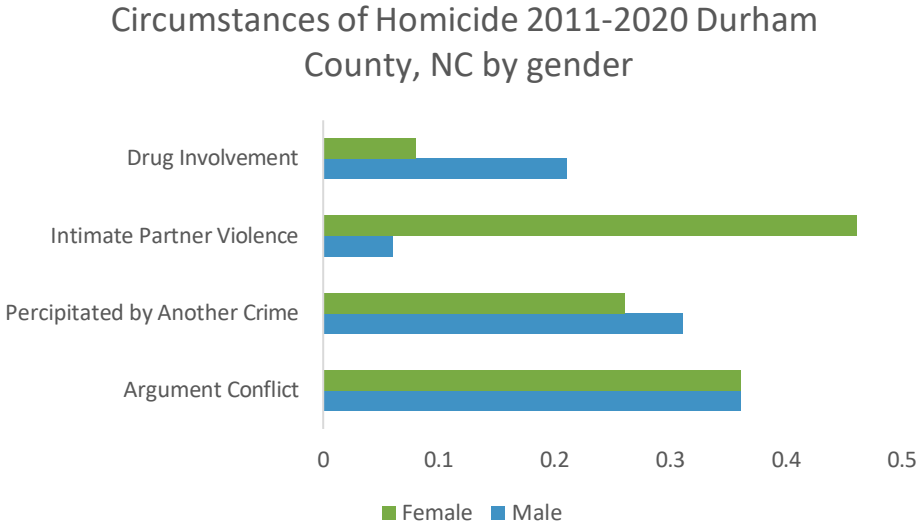


*Figure 9.02 (a) Percentage of Homicides by Circumstances among Durham County Residents, North Carolina Violent Death Reporting System (NC-VDRS), 2011-2020, Durham, North Carol*ina[8]

In 2018, the Jamie Kimble Foundation for Courage reported that nearly 5,000 Durham County residents were victims of domestic violence, the sixth highest among North Carolina Counties.[8] The total annual cost of domestic violence in Durham County in 2018 was $14,790,465, with $1,703,007 of those costs from loss of life and $2,597,962 from loss of work productivity.[8] The cost of lost work productivity in Durham, NC was approximately 25% of the total lost work productivity in North Carolina ($87,019,201).[8]

Interpretations: Disparities, Gaps, Emerging Issues

Risk for IPV varies based on multiple identifying factors, such as socioeconomic status, race, and migration status. In 2021, Non-Hispanic Black or African American (36.6%) Durham residents and Hispanic (13.8%) residents represented the largest racial/ethnic groups of color in the population.[9] According to national-level data, IPV victimization is most prevalent among Non-Hispanic Black or African American and Latina/o/x women.[1] Experiencing poverty is also associated with an increased risk of IPV. In 2022, Hispanic or Latina/o/x Durham County residents represented the highest percentage (20.6%) compared to all other races below the poverty level, with Non-Hispanic Black or African American residents representing 13.6%.[10] Additionally,

Latina/o/x are the largest growing racial/ethnic group in North Carolina, growing by 40% between 2000 and 2020.[11] Durham County has several organizations that provide support for IPV in Spanish by native Spanish speaking service providers. Immigration status can also serve as a barrier to accessing help. Organizations like the Legal Aid of North Carolina and the Battered Immigrant Project (BIP) provide access to legal protections for undocumented North Carolina residents.

Violence victimization significantly increased in the U.S. during the COVID-19 pandemic. On March 10, 2020, North Carolina Governor Roy Cooper declared a State of Emergency to coordinate a response to the spread of the COVID-19 virus. Many North Carolina businesses and schools were closed due to a Stay-at-Home order. Those experiencing domestic violence or child abuse had to stay home with their perpetrator. In 2021, the National Commission on COVID-19 and Criminal Justice conducted a systematic review of domestic violence incidents before and after the start of the pandemic.[12] They found that domestic violence incidents in the U.S. increased by 8.1% following the Stay-at-Home orders.[12] Several studies suggest that this may be attributed to social isolation, financial stressors, and increased risk for relational conflict.[13] According to a 2023 study conducted by the Harvard T.H. Chan School of Public Health, women who experienced IPV during the beginning of the pandemic had a higher likelihood of suffering from adverse mental health effects in the following years.[12] IPV victimization was associated with greater odds of developing symptoms of depression, anxiety, insomnia, and substance misuse.[12]

Underreporting and missing data may also contribute to disparities seen in IPV data. IPV is generally underreported by both victims and perpetrators due to stigma, fear, intimidation, manipulation, low self-esteem, and inability to recall.[14] Durham County Assistant District Attorney Monica Burnette once said that "a victim having to retell her story to a host of people, including police officers, detectives, and courts personnel, in addition to family and friends, can be re-traumatizing. These experiences, coupled with outdated laws regarding intimate sexual violence, can often leave victims feeling helpless and stuck in an endless cycle of domestic abuse."[12] Studies that compared self-report survey answers to data collected through observed or independently verifiable outcomes, such as records, showed that people were more likely to underreport when asked about sensitive topics in a survey.[13] It's challenging to ethically collect data on IPV through observational methods.[13] Therefore, there is a high reliance on self-reported data and verifiable outcomes.[13] In addition to underreporting in data collection, domestic and sexual violence often goes unreported to law enforcement. In 2019, the Durham County Special Victims Unit Lead said that domestic violence in Durham "is not widely discussed or reported on…perhaps because it often happens behind closed doors."[15] There is a concerning lack of empirical evidence on IPV in Durham County that needs to be addressed.

Recommended Strategies

IPV is preventable and can be addressed through the cooperation and leadership of various sectors, such as public health, education, social services, business and labor, and government.[4] The following are recommended strategies for promoting IPV prevention in Durham communities.[13]

- Teach healthy relationship skills in schools (middle, high school, college) and in communities.
- Engage influential adults and peers.
- Disrupt the developmental pathways toward partner violence.
- Create protective environments.

- Strengthen economic support for families and victims of IPV.
- Improve access to affordable housing.
- Encourage community connectedness.
- Support victims to increase safety and lessen harm.
- Connect victims and perpetrators of IPV to counseling services and other mental health support.

Prioritize addressing underreporting and missing data

For program implementers, policymakers, and researchers to determine the needs of Durham County residents who experience IPV, they need access to data on its prevalence and distribution in the County. There may be disparities related to IPV that are not being addressed because there isn't enough evidence to support possible interventions. Below are strategies for addressing underreporting and missing data on IPV in Durham County:[16]

1. Address social stigmas by encouraging open and safe conversations around violence.
2. Ensure that methodology for data collection is trauma informed.
3. Improve trust between communities and law enforcement.
4. Promote conversations and/or training around restorative justice practices for law enforcement officers.

More needs to be done to ensure that data sources on IPV in Durham County are collected and made accessible in ethically-just and trauma-informed ways. Identifying ways to collect and disseminate data on IPV from Durham County residents is imperative for strengthening future prevention efforts.

Current Initiatives & Activities

Durham Crisis Response Center
Offers free, confidential services to victims of sexual assault, including a 24-hour help line in English (919-403-6562) and Spanish (919-519-3735), case management, crisis intervention, support groups in English and Spanish, and accompaniment to the police, court, hospital, and follow-up medical appointments. www.durhamcrisisresponse.org

InStepp's Nueva Vida Program
InStepp's Nueva Vida Program is a free, culturally- and linguistically- specific economic empowerment program that serves Hispanic-Latina immigrant women who are survivors of domestic violence, sexual assault, or human trafficking. www.instepp.org

Legal Aid of North Carolina
Provides free legal help to low-income North Carolina residents in civil cases, including helping to secure and enforce court protective orders for victims of IPV. Legal Aid also assists in custody matters involving children exposed to domestic violence. www.legalaidnc.org

Duke Health's Sexual Assault Nurse Examiners (SANEs)
Provide medical forensic exams to victims of sexual assault in the Duke Regional Hospitals Emergency Departments. The Violence Against Women Act mandates that victims of sexual assault can receive a forensic exam at no charge. www.dukehealth.org

The Battered Immigrant Project (BIP)
Provides comprehensive and culturally appropriate legal services to immigrant survivors of violence need assistance with immigration. The BIP represents qualifying applicants across North Carolina in immigration matters including domestic violence protective orders and family law issues. http://www.legalaidnc.org/about-us/projects/battered-immigrant-project

References

[1] Centers for Disease Control and Prevention. (October 9 2021). *Intimate Partner Violence*. https://www.cdc.gov/violenceprevention/intimatepartnerviolence/index.html

[2] Brown, S., & Seals, J. (2019). Intimate partner problems and suicide: are we missing the violence? *Journal of injury & violence research*, *11*(1), 53-64. https://doi.org/10.5249/jivr.v11i1.997

[3] World Health Organization. (2022). *Intimate Partner Violence*. https://apps.who.int/violence-info/intimate-partner-violence/

[4] Breiding, M. J., Basile, K. C., Smith, S. G., Black, M. C., & Mahendra, R. (2015). *Intimate Partner Violence Surveillance: Uniform Definitions and Recommended Data Elements*. https://www.cdc.gov/violenceprevention/pdf/ipv/intimatepartnerviolence.pdf

[5] Durham County Department of Public Health. (2022). *Durham County Community Health Assessment County-Wide Data Dashboard: Data Trends from 2010-2022* https://app.powerbigov.us/view?r=eyJrIjoiMjEwMjNjZDgtNzg5Zi00YjRmLThhMGItZTMzOThjMGJlOTE2IiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9

[6] Shortt, J. W., Capaldi, D. M., Kim, H. K., & Tiberio, S. S. (2013). The Interplay Between Interpersonal Stress and Psychological Intimate Partner Violence Over Time for Young At-Risk Couples. *Journal of Youth and Adolescence*, *42*, 619-632. https://doi.org/10.1007/s10964-013-9911-y

[7] North Carolina Department of Health and Human Services. (2021). *NC Violent Death Reporting System*. https://injuryfreenc.dph.ncdhhs.gov/DataSurveillance/VDRS/Durham2010-2019.pdf

[8] II, C. A. D. (2018). *Study: North Carolina in 2018, The Economic Impact of Domestic Violence*. https://www.jkffc.org/files/8bfe809e-c9fe-4504-b20f-593f24e17b0d--ce835658-2964-42d8-9c6c-cc02c80dc182/2019-09-09-kimble-domestic-violence-cost-report.pdf

[9] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

[10] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2021). *Durham County Community Health Assessment 2020*. https://www.dcopublichealth.org/home/showpublisheddocument/35452/637642751171270000

[11] Tippett, R. (2021). *North Carolina's Hispanic Community: 2021 Snapshot*. NC in Focus. https://carolinademography.cpc.unc.edu/2021/10/18/north-carolinas-hispanic-community-2021-snapshot/

[12] Piquero, A. R., Jennings, W. G., Jemison, E., Kaukinen, C., & Knaul, F. M. (2021). *Domestic Violence During COVID-19 Evidence from a Systematic Review and Meta-Analysis*. https://build.neoninspire.com/counciloncj/wp-content/uploads/sites/96/2021/07/Domestic-Violence-During-COVID-19-February-2021.pdf

[13] Scoglio, A. A. J., Zhu, Y., Lawn, R. B., Murchland, A. R., Sampson, L., Rich-Edwards, J. W., Jha, S. C., Kang, J. H., & Koenen, K. C. (2023). Intimate Partner Violence, Mental Health Symptoms, and Modifiable Health Factors in Women During the COVID-19 Pandemic in the US. *JAMA network open*, *6*(3). https://doi.org/10.1001/jamanetworkopen.2023.2977

[14] Cullen, C. (2022). Method Matters: The Underreporting of Intimate Partner Violence. *The World Bank Economic Review*, *37*(1), 49-73. https://doi.org/10.1093/wber/lhac022

[15] Durham District Attorney's Office. (2019). Get to Know DCDAO: Domestic Violence Prosecutors. *Medium*. https://medium.com/durham-district-attorneys-office/get-to-know-dcdao-domestic-violence-prosecutors-4f2db4dcba72

[16] Niolon, P. H., Kearns, M., Dills, J., Rambo, K., Irving, S., Armstead, T. L., & Gilbert, L. (2017). *Intimate Partner Violence Prevention: Resource for Action*. https://www.cdc.gov/violenceprevention/pdf/IPV-Prevention-Resource_508.pdf

Section 9.02 *Child Maltreatment*

Overview

Child maltreatment is abuse or neglect by a parent, caregiver, or guardian against children under the age of 18 years old. Maltreatment can be presented in various ways, including all physical and/or emotional ill-treatment, sexual abuse, neglect, negligence, and exploitation. The results of maltreatment can cause harm to a child's health, survival, development, and dignity in connection with responsibility, trust, and power.[1]

In the United States (U.S.), children under the age of one year experienced the highest rate of child maltreatment (25.3 per 1,000).[2] Risk factors for maltreatment by caregivers include alcohol or drug abuse, domestic violence, financial problems, and inadequate housing.[3]

Approximately one in seven children experience abuse or neglect annually in the US.[3] This number is likely underestimated due to many cases being unreported. It is also estimated that one in four girls and one in 13 boys are sexually abused annually in the US, which is also likely underestimated due to the sensitivity of the issue.[4] Children who are exposed to abuse can experience negative psychological, physical, and behavioral impacts.[4]

In North Carolina, all people are legally required to report any suspected child abuse or neglect to the Department of Social Services.[5]

Primary Data

There is very limited primary data in the 2022 Durham County Community Health Assessment Survey Report in reference to child maltreatment. Obtaining primary data about child maltreatment is often difficult due to the number of unreported cases and sensitivity of the subject. Despite the gaps in available primary data, looking at overlapping factors contributing to child maltreatment can be utilized. The 2022 Durham County Community Health Assessment County-Wide Survey asked residents, "*What are the primary causes of your stress?*", to which 15.6% of respondents replied parenting/childcare was the primary cause of their stress.[6] While this may not impact child maltreatment directly in Durham County, research shows "parents who experience high stress are more likely to have lower parental sensitivity, which is linked to child maltreatment".[7]

Parental and/or caregiver stress is also listed as a risk factor for adverse childhood experiences (ACEs).[8] ACEs are events that can cause trauma in children ages zero to 17 years old.[8] Traumatic events can include exposure to violence, abuse, neglect, suicide, substance use, mental health concerns, and unstable relationships amongst family.[9]

Secondary Data

In Fiscal Year (FY) 2021, there were investigations or responses for 3,016,000 children in the U.S.[10] While this number was slightly lower than the previous year (4% decrease), the number of

investigations or responses most likely do not depict the actual number of child abuse and maltreatment cases due to the number of unreported cases.

In North Carolina, there were 93,195 child cases that received investigations/alternative responses, and 21,242 child victims in 2021.[11] Children under the age of one experienced child abuse and maltreatment the most (2,911 children) compared to 17-year-olds, who had the lowest number of cases (483 children).[1] In NC, American Indian/Alaska Native children (23.0 per 1,000) and Black or African American children (13.4 per 1,000) had the highest rates of child abuse and neglect.[12] Neglect was the most prevalent (97.8%) type of maltreatment amongst children in NC (18,427 children).[12]

In Durham County, there were 2,354 investigations on child maltreatment in 2021. Of those, there were 223 substantiated child maltreatment reports, approximately 10.5%.[13] Similar to NC state trends, data suggests African American children in Durham County are disproportionately affected by child maltreatment. African Americans make up 35.3% of the population in Durham, however 58% of investigated reports of abuse in Durham County were amongst African American children.[14],[13]

Interpretations: Disparities, Gaps, Emerging Issues

According to Child Welfare Information Gateway, three risk factors that contribute to child maltreatment are age, health status, and disabilities. The collected data on child maltreatment in NC indicates that infants less than one year old are at the highest risk amongst children. This is due to multiple factors including infants' "small physical size, early developmental status, and need for constant care".[15] The need for constant care can result in both new and experienced parents feeling stressed and/or overwhelmed. Children with disabilities and/or additional health needs also require a level of care that can cause parents to experience "challenges relating to social isolation, emotional stress and depression, grief and financial problems".[16]

Data suggest African American children disproportionately experience child maltreatment in Durham County, with more investigations compared to other races. It is also important to consider that Black or African American families are more likely to be investigated by child protective services than other families. Black or African American, Hispanic or Latina/o/x, and Native American or Indigenous families experience material poverty disproportionately, increasing the likelihood of being reported to child protective services.[15] Historical and generational trauma (including genocide, slavery, and colonization) from previous generations of POC, have passed down "emotional and psychological wounding" to present generations.[17] Studies found that there was an association between parents who had "childhood exposure to violence" and abuse that they inflicted on their offspring, which is also a contributor to intergenerational abuse.[18]

Durham's Abuse/Neglect/Dependency ("A/N/D") Court

Durham's A/N/D Court gathers evidence to determine how to handle cases of abuse and neglect. The court had a backlog of cases in 2020 due to delays from the COVID-19 pandemic, however delays are still persistent. Durham County is the "second-slowest" county in NC in terms of reuniting families, and children are reported to be separate from their families a median of 677

days.[19]This delay is due to increases in caseloads and decreases in the number of social workers, attorneys, and foster caregivers. A proposal to improve the efficiency and outcome of the court was unanimously approved on July 12, 2023.[19]

Recommended Strategies

To address child maltreatment, Durham County Public School employees, attorneys, and the Durham County court system should continually enforce trauma-informed programs such as "Trauma-Informed Leadership Training (TILT)".[20] This training is a long-term solution for schools to develop and implement their own specific trauma-informed protocols. Recent implementation of this type of training has resulted in staff being able to not only recognize how trauma "affects a child's body and brain", but also recognize the complexity of systemic racism in relation to trauma in their students.[20]

In addition:

- Increase funding that supports children and families.
- Improve engagement amongst partners supporting families.
- Support parents and positive parenting.

Current Initiatives & Activities

Durham ACEs Resilience Taskforce (DART) Aims to strengthen Durham communities and systems, advance an equitable and culturally responsive approach, and responds to toxic stress and trauma. https://www.pacesconnection.com/g/durham-county-nc-aces-connection

Durham County Department of Social Services partners with individuals, families, and the community to help residents achieve physical, social, and financial well-being. https://www.dconc.gov/county-departments/departments-f-z/social-services

Justice Matters Provides trauma-informed legal services and promotes just policies and practices throughout North Carolina. https://justicemattersnc.org/

Duke Health: Child Abuse and Neglect Medical Evaluation Clinic (CANMEC) Aims to provide evaluation and treatment for children and families related to concerns of child abuse and neglect. Provides 24-hour consultations and evaluations. https://pediatrics.duke.edu/divisions/child-abuse-and-neglect

Together for Resilient Youth (TRY) addresses adverse experiences that result in behavioral health challenges such as substance use, chronic disease, and violence. https://try4resilience.org/

El Futuro Aims to develop stronger families by providing bilingual and culturally responsive mental health services including therapy, psychiatry, substance use treatment, and case management. https://elfuturo-nc.org/services/

Center for Child & Family Health (CCFH) Aims to define, practice, and teach the highest standards of care in treating and preventing childhood trauma. Provides support for first-time parents, as well as outpatient treatment for mental health/behavioral concerns. https://www.ccfhnc.org/

Carolina Outreach Provides behavioral health services and supports North Carolinians of all ages with emotional and behavioral health services. https://www.carolinaoutreach.com/

Families Moving Forward (FMF) Provides Durham families with children a stable, safe, and loving environment during temporary crisis of homelessness. https://fmfnc.org/

Welcome Baby Provides child development information and emotional and practical support for families with young children. https://www.welcomebaby.org/

References

[1] Organization, W. H. (2022). *Violence Info*. https://apps.who.int/violence-info/child-maltreatment
[2] U.S. Department of Health and Human Services Administration for Children and Families, A. o. C., Youth and Families, Children's Bureau. (2023). Child Maltreatment 2021. https://www.acf.hhs.gov/cb/data-research/child-maltreatment
[3] Center for Disease Control and Prevention. (2022). *Fast facts: Preventing child sexual abuse.* https://www.cdc.gov/violenceprevention/childsexualabuse/fastfact.html
[4] U.S. Department of Justice. (2020). *Children exposed to violence*. https://www.ojp.gov/program/programs/cev#:~:text=Outcomes%20of%20Children%20Exposed%20to%20Violence&text=These%20include%20problems%20associated%20with,et%20al.%2C%202003).
[5] Durham County. *Child Protective Services Intake*. https://www.dconc.gov/county-departments/departments-f-z/social-services/child-and-family-services/child-protective-services
[6] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[7] Durham County Department of Public Health. (2023). *Durham County Community Health Assessment County-Wide Data Dashboard.* https://app.powerbigov.us/view?r=eyJrIjoiMjEwMjNjZDgtNzg5Zi00YjRmLThhMGItZTMzOThjMGJlOTE2IiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9
[8] Centers for Disease Control and Prevention. (2023). *Risk and protective factors*. https://www.cdc.gov/violenceprevention/aces/riskprotectivefactors.html#anchor_1609868101867
[9] Centers for Disease Control and Prevention. (2023). Fast facts: Preventing adverse childhood experiences https://www.cdc.gov/violenceprevention/aces/fastfact.html
[10] Prevent Child Abuse America. (2023). *Child maltreatment statistics*. https://www.preventchildabusenc.org/resource-hub/child-maltreatment-statistics/
[11] Child Welfare Services. (2022). *2022 annual progress and services report for the North Carolina child and family services plan*. https://www.ncdhhs.gov/nc-apsr-2022/open
[12] Foundation, T. A. E. C. (2023). *Child abuse and neglect reports investigated and substantiated in Durham County*. https://datacenter.aecf.org/data/tables/2246-child-abuse-and-neglect-reports-investigated-and-substantiated?loc=35&loct=5#detailed/5/4941/false/2048,574,1729/6122,6121/4696,19358
[13] C. Joy Stewart, D. F. D., III, Steve Guest, Katy Malley, Wanda Reives. (2020). *Child Welfare Caseload Trends: Quarterly Report July 2022*. University of North Carolina at Chapel Hill Jordan Institure for Families. http://sasweb.unc.edu/cgi-bin/broker?_service=default&_program=dgweb.help.sas&county=Durham&label=County&entry=1&help=papers_cw&entry=1&anchor=
[14] Compass, D. N. (2021). *Durham County- Durham neighborhood compass. DataWorks NC*. https://compass.durhamnc.gov/en/report/blockgroup/#metric-PTUND18
[15] Child Welfare Information Gateway. *Addressing Disproportionality*. https://www.childwelfare.gov/topics/equitable-practice/addressing-disproportionality/
[16] Nontokozo Lilian Mbatha, K. E. M. (2023). Parental Stress in Raising a Child with Developmental Disabilities in a Rural Community in South Africa. *International journal of environmental research and public health*, *20(5)*. https://doi.org/https://doi.org/10.3390/ijerph20053969
[17] Andres J Pumariega, Y. J., Brent Beck, Mariam Rahmani (2022). Trauma and US Minority Children and Youth. https://doi.org/10.1007/s11920-022-01336-1
[18] Carrie A. Moylan, T. I. H., Cindy Sousa, Emiko A. Tajima, Roy C. Herrenkohl & M. Jean Russo (2009). The Effects of Child Abuse and Exposure to Domestic Violence on Adolescent Internalizing and Externalizing Behavior Problems. *Journal of Family Violence*, *25*, 53-63. https://link.springer.com/article/10.1007/s10896-009-9269-9

[19] Criminal Legal System Round Table: Marcia Owen, A. H., Jatoia Potts, , & Sistrom, M. (2023). Durham Abuse/Neglect/Dependency (A/N/D) Court, Department of Social Services (DSS) Child Welfare Reforms. https://www.durhamnc.gov/DocumentCenter/View/51394/June-2023-Packet?bidId=

[20] Health, C. f. C. F. (2021). *Trauma-informed leadership training with DPS.* https://www.ccfhnc.org/resources/trauma-informed-leadership-training-with-dps/

Section 9.03 *Firearm Safety and Gun Violence*

Overview

In the United States, firearm safety is a significant public health issue. According to 2021 data, there were 48,830 recorded firearm-related deaths, marking a 23% increase from 2019.[1] Notably, firearm-related fatalities have become the leading cause of death among children aged 0-19 years, surpassing motor vehicle crash deaths.[2] In 2023, the country witnessed 656 mass shootings.[3]

In North Carolina, annual statistics show an average of 1,588 gun-related deaths, translating to a rate of 14.99 deaths per 100,000 people, positioning the state at 23rd in the US for gun death rates.[2] Specifically, in Durham, NC, from 2016 to 2020, firearm assaults were the fourth leading cause of fatal injuries with 155 incidents, and self-inflicted firearm injuries were the fifth with 69 incidents.[4] Survivors of firearms violence often face lasting psychological, physical, and financial impacts.[5] Data indicates that, within a year after sustaining a firearm injury, young survivors show a marked increase in pain, psychiatric disorders, and substance use disorders compared to their unaffected peers.[5] Additionally, the families of these survivors, particularly parents, exhibit increased rates of psychiatric disorders and mental health service utilization post-injury. [5]

Addressing the issue of firearm-related deaths and injuries involves understanding its complex and multifaceted nature. A comprehensive strategy encompassing education, policy making, research, and community investment is essential to effectively address this issue and promote safety and security in communities.

Primary Data

Results of the 2022 County-Wide Community Health Assessment survey revealed that 19.5% of survey respondents named violent crime as having one of the greatest impacts on quality of life.[6] Violent crime was also the second most common issue identified by survey respondents.[6] Additionally, 19.75% of respondents communicated that containing and reducing violence was of the most important aspect of what could be done to better support their community.[6]

In the 2023 Comunidad Latina CHA survey, nearly 23% of participants also highlighted violent crime as a major quality of life issue, with it being the second most cited concern. Additionally, 8% pointed out gang activity as a significant problem.[7]

Data from the 2021 Youth Risk Behavior Survey (YRBS) revealed that 13.4% of Durham middle school student respondents and 11.7% of high school student respondents reported the ability to access and prepare a gun within 10 minutes.[8] Furthermore, 4.8% of middle school and 14.2% of high school student participants in Durham admitted avoiding school due to safety concerns either at school or in route.[8]

Secondary Data

North Carolina has the 30th highest rate of gun suicides and gun suicide attempts in the U.S. with a rate of 7.7 deaths per 100,000.[2] In NC, about 156 children and teenagers die by firearms every year.[2] Of these incidents, 62% are attributed to homicide.[2] In 2020, 61% of suicide deaths in NC were due to firearms, making it the most common method used.[9] Black or African American children and teens are four times more likely to die by firearms than their white peers.[2]

Approximately 66% of people killed in firearm homicides in NC were Black or African American (2018-2021).[2] American Indian/Alaska Native and Black or African American individuals have the highest rates of firearm death, with 24.7 deaths per 100,000 and 24.2 deaths per 100,000, respectively.[2] From 2016 to 2020, firearm assaults were the fourth leading cause of fatal injuries at 155 and self-inflicted firearm injuries ranked fifth with 69 for all ages in Durham.[4]

Leading Causes of Injury Fatalities in Durham, North Carolina from 2016-2020

Cause of Death	Number of Deaths
Poisoning Unintentional	264
Fall - Unintentional	199
Motor Vehicle Transportation-Unintentional	176
Firearm - Assault	155
Firearm - Self-Inflicted	69
TOTAL	**1094**

Table 9.03 (a) The Leading Causes of Injury Fatalities in Durham, North Carolina from 2016-2020.[4]

- From January 2023 to December 2023, there were 1,363 gunfire alerts and 4,994 rounds in Durham with 1,142 unique gun fire incidents detected by the Interactive ShotSpotter Dashboard.[10]
- Months with the highest gunfire detection in Durham from January 2023 to November 2023 were January (197), July (174), and April (129). Peak days of the week were: Saturday (205), Sunday (198), Monday (152), and Friday (142). Peak hours of the day were 6pm-4am (837).[10]
- From 2010 to 2019, a total of 612 violent deaths from injuries were sustained in Durham County.[11] Of the 612 violent deaths, 251 were suicides (41.4%) and 333 (54.2%) were homicides.[11]

Interpretations: Disparities, Gaps, Emerging Issues

The issue of firearm safety encompasses diverse viewpoints regarding regulation, access, and responsible usage. This complexity is further intensified by variations in legislation, cultural attitudes, and socio-economic conditions. The advancement of technology and shifts in societal dynamics also introduce new challenges that require ongoing attention and adaptable solutions.

The data underscores the necessity for targeted interventions as incidents of firearm-related injuries, fatalities, and suicides continue. Addressing these issues involves reevaluating and modifying systems that are influenced by social determinants of health.[12] These determinants, which encompass economic resources, social and cultural environmental factors, as well as access to and ownership of firearms, play a significant role in shaping health outcomes.[13]

Recommended Strategies

Education of Risk Associated with Firearms

- Educate gun owners and those contemplating purchasing firearms of the risk associated with firearms, including increased risk of suicide, homicide, death during domestic disputes, and unintentional deaths to children.[14]
- Require gun dealers to inform or provide purchasers with any form of information associated with firearm safety, this allows for buyers to make educated and informed decisions after purchases.[14]
- Raise awareness and sensitivity about gun safety via educational forums, workshops, seminars, and community events focusing on responsible gun ownership, safe storage, and conflict resolution.

Secure Gun Storage

- Educate gun owners and community members on safe storage of firearms and responsible gun ownership, emphasizing safe and secure practice as the firearm is unloaded, locked, and the ammunition stored separately.[15]
- Promote safe storage in all forms including the use of cable locks, gun cases, lockboxes, gun safes, trigger locks, biometric and electronic lock options.[16]
- Promotion and implementation of programs that encourage safe storage such as Asking Saves Kids (ASK), End Family Fire, and NC S.A.F.E (Secure All Firearms Effectively).[17]

Enacting Policy

- Allow federal agencies to regulate firearm manufacturers and ensure gun safety.[18]
- Require firearm purchasers to submit an application, undergo a background check, and take safety education to obtain a license to own a firearm.
- Pass firearm registration laws to ensure that firearms are registered at each point of sale.
- Expand firearm prohibitions and implement red flag laws that will prompt removal of firearms from individuals who are at elevated risk for violence.
- Require manufacturers to make firearms safer, including requiring that guns be outfitted with microstamping technology.
- Enact stronger age requirements for owning or possessing all types of firearms.
- Require gun owners to renew their license on a routine basis.
- Advocate for responsible media coverage to avoid sensationalizing violence.
- Support research and data collection efforts to better understand causes and consequences of gun violence to help inform evidence-based solutions.
- Allow Consumer Product Safety Commission to regulate safety of firearms and ensure industry accountability.[18]
- Support and participate in the NC S.A.F.E. (Secure All Firearms Effectively) Firearm Storage initiative[16]

Investing in the Durham Community

- Invest in Durham's community-based program HEART, so that all community members can access it on a twenty-four-hour basis.[19]
- Increase city funding for Bull City United to expand to four additional census tracts.[20]
- Increase wages for 911 operators.
- Invest in the education system to better engage and enrich our youth.
- Invest in infrastructure so community members can walk, bike, and take transit through the city.
- Invest in the expansion of gun buy-back locations that also offer temporary surrender of firearms.[19]
- Promote accurate and timely reporting related to gun violence or potential for gun violence.
- Encourage and support hospital-based, faith-based, and community-based firearm safety and anti-violence programs.

Current Initiatives & Activities

AMIkids North Carolina Family Services provides Functional Family Therapy (FFT) for youth and their families who are involved with Juvenile Justice. FFT Services are provided in home, for an average of three to six months to address issues that may be causing delinquent behavior. Referrals come directly from Juvenile Court Counselors. Juvenile Justice Family Services (amikids.org)

Alliance Behavioral Health provides a 24-hour call line for people needing an immediate response to issues of mental health, developmental disability, or substance abuse. Callers get either information or a referral to an appropriate service provider. http://www.alliancebhc.org/

Bull City United is a violence prevention initiative that uses the Cure Violence model, an evidence-based approach to stopping shootings and killings. https://www.dconc.gov/county-departments/departments-ae/community-intervention-and-support-services/project-build

Duke Hospital-Based Violence Intervention is a Hospital-Based Violence Intervention Program (HVIP) that provides intensive case management to those directly affected by community violence treated at Duke University Hospital. https://ncmedicaljournal.com/article/81266-theproliferation-of-hospital-based-violence-intervention-programs-in-north-carolina

Durham Community Safety & Wellness Task Force recommends programs to enhance public safety and wellness that rely on community-based prevention, intervention, and re-entry services as alternatives to policing and the criminal legal system. https://www.durhamnc.gov/4448/Community-Safety-Wellness-Task-Force

Durham VA Health Care suicide prevention coordinators work with behavioral health providers and community organizations to assist Veterans who are managing emotional or mental health crises. Durham VA Health Care supplies community-based organizations with free gun locks. https://www.va.gov/durham-health-care/health-services/suicide-prevention/

Insight Human Services is a primary substance misuse prevention provider that serves Durham County. Insight works closely with community members and community partners to increase protective factors to prevent substance misuse. https://insightnc.org/

HEART Team Holistic Empathetic Assistance Response Teams (HEART) are unarmed mental health professionals who respond to nonviolent behavioral and mental health crisis 911 calls. https://www.durhamnc.gov/4576/Community-Safety

Housed within the Durham County Department of Public Health, the Durham County Firearm Injury Prevention Partnership (FIPP) formally known as the Durham County Gun Safety Team, is a multidisciplinary partnership that works together to address gun violence in all forms, homicide, suicide, unintentional, and legal intervention. Education on safe storage of firearms and free gun lock distribution are key initiatives.
https://www.dcopublichealth.org/services/health-education/health-promotion-and-wellness/gunsafety-program
North Carolinians Against Gun Violence strives to make North Carolina safe from gun violence through the education of the public about preventing gun violence, the enforcement of current gun laws, and the enactment of needed new laws. https://www.ncgv.org

Project Build Gang Intervention Program is a multi-disciplinary gang intervention program that coordinates case management and services to youth between the ages of 14 and 21 who are at high risk of gang involvement https://www.dconc.gov/county-departments/departments-ae/community-intervention-and-support-services/project-build

The Religious Coalition for a Nonviolent Durham programs including vigil ministry with homicide survivors, support circles for citizens returning from incarceration, and restorative justice practices. https://nonviolentdurham.org

Project Safe Neighborhoods (PSN) is a Department of Justice (DOJ) program connecting community partners and law enforcement, working together to reduce gun and group/gang-related violent crime. tohttps://bja.ojp.gov/program/project-safe-neighborhoods-psn/overview

Be SMART campaign raises awareness that secure gun storage—storing guns locked, unloaded, and separate from ammunition—can save children's lives. https://besmartforkids.org

References

[1] Gramlich, J. (2023). What the data says about gun deaths in the U.S. *Gun Policy*. https://www.pewresearch.org/short-reads/2023/04/26/what-the-data-says-about-gun-deaths-in-the-u-s/
[2] Everytown for Gun Safety. *How does gun violence impact the communities you care about?* https://everystat.org/?_gl=1*1vls492*_ga*MTI3NTYzMTczNC4xNzAwNTk5ODY0*_ga_LT0FWV3EK3*MTcwMDU5OTg2NS4xLjAuMTcwMDU5OTg2NS4wLjAuMA..#NorthCarolina
[3] Gun Violence Archive. (2023). *Past Summary Ledgers*. https://www.gunviolencearchive.org/past-tolls
[4] North Carolina Department of Health and Human Services. *Top 5 leading causes of injury death, hospitalization, and emergency department visits by county. All ages, 2016-2020*. https://injuryfreenc.dph.ncdhhs.gov/DataSurveillance/pdf/Top5TablesByCounty2016-2020.pdf
[5] Song, Z., Zubizarreta, J. R., Giuriato, M., Koh, K. A., & Sacks, C. A. . (2023). Firearm injuries in children and adolescents: Health and economic consequences among survivors and family members. *Health Affairs*, *42*(11), 1541–1550. https://doi.org/10.1377/hlthaff.2023.00587
[6] Durham County Department of Public Health, Duke Health, Partnership for a Healthy Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[7] Durham County Department of Public Health, Duke Health, Partnership for a Healthy Durham,. (2023). *2023 Durham County comunidad Latina community health assessment survey report*. https://healthydurham.org/cms/wp-content/uploads/2023/12/Comunidad-Latina-Data-Report-Final.pdf
[8] Durham County Department of Public Health, Durham Public Schools, Partnership for a Healthy Durham,. (2023). *2021 Durham County youth risk behavior survey*. https://healthydurham.org/cms/wp-content/uploads/2023/09/YRBS-Report-FINAL.pdf
[9] North Carolina Department of Health and Human Services. (2022). *NC violent death reporting system*. https://injuryfreenc.dph.ncdhhs.gov/DataSurveillance/VDRS/OverallSuicide2020.pdf
[10] City of Durham. *ShotSpotter Durham* https://www.durhamnc.gov/4827/ShotSpotter-Durham
[11] North Carolina Department of Health and Human Services. *NC Violent Death Reporting System* https://dashboards.ncdhhs.gov/t/DPH/views/NCVDRSDashboard/NC-VDRSDashboard?%3Aembed=y&%3AisGuestRedirectFromVizportal=y
[12] Laurie Stillman, S. R. (2015). Embracing equity in community health improvement. *Health Resources in Action: Advancing Public Health and Medical Research*. https://hria.org/wp-content/uploads/2016/02/Embracing-Equity-in-Community-Health-Improvement.pdf
[13] American Psychological Association. (2013). *Gun violence: Prediction, prevention, and policy*. American Psychological Association. Retrieved Nov 20, 2023 from http://www.apa.org/pubs/info/reports/gun-violence-prevention.aspx
[14] Everytown for Gun Safety. (2023). *Educate gun owners of risks*. Everytown for Gun Safety. Retrieved Nov 16, 2023 from https://www.everytown.org/solutions/educate-gun-owners/
[15] Rosen, A. (2023). *How Safe and Secure Gun Storage Reduces Injury, Saves Lives*. Johns Hopkins Bloomberg School of Public Health. Retrieved Nov 16, 2023 from https://publichealth.jhu.edu/2023/how-safe-and-secure-gun-storage-reduces-injury-saves-lives
[16] NC S.A.F.E. (2023). *Safe storage 101*. North Carolina Department of Public Safety. Retrieved Nov 16, 2023 from https://www.ncsafe.org/safestorage/
[17] Brady Campaign to Prevent Gun Violence. (2017). *GAO Report Validates Brady Center's ASK Program as Most Effective National Safe Storage Awareness Program*. Brady Campaign to Prevent Gun Violence. Retrieved Nov 23, 2023 from https://www.bradyunited.org/press-releases/gao-report-validates-brady-centers-ask-program-as-most-effective-national-safe-storage-awareness-program
[18] The Educational Fund to Stop Gun Violence. (2021). *Public Health Approach to Gun Violence Prevention*. The Educational Fund to Stop Gun Violence. Retrieved Nov 16, 2023 from https://efsgv.org/learn/learn-more-about-gun-violence/public-health-approach-to-gun-violence-prevention/

[19] Caballero, J., Johnson, J., & INDY Staff. (2023). *Durham Needs a New Vision of Safety: Durham Council Members Call for a New Approach for an Old Problem*. Indy Week. Retrieved Nov 16, 2023 from https://indyweek.com/news/opinions/op-ed-durham-needs-a-new-vision-of-safety/

[20] Durham County Department of Public Health. *Bull City United*. https://www.dconc.gov/county-departments/departments-a-e/community-intervention-and-support-services/bull-city-united

Chapter 10
Oral Health

Photo Courtesy of Discover Durham

This chapter includes:

- Oral Health in Children and Adults

Section 10.01 *Oral Health in Children and Pregnant Women*

Overview

In the year 2000 the first Surgeon General's Report on Oral Health expanded the thought of oral health to be included in overall health with a more intense focus on the entire craniofacial complex being free of chronic oral-facial pain conditions including cancers, lesions, and diseases such as dental caries.[1] Dental caries is an infectious disease resulting in the destruction of teeth by microbial acids.[2] Periodontal disease, also known as gum disease, is a bacterial infection that causes inflammation of the gums and destruction of the supporting tooth structures, very often leading to tooth malfunction or loss.[3] For the last several decades dental caries has been the most prevalent childhood disease even though it is a disease that is mainly preventable.[4] As dental caries is a concern from an early age, the often-slow progression of gum disease causes it most frequently to appear in mid adult years once irreversible damage such as loss of pain free functionality has started to occur. In an effort to prevent or slow the progression of these oral diseases, the standard of care for preventative dentistry is to receive an exam once or twice annually with a prophy, also known as a cleaning, and fluoride treatment every six months.

The progression of caries through the tooth structure first begins with the breakdown of the outer enamel layer through demineralization. While the lesion is in this incipient state, it is possible for remineralization to occur if early diagnosis and treatment can be provided. Often these lesions can be seen clinically and radiographically at recall visits. Depending on the area of the tooth affected, treatment can be as simple as prescribing a high fluoride content toothpaste nightly with the patient's current routine. Treatment after a completed caries risk assessment could also include placement of a protective coating known as sealants, or placement of Silver Diamine Fluoride, (SDF) a medication used to arrest the progression of active caries that unfortunately colors the active caries area black. This side effect makes its use undesirable by many for both permanent and primary teeth.

Oral health can be an indicator of overall health based on the signs and symptoms that can appear in the mouth. For thousands of years Chinese medicine has acknowledged the tongue, and its characteristics can help indicate nutritional deficiencies, dehydration, lichen planus, liver and gallbladder problems, and even spleen disfunction.[5] Various conditions can begin with oral bacteria such as endocarditis and pneumonia. Endocarditis is an infection of the heart lining occurring when bacteria spreads through the bloodstream to the heart. Certain bacteria in the mouth can be pulled into the lungs causing pneumonia and other respiratory diseases.[6] Oral bacteria can also travel via bloodstream causing prosthetic joint infection. Certain health conditions can negatively affect oral health including diabetes which makes it more difficult to heal gum inflammation often leading to advanced gum disease. Osteoporosis can affect the bones of the jaw that hold teeth in place, possibly leading to tooth loss. Numerous medications have a side effect of dry mouth which can lead to increased dental caries. Oral health plays a role in overall health beginning with the ability to properly allow adequate nutrition consumption.

Primary Data

"Overall, adolescents 12-19 years had an average of one missing or decayed permanent tooth per child."[4] Approximately one in four children between the ages of 9-11 have caries in their permanent teeth.[4] Between April of 2021 and May of 2023 Durham County Department of Public Health placed almost 14,000 sealants on permanent molars.[7] Likewise SDF application has been used to decrease the number of untreated dental caries prolonging the patient's ability to find or afford permanent dental treatment. Durham County treated approximately 3,381 caries sites with SDF as this number should include a first application and a second application within two-four weeks for most patients.[7]

Sealants	May 1ST 2021-April 30TH 2022	May 1ST 2022-April 30TH 2023
First Time Placement	6876	4350
Sealant wear	1298	1395
On Permanent Molars	5078	2652
On Primary Molars	578	222

A total of 9,124 Pre-K and elementary school students in Durham Public Schools were screened between September 2022 and April 2023. Forty percent of the kindergarten students and 43% of fifth grade students had sealants placed on one or more teeth.

Preventative Dental Visit	May 1ST 2021-April 30TH 2022	May 1ST 2022-April 30TH 2023
Comprehensive Exam	5193	3467
Recall Exam	1076	1416
Adult Prophy	614/ 653	642/ 661
Child Prophy	1052/ 1073	1061/ 1089
Fluoride Varnish	1714	1755

According to the 2022 Durham County-Wide CHA survey access to care section 10% of the population reported not having insurance primarily due to unemployment.[8] Due to the income requirements to qualify for Medicaid or NC health choice, most often the benefits of these programs go to the uninsured or low-income population. Medicaid/NC Health Choice had a dental

expenditure increase of almost 2% from 2021-2022 to $426.5 million.[9] Each of those years Durham County Dental Clinic saw over 2,000 patients who were receiving Medicaid benefits which speaks directly to the 2030 objective of increasing the proportion of low-income youth who have a preventative dental visit.[10]

Secondary Data

Healthy People 2030 objectives include the reduction of adults and children with active or untreated tooth decay.[10] Results of the Public Health Dental Division screening in Durham Public Schools showed 13% of untreated active caries in kindergarten students and 6% in fifth grade students. With the application of on average ten sealants per prophy, Durham County dental clinic was able to help prevent caries and arrest caries progression with SDF applications.

Preventive Dental Visit at Durham County Dental Clinic

Outstanding Treatment	May 1ST, 2021-April 30TH, 2022	May1ST, 2022-April 30TH 2023
Number of Visits (no duplicates)	13361	13237
Number of Patients with Outstanding Treatment	389	451

Interpretations: Disparities, Gaps, Emerging Issues

Pregnant women with poor oral health have a higher risk for adverse outcomes during birth including pre-term birth, low birth weight and pre-eclampsia. The expansion of Medicaid in North Carolina to cover pregnant women has allowed some treatment to be completed on women of childbearing age, however, a coverage gap exists for Black or African American and Hispanic or Latina/o/x adults overall. Un-treated tooth decay continues into adulthood affecting 90% of those ages 20 to 64 while 50% of those ages 45 to 64 have gum disease.[13]

Gum disease has also shown systemic links to other health conditions and may even aid in the disease progression. According to the American Academy of Periodontology, gum disease has been linked to diabetes, heart disease, respiratory disease, cancer, and Alzheimer's disease.[14] Diabetes disproportionally effects Black or African Americans in turn causing higher rates of gum disease in this population. Although white people have higher rates of heart disease, Black or African Americans are more likely to die from it.[15]

Socioeconomic disparities show up in oral health just as in other areas of life. "Applying sealants in schools for about 7 million children from low-income families who don't have them could save up to $300 million in dental treatment costs."[16]

Employment discrimination due to a non-esthetically pleasing smile has been reported by those surveyed possibly preventing economic gain, as well as the cost of dental treatment for families

living in poverty being ten times higher than those considered to be more affluent. Nationally Non-Hispanic Blacks or African Americans and Hispanics or Latina/o/x have an average of untreated dental caries percentage of 17.1% and 13.5% respectively compared to non-Hispanic white and non-Hispanic Asian with percentage of 11.7 and 10.5%.[17]

Recommended Strategies

Educational Videos: Studies have shown education is an integral part of changing the behaviors of patients leading to a reduction in plaque, bleeding and caries.[18] Creating educational videos for Durham County patients to be shown in clinics throughout the building will help promote the services provided to the community, as well as serve as a reminder to include oral health in overall health.

Dental Sealant Project at Durham Public Schools: Sealants are effective in preventing and arresting cares in primary and permanent molars. Dental sealants are safe and lower the risk of cavities by 80% in molars.[19] School programs allowing sealant placement benefits students by decreasing lost school time and circumvents non-access to dental providers.

Mental Health Screening: Staff training annually on Mental Health issues as there is a bidirectional relationship between psychosocial and oral health. It would be beneficial to develop a relationship with mental health care providers in the community for referrals and expert opinion.

School-based Dental Clinics: These clinics assist by providing access to full dental services and establishing a dental home for the children who do not have a dental home.

Current Initiatives & Activities

Durham County Department of Public Health Dental Clinic provides dental care for children 0-21 years of age and pregnant women who are patients of the Women's Clinic at DCoDPH. *Dental Clinic | Durham County - NC - Public Health (dcopublichealth.org)*

Oral Health Education: Education on Oral Health at an early stage plays a prime role in the prevention of oral diseases by creating awareness. Durham County Public Health Dental Hygienists visit Daycares, HeadStart, Early HeadStart and Public Schools to provide screenings, education, and preventive dental supplies such as toothbrushes, toothpaste, floss, and brochures demonstrating correct oral habits.

baby Oral Health Program (bOHP) is a program designed to educate dental health care providers on the principles of infant and toddler oral health to equip them with the necessary tools to be comfortable and competent at providing oral health services for young children. *bOHP (babyoralhealthprogram.org)*

UNC Adams School of Dentistry: Faculty, Pediatric dental residents and DDS students from UNC Adams School of Dentistry rotate in and are a part of the regular schedule at the DCoDPH Dental Clinic. This collaboration helps the clinic treat more patients and creates a pathway for sedation referrals for patients with extensive treatment needs and/or behavioral issues.

References

[1] Satcher, D. S. (2000). Surgeon General's report on oral health. *Public Health Reports*, *115*(5), 489.
[2] Miller, C. H. (2016). *Infection Control and Management of Hazardous Materials for the Dental Team-E-Book*. Elsevier Health Sciences.
[3] Centers for Disease Control and Preventation. (2013). *Periodontal Disease*. https://www.cdc.gov/oralhealth/conditions/periodontal-disease.html
[4] National Institute of Dental and Craniofacial Research. (2022). *Dental Caries (Tooth Decay)*. https://www.nidcr.nih.gov/research/data-statistics/dental-caries
[5] Kathryn Gilliam, B., RDH, MAAOSH, HIAOMT. (2023). Ancient tongue diagnosis for the 21st century dental hygienist. *Patient Care*. https://www.rdhmag.com/patient-care/article/14300422/ancient-tongue-diagnosis-for-the-21st-century-dental-hygienist
[6] Mayo Clinic. (2021). *Oral health: A window to your overall health*. https://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/dental/art-20047475#:~:text=Although%20the%20connection%20is%20not,birth%20and%20low%20birth%20weight.
[7] Zitta, J.-P. (2023). *EPIC Electronic Medical Record (Internal Data)*.
[8] Partnership for a Healthy Durham. (2022). *2022 DURHAM COUNTY COUNTY-WIDE COMMUNITY HEALTH ASSESSMENT SURVEY REPORT*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[9] NC Department of Health and Human Services, N. M. D. o. H. B. (2021). *Medicaid and NC Health Choice Annual Report State Fiscal Year 2021*. https://medicaid.ncdhhs.gov/nc-medicaid-cmo-update20220617pdf/open
[10] North Carolina Institute of Medicine. (2020). *Healthy North Carolina 2030: A Path Toward Health*. https://nciom.org/wp-content/uploads/2020/01/HNC-REPORT-FINAL-Spread2.pdf
[11] North Carolina State Board of Dental Examiners. (2022). *Policy Statement on NC Dental Professional Shortage Areas*. Retrieved from https://www.ncdentalboard.org/PDF/Dental_HPSA%20_Policy.pdf
[12] Bureau of Health Workforce, H. R. a. S. A. H. U. S. D. o. H. H. S. (2023). *Designated Health Professional Shortage Areas Statistics: First Quarter of Fiscal Year 2024 Designated HPSA Quarterly Summary*. file:///C:/Users/calloyd/Downloads/BCD_HPSA_SCR50_Qtr_Smry.pdf
[13] National Institute of Dental and Craniofacial Research. (2022). *Oral Health in America - April 2022 Bulletin*. https://www.nidcr.nih.gov/research/oralhealthinamerica/section-3a-summary
[14] Periodontology, A. A. o. (2023). *Gum Disease and Other Diseases*. https://www.perio.org/for-patients/gum-disease-information/gum-disease-and-other-diseases/
[15] CareQuest Institute for Oral Health. (2022). *The Glaring Scope of Racial Disparities in Oral Health*. https://www.carequest.org/resource-library/glaring-scope-racial-disparities-oral-health
[16] Centers for Disease Control and Preventation. (2016). Vital Signs: Dental Sealants Prevent Cavities. https://archive.cdc.gov/www_cdc_gov/vitalsigns/dental-sealants/index.html
[17] Centers for Disease Control and Preventation. (2016). NHANES 2015-2016 Overview. https://wwwn.cdc.gov/nchs/nhanes/continuousnhanes/Overview.aspx?BeginYear=2015
[18] Nakre, P. D., & Harikiran, A. (2013). Effectiveness of oral health education programs: A systematic review. *Journal of International Society of Preventive & Community Dentistry*, *3*(2), 103.
[19] Gooch, B. F., Griffin, S. O., Gray, S. K., Kohn, W. G., Rozier, R. G., Siegal, M., Fontana, M., Brunson, D., Carter, N., & Curtis, D. K. (2009). Preventing dental caries through school-based sealant programs: updated recommendations and reviews of evidence. *The Journal of the American Dental Association*, *140*(11), 1356-1365.

Chapter 11

Environmental Health and Climate Change

Photo Courtesy of Discover Durham

This chapter includes:

- Lead Poisoning
- Extreme Heat
- Wildfire
- Severe Storms and Precipitation
- Public Health Emergency Preparedness

Section 11.01 *Lead Poisoning*

Overview

Lead poisoning remains a major environmental health concern in the United States (U.S.). Inhalation is the most common route of exposure in adults, while children are most commonly exposed to environmental lead through ingestion or inhalation, with ingestion of chips and dust from lead paint the most common source.[1] Exposure can also occur from contaminated soil from gasoline emissions, as lead was an additive in gasoline until the late 1970s, as well as historical incinerator operations.

According to the U.S. Department of Housing and Urban Development (HUD), about 34.6 million homes contain lead-based paint, including 18.2 million homes with significantly deteriorated lead-based paint, 21.9 million homes with dust lead hazards, and 2.4 million homes with soil lead hazards.[2] There is no known safe blood lead concentration. However, it is known that as lead exposure increases, the range and severity of symptoms and effects also increase. Lead exposure in young children and pregnant women can cause serious health effects and can affect almost every organ and system in the body.[3] During pregnancy, lead is released from bones and is used to help form the bones of the developing fetus. This risk increases if the pregnant mom is calcium deficient. Lead can also pass from a mother to her unborn child through the placenta.[4] The most important step caregivers, parents, doctors, and others can take is to prevent lead exposure before it occurs.

The current reference level at which the Centers for Disease Control and Prevention (CDC) has recommend public health actions be initiated is 3.5 µg/dL.[5] Lead poisoning is preventable, yet the negative health effects of lead poisoning can be life-long, so prevention of lead poisoning is crucial. Primary prevention and secondary prevention are tools used to prevent childhood lead exposure before any harm occurs. Primary prevention includes the removal of lead hazards from the environment before a child is exposed and is the most effective means of prevention. Secondary prevention including blood lead testing and follow-up remains an important safety net for children who may already be exposed to lead.

Lead can affect anyone, but children less than six years old are at increased risk from the deleterious effects of lead because their nervous system has not yet fully developed. Children absorb four to five times as much ingested lead as adults from a given source, with the gastrointestinal tract being the major route of absorption.[6; 7] Children's brains and nervous system are more sensitive to the damaging effects of lead. Young children are particularly vulnerable to lead hazards present in their surrounding environment because they can expose themselves to the harmful effects of lead through normal behaviors such as putting their hands and other objects in their mouths.[8]

City Parks

In July of 2023, Mid Atlantic Associates conducted soil assessments for five City of Durham Parks. In August of 2023, a soil assessment report from Mid-Atlantic Associates showed that soil samples from five parks in Durham, Walltown, East End, East Durham, Lyon, and Northgate, had at least one soil sample that measured greater than the Environmental Protection Agency (EPA) threshold. One of the potential lead sources at these parks was lead-contaminated material from historical incinerator operations. Fencing and detailed signs were installed around the impacted areas and one playground was closed.[9]

In response to public concerns, City of Durham officials, in conjunction with Durham County Department of Public Health officials, conducted a town hall meeting on June 29th, 2023. The officials fielded questions and introduced a representative from Mid Atlantic Associates, Inc., an environmental consulting firm retained by the City to conduct an additional assessment of the parks to include confirmatory laboratory analytical testing.

On August 1st, 2023, Durham County Environmental Health staff, along with NC Department of Health and Human Services Occupational Health & Epidemiology staff conducted a field survey of Walltown, East End, and East Durham Parks. The survey was conducted in an effort to evaluate potential risk. In almost all open and accessible areas heavy vegetative cover in the form of thick grass was observed. Additionally, all children's play areas were covered with greater than 6 inches of mulch. Both meet or exceed the clearance standards pursuant to G.S. 130A-131.9C (15A NCAC 18A .3105) for bare soil lead concentrations greater than 400 parts per million. In light of these observations, staff felt the risk of poisoning was very low. However, it cannot be said that a risk does not exist.

North Carolina Department of Environmental Quality (DEQ) conducted a third field survey in January 2024. Results of the survey have not been released but DEQ is working closely with the City of Durham, NC DHHS Occupational Health & EPI, and Durham County Department of Public Health to address the issue in an effective and responsible manner.

Food Contamination

Although uncommon, lead can also contaminate food during production, processing, packaging, preparation, or storage. In October 2023 three brands of applesauce thought to be responsible for the lead poisoning of at least 354 children in 41 U.S. states were recalled.[10] The source was thought to be cinnamon contaminated with extremely high concentrations of lead, which was added to the applesauce in a facility in Ecuador.[11]

The Food and Drug Administration public health alert was updated on November 3rd, 2023, to include various apple cinnamon fruit pouches and requested each state to voluntarily visit Dollar Tree stores to verify that all lots of WanaBana Cinnamon Apple Puree had been removed from shelves and was not being offered for sale. On November 13th, 2023, Durham County Environmental Health staff made visits to all ten Durham County Dollar Tree locations. Four three-pack boxes were identified at one location. The product was removed from the sales floor immediately. No other recalled product was identified at any of the other nine locations.

On December 8th, 2023, NC DHHS Division of Public Health's Environmental Health Section formally requested Local Environmental Health staff from across the state make visits to Dollar Tree stores known to have received recalled product. Six of the ten Durham Dollar Trees were officially cited as having received tainted product. Durham County Environmental Health staff visited the six locations on the same day but did not find additional products.

One confirmed lead poisoning case was potentially caused by the child consuming WanaBana recalled product. The confirmed poisoning was reported to Durham County Environmental Health prior to the recall and four investigation visits were made without success in identifying the source. It was later discovered that the poisoned child consumed several pouches of the product daily and thus became poisoned.

Two other children from a separate household had elevated blood lead levels, EBLLs, after their mother learned about the recall and had the children tested. Both children consumed the recalled product on a regular basis. Durham County Environmental Health obtained several packages of the recalled product from the mother and provided it to DHHS State Laboratory for testing.

Controlled Burn

In July of 2023, a controlled burn of a house conducted by the Durham City Fire Marshal's Office deposited burn debris to surrounding properties in Durham. The vintage structure contained lead-based paint and extreme heat generated during the burn caused paint chips and other debris to drift and deposit across several streets and properties northeast of the burn site. Concerned residents requested evaluation and remediation as necessary. After careful assessment by the North Carolina Department of Health and Human Services Epidemiology/Occupational Health and Health Hazard Control Unit and Durham County Department of Public Health Environmental Health Division, the risk of lead hazard to these properties was determined to be very low.[12]

Healthy People 2030 Objectives

The Healthy People 2030 Objectives included a goal to reduce blood lead levels in children one to five years from 3.31 µg/dL to 1.18 µg/dL.[13]

Secondary Data

Secondary data shows an upward trend of parents getting their children tested for lead. The data also shows a downward trend of elevated blood lead level cases. Continued education and screenings may keep the trends going in the right direction.

Children Ages 1 and 2 Years Tested for Lead Poisoning in Durham County 2017-2019

Year	Target Population	Number Tested	Percent Tested	Lead ≥5	Percent ≥5
2019	8,333	4,558	54.7	23	0.5
2018	8,528	4,126	48.4	40	1.0
2017	8,577	4,192	48.9	37	0.9

Table 11.02(a) Ages 1 and 2 Years Tested for Lead Poisoning in Durham County[14]

Interpretations: Disparities, Gaps, Emerging Issues

Lead poisoning poses risks to children and pregnant women who live or frequent homes that were built before 1978.[15] Pregnant women, refugees and children adopted outside of the U.S. are also at risk for higher lead exposure. Many adults and children don't realize that lead may be present in their homes. Lead-based paint and lead dust inside and around homes are the most common and dangerous source of lead exposure.

Lead has been found in other sources including contaminated drinking water, spices, toys (including some toy jewelry), lead-glazed cookware, consumer products, folk medicine and in foods (sometimes used as a food additive or cosmetically for religious reasons).[16-20] Workers in certain industries such as battery manufacturing, auto mechanics, lead smelters, home improvement contractors, crafts and artistry, recyclers of metal and electronics and people who frequent gun ranges are at higher risk for lead exposure.[21]

- Elevated blood lead levels in children can contribute to:[22-26]
  - Learning problems (lower IQ, attention-deficit/hyperactivity disorder (ADHD))
  - Reduced attention span
  - Behavioral problems (e.g. Juvenile delinquency/criminal behavior)
  - Delayed growth
  - Hearing problems
  - Anemia
- In pregnant women, lead exposure can:[27; 28;29-31]
  - Increase risk for miscarriage
  - Cause a premature birth and low birth weight
  - Increased risk of preeclampsia

Recommended Strategies

- Increase lead screening in children who are most at risk from lead poisoning. Testing for lead poisoning should target children between 12 -24 months who live in communities with a high percentage of houses built before 1960 and a high number of children with elevated blood lead levels. In addition, children, and adolescents under age 16 who enter the U.S. as an immigrant, refugee, or international adoptee should be tested at the time of arrival to the U.S.
- Educate residents who live in pre-1978 housing to use certified lead-based paint renovator and firm per North Carolina Rules 10A NCAC 41C .0900.
- Require proof of NC compliant lead-remediation training before issuing a permit for work that is likely to disturb paint in housing built before 1978.
- Collaborate with City of Durham Community Development Department and Durham Housing Authority to adopt HUD lead poisoning prevention policies to non-HUD rental properties. One study found that people who were living in HUD-assisted homes had lower levels of lead in their blood compared with those who were not.[32]
- Conduct lead dust testing in specified rental units, such as those with code violations and high tenant turnover. Partner with Neighborhood Improvement Services Housing Inspectors to implement lead dust testing for pre-1978 homes with code violations.
- Require use of NC certified firm & renovators on city/county pre-1978 housing contracts.

Current Initiatives & Activities

Durham County Department of Public Health (DCoPH)
The Health Education and Community Transformation Division offers free lead poisoning education and onsite testing for children six-months to six years old. The Women's Health Division provides blood lead testing to prenatal clients. The Nutrition Division provides nutritional counseling related to calcium and iron intake and referral to the WIC Program, as needed. The Environmental Health Division also offers and assists with conducting environmental investigations for children under the age of six and pregnant women that have two tests of an elevated level of 5 µg/dL within a 12-month period and provides nutritional counseling. https://www.dcopublichealth.org/

North Carolina Childhood Lead Poisoning Prevention Program (NC CLPPP)
NC CLPPP currently coordinates clinical and environmental services aimed at eliminating childhood lead poisoning. The program provides technical assistance, training and oversight for

local environmental health specialists, public health nurses, laboratory technicians and private medical providers to assure healthy and safe conditions. https://ehs.dph.ncdhhs.gov/hhccehb/cehu/

North Carolina Healthy Homes Outreach Task Force

The North Carolina Healthy Homes Outreach Task Force is a group of local, state, and federal health and housing agencies working to implement healthy homes programming for vulnerable populations in the state. This group meets quarterly, engaging new partners from local health departments and state agencies and sharing information and ideas for incorporating outreach opportunities in targeted communities. https://nchealthyhomes.com/task-force/

Partnership Effort for the Advancement of Children's Health (PEACH)

PEACH works to create healthy homes in Durham, North Carolina, and addresses community health and economics by creating a sustainable workforce to reduce environmental hazards in the community. http://www.peachdurham.org/

City of Durham

The City of Durham is required to test for lead and copper every 3 years. Durham maintains a sampling pool of more than 200 homes throughout Durham which were constructed between 1983 and 1985 for triennial tests. During a testing year, samples are collected from the volunteer pool and analyzed to ensure on-going compliance with established levels. The City of Durham city has also taken additional steps to add corrosion inhibitor to drinking water to minimize the leaching of lead into tap water. https://www.durhamnc.gov/1156/Lead-in-Drinking-Water

References

[1]National Institute of Environmental Health Science. (January 16, 2024). *Lead*. https://www.niehs.nih.gov/health/topics/agents/lead
[2] U.S. Department of Housing and Urban Development Office of Lead Hazard Control and Healthy Homes. (2021). *American Heatlhy Homes Survey II Lead Findings*. https://www.hud.gov/sites/dfiles/HH/documents/AHHS%20II_Lead_Findings_Report_Final_29oct21.pdf
[3] U.S. Environmental Protection Agency. *Learn about lead.* . https://www.epa.gov/lead/learn-about-lead
[4] RÍsovÁ, V. (2019). The pathway of lead through the mother's body to the child. *Interdiscip Toxicol*, *12*(1), 1-6. https://doi.org/10.2478/intox-2019-0001
[5] Centers for Disease Control and Prevention. (December 2, 2022). *Blood Lead Reference Value*. https://www.cdc.gov/nceh/lead/data/blood-lead-reference-value.htm
[6] World Health Organization. (2023). *Lead Poisoning*. https://www.who.int/news-room/fact-sheets/detail/lead-poisoning-and-health
[7] Madra, M., Ringel, R., & Margolis, K. G. (2021). Gastrointestinal Issues and Autism Spectrum Disorder. *Psychiatr Clin North Am*, *44*(1), 69-81. https://doi.org/10.1016/j.psc.2020.11.006
[8] Hauptman, M., Bruccoleri, R., & Woolf, A. D. (2017). An Update on Childhood Lead Poisoning. *Clin Pediatr Emerg Med*, *18*(3), 181-192. https://doi.org/10.1016/j.cpem.2017.07.010
[9] City of Durham, & Durham Parks and Recreation. (2023). *Soil & Property Testing*. https://www.dprplaymore.org/516/Soil-Property-Testing
[10] Centers for Disease Control and Prevention. (January 19, 2024). *Lead and Chromium Poisoning Outbreak Linked to Cinnamon Applesauce Pouches*. https://www.cdc.gov/nceh/lead/news/lead-poisoning-outbreak-linked-to-cinnamon-applesauce-pouches.html
[11] Tin, A. (2023). Recalled applesauce pouches now linked to more than 200 lead poisoning cases in 33 states, CDC says. *CBS News*. https://www.cbsnews.com/news/recalled-applesauce-pouches-cinnamon-lead-poisoning-cases-states-cdc/
[12] City of Durham. (2023). *Bivins Street Controlled Burn Information*. https://www.durhamnc.gov/5116/50275/Bivins-Street-Controlled-Burn-Informatio
[13] U.S. Department of Health and Human Services Office of Disease Prevention and Health Promotion.). *Reduce blood lead levels in children aged 1 to 5 years - EH-04.* . https://health.gov/healthypeople/objectives-and-data/browse-objectives/housing-and-homes/reduce-blood-lead-levels-children-aged-1-5-years-eh-04.
[14] North Carolina Department of Health and Human Services Division of Public Health. (07-03-2023). *Childhood Lead Poisoning Prevention Program: Data*. https://ehs.dph.ncdhhs.gov/hhccehb/cehu/lead/data.htm
[15] Centers for Disease Control and Prevention. (September 13, 2022). *Know the Facts: Protect Your Child from Lead Exposure*. https://www.cdc.gov/nceh/lead/docs/know-the-facts.html
[16] Lead poisoning associated with use of litargirio--Rhode Island, 2003. (2005). *MMWR Morb Mortal Wkly Rep*, *54*(9), 227-229.
[17] Childhood lead poisoning from commercially manufactured French ceramic dinnerware--New York City, 2003. (2004). *MMWR Morb Mortal Wkly Rep*, *53*(26), 584-586.
[18] Hore, P., Alex-Oni, K., Sedlar, S., Patel, K., & Saper, R. B. (2022). Health Remedies as a Source of Lead, Mercury, and Arsenic Exposure, New York City, 2010-2019. *Am J Public Health*, *112*(S7), S730-s740. https://doi.org/10.2105/ajph.2022.306906
[19] Lead poisoning in pregnant women who used Ayurvedic medications from India--New York City, 2011-2012. (2012). *MMWR Morb Mortal Wkly Rep*, *61*(33), 641-646.
[20] Pieper, K. J., Martin, R., Tang, M., Walters, L., Parks, J., Roy, S., Devine, C., & Edwards, M. A. (2018). Evaluating Water Lead Levels During the Flint Water Crisis. *Environ Sci Technol*, *52*(15), 8124-8132. https://doi.org/10.1021/acs.est.8b00791

[21] Armatas, C., Loper, B., Tandoc, A., & Materna, B. L. (2022). Industries With the Highest Occupational Blood Lead Test Results, California Occupational Blood Lead Registry, 2020–2021. *American Journal of Public Health*, *112*(S7), S690-s694. https://doi.org/10.2105/ajph.2022.307002

[22] Bellinger, D., Sloman, J., Leviton, A., Rabinowitz, M., Needleman, H. L., & Waternaux, C. (1991). Low-level lead exposure and children's cognitive function in the preschool years. *Pediatrics*, *87*(2), 219-227. https://pubmed.ncbi.nlm.nih.gov/1987535/

[23] Needleman, H. L., Schell, A., Bellinger, D., Leviton, A., & Allred, E. N. (1990). The long-term effects of exposure to low doses of lead in childhood. An 11-year follow-up report. *N Engl J Med*, *322*(2), 83-88. https://doi.org/10.1056/nejm199001113220203

[24] Mendelsohn, A. L., Dreyer, B. P., Fierman, A. H., Rosen, C. M., Legano, L. A., Kruger, H. A., Lim, S. W., & Courtlandt, C. D. (1998). Low-level lead exposure and behavior in early childhood. *Pediatrics*, *101*(3), E10. https://doi.org/10.1542/peds.101.3.e10

[25] Dietrich, K. N., Krafft, K. M., Bornschein, R. L., Hammond, P. B., Berger, O., Succop, P. A., & Bier, M. (1987). Low-level fetal lead exposure effect on neurobehavioral development in early infancy. *Pediatrics*, *80*(5), 721-730. https://pubmed.ncbi.nlm.nih.gov/2444921/

[26] Dietrich, K. N., Berger, O. G., Succop, P. A., Hammond, P. B., & Bornschein, R. L. (1993). The developmental consequences of low to moderate prenatal and postnatal lead exposure: intellectual attainment in the Cincinnati Lead Study Cohort following school entry. *Neurotoxicol Teratol*, *15*(1), 37-44. https://doi.org/10.1016/0892-0362(93)90043-n

[27] Borja-Aburto, V. H., Hertz-Picciotto, I., Lopez, M. R., P Farias, C. R., & Blanco, J. (1999). Blood lead levels measured prospectively and risk of spontaneous abortion. *American journal of epidemiology*, *150*(6), 590-597. https://doi.org/10.1093/oxfordjournals.aje.a010057

[28] Cantonwine, D., Hu, H., Sánchez, B. N., Héctor Lamadrid-Figueroa, D. S., Adrienne S Ettinger, Adriana Mercado-García, Mauricio Hernández-Avila, Robert O Wright, & Téllez-Rojo, M. M. (2010). Critical windows of fetal lead exposure: adverse impacts on length of gestation and risk of premature delivery. *Journal of occupational and environmental medicine*, *52*(11), 1106-1111. https://doi.org/10.1097/JOM.0b013e3181f86fee

[29] Jelliffe-Pawlowski, L. L., Miles, S. Q., Courtney, J. G., Materna, B., & Charlton, V. (2006). Effect of magnitude and timing of maternal pregnancy blood lead (Pb) levels on birth outcomes. *J Perinatol*, *26*(3), 154-162. https://doi.org/10.1038/sj.jp.7211453

[30] Taylor, C. M., Golding, J., & Emond, A. M. (2015). Adverse effects of maternal lead levels on birth outcomes in the ALSPAC study: a prospective birth cohort study. *Bjog*, *122*(3), 322-328. https://doi.org/10.1111/1471-0528.12756

[31] Poropat, A. E., Laidlaw, M. A. S., Lanphear, B., Ball, A., & Mielke, H. W. (2018). Blood lead and preeclampsia: A meta-analysis and review of implications. *Environ Res*, *160*, 12-19. https://doi.org/10.1016/j.envres.2017.09.014

[32] Ahrens, K. A., Haley, B. A., Rossen, L. M., Lloyd, P. C., & Aoki, Y. (2016). Housing Assistance and Blood Lead Levels: Children in the United States, 2005-2012. *American Journal of Public Health*, *106*(11), 2049-2056. https://doi.org/10.2105/ajph.2016.303432

Section 11.02 *Extreme Heat*

Overview

Excessive heat kills more people in the U.S every year than all other types of severe weather.[1] The term "excessive heat", also called "extreme heat", is defined as two or more days of temperatures above 90°F.[2] The impacts of excessive heat is amplified by high humidity and full sun exposure. Under these conditions, the human body needs to work harder to maintain a normal body temperature because the evaporation of sweat is slowed. This leads to heat exhaustion, heatstroke, and possibly death.[3] Anyone can be affected by extreme heat, but the hazard often disproportionately impacts certain populations based on their physical characteristics or inability to escape the heat. Climate change is projected to increase the number, severity, and duration of extreme heat events.[4] New research shows that high overnight temperatures can have a higher negative health impact than daytime temperatures. There has been more research recently on the impact of heat on both pregnancy and mental illness. More people are expected to be affected by extreme heat due to climate change, but individuals, organizations, and agencies can help people adapt.

Secondary Data

The health impacts of extreme heat are already significant and are expected to become worse as climate change drives temperatures higher. Between 2010 and 2020, there were an estimated 12,000 premature deaths in the United States due to extreme heat, more than all other extreme weather hazards combined including tornadoes, flooding, hurricanes, wind, cold, lightning, and winter storms.[5] There are an estimated 3,000 heat-related illness emergency department visits every summer in North Carolina.[6] Currently, approximately 250 heat-related deaths occur annually in North Carolina.[7] There were 74 heat related Emergency Room visits in Durham County in 2022 and 50 such visits in 2023. This represents a little more than 0.11% of all Emergency Room visits.[8]

Often called a silent killer, extreme heat approaches without the dramatic warning signs of other storms such as whipping winds, heavy rains, or rushing rivers. Instead, periods of extreme heat feel like ordinary hot days until the unusually hot temperatures begin to affect the body. In mild cases, extreme heat causes dehydration and lack of energy. In more severe cases it causes heat exhaustion, heatstroke, hyperthermia, and in the worst cases, death. Extreme heat deaths occur not just on the hottest days, but at warm temperatures as well.[9] When night temperatures stay above 75°F, it is harder for the human body to cool down, increasing the chances of adverse heat effects.[10] This is particularly concerning in areas of energy poverty where individuals may lack efficient air conditioning or housing insulation. Extreme heat also makes pre-existing conditions such as mental illness, asthma, diabetes, and cardiovascular disease worse.[9]

Heat exposure has different impacts across Durham County. In urban areas, temperatures stay warmer overnight due to the "urban heat island" effect.[11] A heat-mapping campaign in July 2021, measured a 10.4°F maximum intensity difference between the hottest and coolest areas of Durham.[12] This is caused by certain areas having more heat-trapping buildings and paved surfaces as well as the lack of vegetation. Building materials like brick, concrete, and asphalt absorb heat during the day and release it slowly overnight to the surrounding air. This means that these areas do not have a chance to cool off before the sun comes up again. Fewer trees, meadows, and vegetative ground cover in urban areas mean less natural cooling. Plants create natural cooling systems. Water that evaporates from plant leaves during photosynthesis harnesses heat energy that transforms liquid water into vapor, cooling the plant's surroundings.[13] Additionally, plants create pockets of shade and microclimates

that circulate cooled air as a result of the evaporation process.[14]

Periods of extreme heat are sometimes accompanied by power blackouts due to high demand for energy or other weather-related hazards such as hurricanes and thunderstorms.[15] In these situations, all residents of Durham would be at high risk for heat health problems. During COVID-19 or possible future pandemics, the use of air conditioning in shared indoor rooms or cooling stations may present a secondary health risk of contracting a serious virus or disease.[16]

Under different greenhouse gas emissions scenarios, Durham County is projected to experience 60 to 70 extreme heat days over 90°F a year by 2030, increasing to 95 to 120 days by 2080 (Figure 11.01(b). Durham County is also projected to experience approximately 10 nights over 75°F a year by 2030, increasing by 20 to 60 nights by 2080 (Figure 11.01(c)).

Projected Days Per Year Above 95ºF, Durham County, 1950-2100

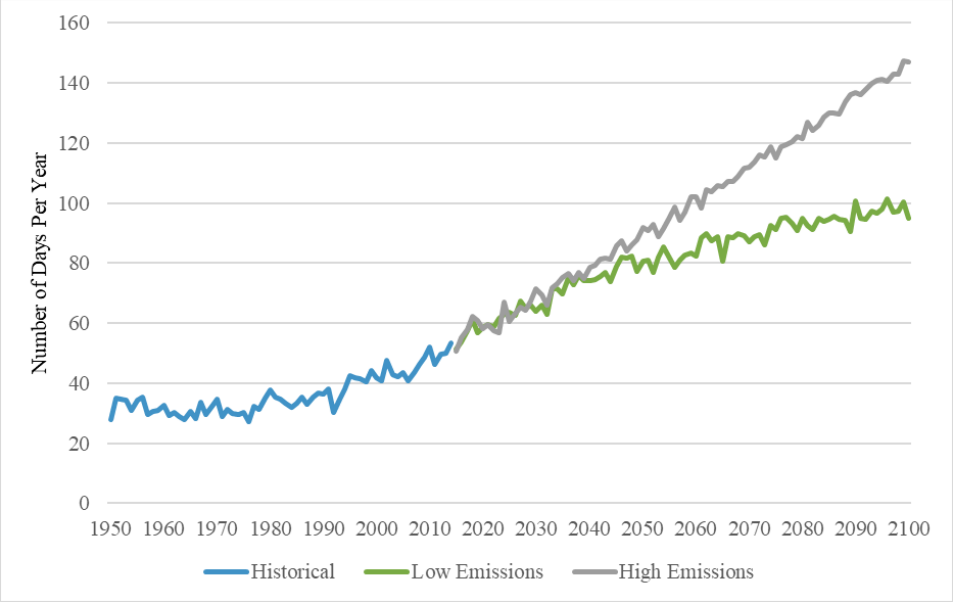


Figure 11.01(b): Projected Days in Durham County over 95 Degrees Fahrenheit

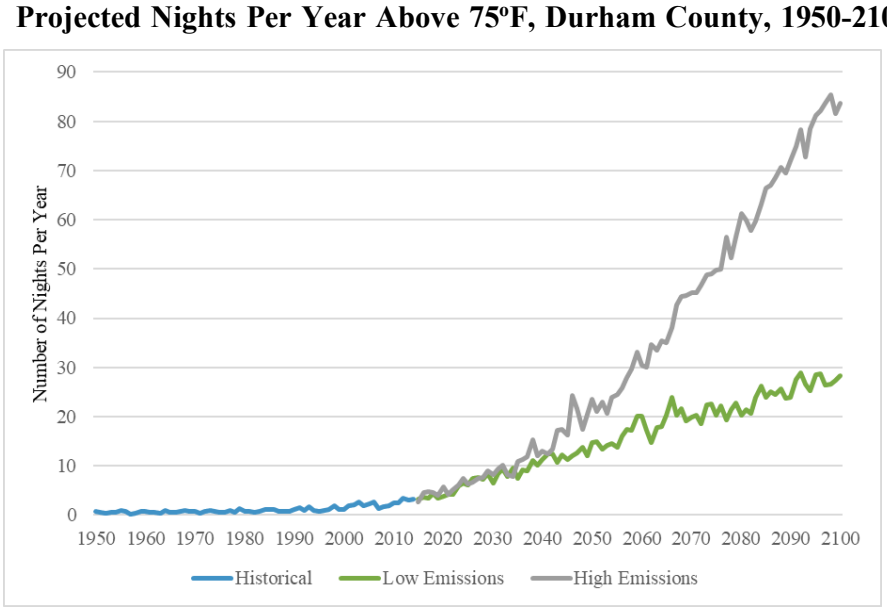


Figure 11.01(c): Projected Nights in Durham County over 75 Degrees Fahrenheit[17; 18]

Figure 11.1(b) shows the projected number of days per year that Durham County is expected to reach 95˚F or more. Figure 11.1(c) shows the projected number of nights per year that Durham County is expected to remain over 75˚F. The blue line represents simulated historical values. The green line and gray line represent average maximum daily temperatures if humans reduce greenhouse gas emissions to meet reduction targets or continue to emit high levels of greenhouse gases, respectively.

The increasing number of days with persistently high overnight temperatures are particularly concerning for health outcomes as well as increasing rates of preterm birth.[10] When overnight temperatures remain over 75°, the human body lacks the ability to recover from daytime exposures, especially for those who cannot afford to adequately cool their homes or lack access to air conditioning. This exposure further exacerbates health inequities.

Interpretations: Disparities, Gaps, and Emerging Issues

Extreme heat can affect anyone. However, certain demographics are more susceptible to its adverse effects.[19] The vulnerable categories encompass:

- Occupational Exposure: Those subjected to prolonged high temperatures in their workplaces, such as outdoor workers, are at a heightened risk.
- Pre-existing Health Conditions: Individuals with conditions like heart disease, diabetes, mental illness, or asthma face exacerbated threats as these conditions can deteriorate under heat stress. This also includes those who take certain prescription medications intended to manage a variety of chronic conditions.
- Mobility and Social Challenges: Certain groups, including those with physical disabilities or those experiencing social or language isolation, might face obstacles in relocating to cooler environments.
- Physiological Vulnerabilities: Specific demographics, such as individuals with severe obesity, pregnant persons, those under the age of four, or those above 65 years old, have bodies that may struggle to regulate temperature effectively.

Importantly, rural areas of Durham County are not exempt from the risks associated with extreme heat. In rural settings, the lack of immediate access to medical care, longer distances to cooling centers, and occupations that require prolonged outdoor exposure, such as farming, can exacerbate the effects of extreme heat. While urban areas have infrastructure challenges, rural communities grapple with accessibility challenges that require unique mitigation strategies.

When possible, people in the above categories should mitigate health impacts by avoiding exposure to extreme heat and finding a cooler environment. However, this is not possible for some residents, either because they cannot afford air conditioning and/or landlords do not provide it, their physical condition makes it difficult to move to a cooler environment, or because their transportation options or work conditions expose them to heat. During extreme heat events, Durham County Libraries typically serve as cooling centers, operating during daytime hours. Increasing temperatures, particularly overnight, may necessitate extending cooling center availability. The unhoused or those who have unstable housing may need increased access to shelter during periods of extreme heat. In the next decade, the ability to find a cooler environment will increasingly emerge as a determinant of health. Residents who do not have access to cooling resources such as air-conditioning, a cool car, or the ability to take a day off work on an extremely hot day are more likely to experience heat sickness or heat-related death.[20]

Historical practices such as redlining have left legacies of structural racism, rendering certain communities more susceptible to extreme heat owing to infrastructural inadequacies. These former redlined neighborhoods have fewer street trees and more paved surfaces, resulting in localized temperatures on average 7°F hotter than non-redlined districts.[21] Additionally, as a result of policies deliberately restricting access to financing to people of color, these neighborhoods have a higher number of non-white residents who live below the federal poverty line, cannot afford reliable air conditioning and rely on the bus or walking for transportation, even on extremely hot days.[22]

The Justice 40 Initiative (J40) is a federal government initiative to identify Disadvantaged Communities (DACs) and ensure at least 40% of federal funding for climate change, clean energy and energy efficiency, and other environmental projects is directed toward these DACs. In Durham County there are 20 census tracts out of 60 designated J40 DACs. These tracts include formerly redlined neighborhoods and non-urban tracts. More than 86% of the DACs and formerly redlined tracts have at least six out of twelve characteristics that lead to higher vulnerability to excessive heat. These characteristics include tree canopy coverage, housing units that are rentals, people of color, people without health insurance, households with no car, and families in poverty.[23] Place-based interventions to mitigate the effects of extreme heat such as planting trees and adding cooling stations should consider the diversity of DACs to ensure that the people most at risk receive appropriate support.

Recommended Strategies

Mitigate Exposure to Extreme Heat

- Develop and adopt a heat action plan outlining protocols and strategies for a timely and appropriate response when dangerous heat is forecasted.
- Adopt a county-wide standard for indoor temperatures, specifying a maximum permissible temperature for residences when the outdoor thermometer exceeds 90°F. This proposal mirrors existing regulations that set minimum indoor temperatures for colder temperatures.[24]
- Increase green infrastructure such as trees, meadows, vegetated areas, and green roofs,

prioritizing the historically redlined census tracts if this is also wanted by the communities in each census tract.[24]
- Create design standards, incentives, and education to increase light-colored cooling surfaces such as roofs, parking lots, plazas, etc.[25]
- Advocate for state and national requirements to protect outdoor workers' health and safety related to extreme heat.

Mitigate Health Impacts

- Implement a heatwave alert, education, and response system through the Durham County Emergency Management Division based on EPA guidance.[26] This includes partnering with formal and informal social service systems to educate the public about extreme heat dangers and mitigation techniques.[27]
- Establish Resilience Hubs in areas with high percentages of vulnerable populations to build physical and social resilience to extreme heat.
- Collaborate with the Durham healthcare community to connect residents to mitigation measures for extreme heat.
- Plan for long-term heat events with established cooling stations, shelters with overnight options, and enhanced social infrastructure.[28]
- Plan for additional funding for electricity assistance during heat waves and expansion of fan programs to include all vulnerable populations regardless of age.[29]

Current Initiatives & Activities

Operation Fan Heat Relief Program
The North Carolina Department of Health and Human Services provides free fans to senior citizens and eligible adults with serious health conditions. The Center for Senior Life administers this program in Durham County (919)-688-8247. https://www.ncdhhs.gov/divisions/aging-and- adult-services/operation-fan-and-heat-relief

Increasing Urban Forest Cover Through Tree Planting
The City of Durham, Keep Durham Beautiful, and Trees Durham collectively plant about 1,500 trees per year. The city's Urban Forestry Management Plan aims to increase the tree canopy from 42% to 45% and plant 85% of new street trees in areas that have been underserved. https://durhamnc.gov/DocumentCenter/View/32533/UFMP_GSD_9-18

CDC Communication toolkit on Climate Change, Extreme Heat
The Center for Disease Control provides information on heat stress illnesses and links to federal government resources on extreme heat.
https://ephtracking.cdc.gov/showHeatStressIllnessResources

NC Department of Health and Human Services
The North Carolina Department of Health and Human Services offers climate and health information on extreme heat. https://publichealth.nc.gov/chronicdiseaseandinjury/heat.htm

References

[1] Adams-Fuller, T. (2023). Extreme Heat Is Deadlier Than Hurricanes, Floods and Tornadoes Combined. *Scientific American*. Retrieved February 2024, from https://www.scientificamerican.com/article/extreme-heat-is-deadlier-than-hurricanes-floods-and-tornadoes-combined/#:~:text=Studies%20show%20that%20outdoor%20workers,hurricanes%2C%20floods%20and%20tornadoes%20combined.
[2] Ready.gov. (2019). *Extreme heat*. https://www.ready.gov/heat
[3] Jason Lee, H. D., Nicola Gerrett. (2020). *Manage and Adapt to Heat in the Body*. Global Heat Health Information Network. Retrieved October 2020 from https://ghhin.org/in-the-body/
[4] Program, U. S. G. C. R. (2018). *Fourth national climate assessment*. Retrieved October 2020 from https://nca2018.globalchange.gov
[5] Shindell, D., Zhang, Y., Scott, M., Ru, M., Stark, K., & Ebi, K. L. (2020). The effects of heat exposure on human mortality throughout the United States. *GeoHealth*, *4*(4), e2019GH000234.
[6] NC Department of Health and Human Services. (2019). *NC Health Officials Urge Caution as Temperatures Climb* https://www.ncdhhs.gov/news/press-releases/nc-health-officials-urge-caution-temperatures-climb
[7] Durham County Department of Public Health, D. H., & Partnership for a Health Durham,. (2020). *Chapter 11: Climate Change* (Durham County Community Health Assessment, Issue. https://www.dconc.gov/home/showpublisheddocument/36650/637860584140300000#:~:text=Between%202010%20and%202020%2C%20there%20were%20an%20estimated,North%20Carolina.vi%20Currently%2C%20approximately%20250%20heat-related%20deaths%20occur
[8] NC Department of Health and Human Services Division of Public Health, U. S. o. M. (2023). *Emergency Department Visits for Heat-Related Illness*. https://ncdetect.org/2019/07/emergency-department-visits-for-heat-related-illness/
[9] U.S. Environmental Protection Agency, C. f. D. C. a. P. (2016). CLIMATE CHANGE and EXTREME HEAT What You Can Do to Prepare. *Extreme Heat Guidebook*. https://www.cdc.gov/climateandhealth/pubs/extreme-heat-guidebook.pdf
[10] Ward, A., Clark, J., McLeod, J., Woodul, R., Moser, H., & Konrad, C. (2019). The impact of heat exposure on reduced gestational age in pregnant women in North Carolina, 2011–2015. *International journal of biometeorology*, *63*, 1611-1620.
[11] Oke, T. R. (1973). City size and the urban heat island. *Atmospheric Environment (1967)*, *7*(8), 769-779.
[12] Strategies, C. (2021). *Raleigh & Durham North Carolina: Heat Watch Report*. https://www.dconc.gov/home/showpublisheddocument/36974/637890071408570000
[13] EPA, U. (2011). Reducing urban heat islands: compendium of strategies-trees and vegetation. *Available from: Open Source Repository< https://www. epa. gov/sites/production/files/2014-06/documents/treesandvegcompendium. pdf>(accessed July 2018)*.
[14] Epa, U. (2016). Using trees and vegetation to reduce heat islands. *Heat Islands*.
[15] Sanchez, O. (2019). Triple-digit temperatures could bring blackouts in New York City, DC and Chicago. *USA TODAY*. https://www.usatoday.com/story/news/nation/2019/07/16/heat-wave-could-cause-power-outages-new-york-city-chicago-d-c/1749257001/
[16] Prevention, C. f. D. C. a. (2020). COVID-19 and cooling centers. https://www.cdc.gov/coronavirus/2019-ncov/php/cooling-center.html
[17] Analogs), L. S. D. L. C. (2023). In.
[18] Earth System Grid Federation. (2023). WCRP Coupled Model Intercomparison Project (Phase 6). In.
[19] Centers for Disease Control and Prevention. (2022). Protecting Disproportionately Affected Populations from Extreme Heat. https://www.cdc.gov/disasters/extremeheat/specificgroups.html
[20] Gronlund, C. J. (2014). Racial and socioeconomic disparities in heat-related health effects and their mechanisms: a review. *Current epidemiology reports*, *1*, 165-173.
[21] Hoffman, J. S., Shandas, V., & Pendleton, N. (2020). The effects of historical housing policies on resident exposure to intra-urban heat: a study of 108 US urban areas. *Climate*, *8*(1), 12.

[22] Wilson, B. (2020). Urban heat management and the legacy of redlining. *Journal of the American Planning Association*, *86*(4), 443-457.
[23] Walls, M., Hines, S., & Ruggles, L. (2024). Implementation of Justice40: Challenges, Opportunities, and a Status Update.
[24] U.S. Environmental Protection Agency, C. f. D. C. a. P. (2008). Reducing urban heat islands: compendium of strategies, reducing urban heat islands. RTP (NC). https://www.epa.gov/sites/production/files/2017-05/documents/reducing_urban_heat_islands_ch_6.pdf
[25] U.S. Environmental Protection Agency, C. f. D. C. a. P. (2023). Heat Island Cooling Strategies. https://www.epa.gov/heatislands/heat-island-cooling-strategies
[26] Programs, U. S. E. P. A. O. o. A. (2006). *Excessive heat events guidebook*. US Environmental Protection Agency, Office of Atmospheric Programs.
[27] Austhof, E., Berisha, V., McMahan, B., Owen, G., Keith, L., Roach, M., & Brown, H. E. (2020). Participation and engagement of public health stakeholders in climate and health adaptation. *Atmosphere*, *11*(3), 265.
[28] Nayak, S. G., Shrestha, S., Sheridan, S. C., Hsu, W.-H., Muscatiello, N. A., Pantea, C. I., Ross, Z., Kinney, P. L., Zdeb, M., & Hwang, S.-A. A. (2019). Accessibility of cooling centers to heat-vulnerable populations in New York State. *Journal of Transport & Health*, *14*, 100563.
[29] Carpenter, S. (2020). For Poor Americans, Heat Wave Will Cause Painful Spike In Utility Bills. *Forbes*. https://www.forbes.com/sites/scottcarpenter/2020/07/10/mammoth-heat-wave-lasting-weeks-will-cause-painful-spike-in-utility-bills-for-poor-americans/

Section 11.03 *Wildfires*

Overview

The risk of wildfires is increasing throughout the world due to climate change, increasing many public health hazards.[1] In Durham, these hazards include the physical and mental health impacts from fires that reach homes and residents as well as smoke from fires that occur anywhere in North America. According to the 2020 North Carolina Climate Science Report, "it is likely that future severe droughts… in North Carolina will be more frequent and intense due to higher temperatures leading to increased evaporation…[and] as a result, it is likely that the frequency of climate conditions conducive to wildfires in North Carolina will increase."[2] A 2023 Climate Central analysis of wildfire risk shows that North Carolina ranks fourth in the nation for total number of homes in the areas on the edges of forests and other vegetation that are greater risk if wildfires develop.[1] The Triangle Regional Resilience Assessment and the Eno-Haw Hazard Mitigation Plan both list wildfires as an increasing concern for Durham with an estimated economic damage to buildings at nearly $406,000,000 and multiple areas at medium to high risk of property damage.[3,4]

Secondary Data

North Carolina has experienced wildfires including two major wildfire events in the fall of 2016 near Asheville and in the summer of 2008 in the Pocosin Lakes National Wildlife Refuge.[5,6] Additionally, smoke from wildfires occurring outside of North Carolina impacted Durham's air quality. Since 2001, there has been a 77% increase in the daily population exposure to wildfire smoke in the United States.[7] Wildfire projections predict that by 2050, 80 million people in the U.S. will be regularly at risk.[7] The summer of 2023 was Canada's worst wildfire season on record, resulting in large smoke plumes that brought poor air quality to more than a third of the U.S. population, including Durham.[8]

Wildfires pose significant risk to human health. In some cases, the proximity to the fire itself may cause immediate injury and damage to housing infrastructure. As fires move into the area between human development and open land, (i.e. the wildland-urban interface) homes and other structures burned release additional toxic chemicals into the air, land, and water that can also have impacts on human health.[9] A majority of the risk comes from exposure to smoke or other byproducts of combustion.[9] Wildfire smoke contains air pollutants such as carbon dioxide, carbon monoxide, nitrous oxides, other organic chemicals and particulate matter.[9]

Particulate matter is the greatest health concern related to wildfires.[9] Fine particulates ($PM_{2.5}$) in wildfire smoke (wildfire PM) are associated with a range of health effects including excess deaths and respiratory outcomes such as reduced lung function, bronchitis, and the worsening of asthma.[10] Exposure to wildfire PM has also been associated with cardiovascular problems.[11] Particulate matter associated with wildfires has been shown to be more toxic than PM from other sources.[12] The majority of wildfire-related health research evaluates the short-term (days to weeks) exposure to wildfire smoke, with limited understanding of the potential health implications of repeated exposures to wildfire smoke over both many days and multiple fire seasons.[13]

While short and long-term exposure to fine particulates and possibly other harmful, but less studied byproducts of combustion during wildfires pose significant harm. Other psychological effects may also develop following large wildfires. Recent studies have noted an increase in post-traumatic

stress disorder, anxiety, and depression among others in both adults and children following large wildfire events.[14, 15]

NC Forest Action Plan

In December 2020, the NC Forest Service, along with numerous partners, updated the North Carolina Forest Action Plan.[16] This state wide assessment, along with its accompanying strategic plan and priority maps developed a broad and collective vision for protecting and enhancing NC forest values and benefits over a ten-year period. Specifically, goals two and three of the plan focus on increasing forest resilience from wildfires.[16]

Air Quality

During the summer of 2023, smoke from wildfires ravaging Canada traveled hundreds of miles across the Eastern United States to North Carolina producing hazardous levels of fine particulate matter ($PM^{2.5}$) compared to previous years during three different events[17,18,19] (Figure 11.3(a)). These three events produced elevated $PM_{2.5}$ greater than or comparable to a previous Canadian smoke event at the end of July 2021.[20] The significant degradation in Durham's air quality related to wildfire smoke events indicates that wildfires are a health issue for Durham even if they are located more than 1,000 miles away.[20]

Durham, NC, Daily Average $PM_{2.5}$, June-July, 2021-2023

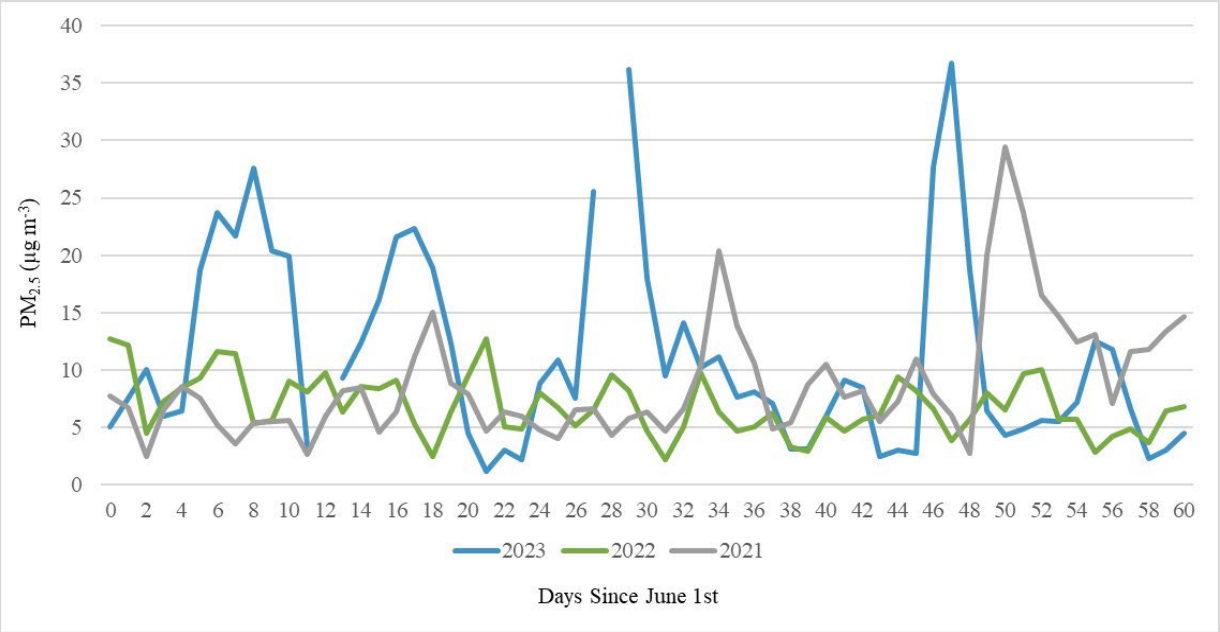


Figure 11.3 The daily average concentration of fine particulate matter during the months of June and July for 2021(wildfires), 2022 and 2023(wildfires) in Durham, NC.[21]

Interpretations: Disparities, Gaps, Emerging Issues

Several factors may make some individuals more susceptible to the effects of wildfire smoke including but not limited to age, health status, occupation, and housing status. Many studies examining wildfire smoke suggest that those living in locations with low socioeconomic status (SES) are at an increased risk of illness due to exposure to wildfire smoke. This is due to potential

increased exposure to wildfire smoke and higher prevalence of pre-existing conditions that can be worsened by wildfire-particulate matter.[22,23] Redlining policies across the country and in Durham denied wealth-generating opportunities to communities of color and undermined their physical environments.[24] This makes communities of color more likely to have poor housing infrastructure that may lack air conditioning.[24] Having housing with air conditioning has been known to reduce particle pollution such as wildfire smoke indoors, potentially reducing a person's risk of ill health effects. Therefore, those without access to air conditioning may have greater exposure to wildfire smoke.[13] Additionally, people of color and those living in low SES areas are also disproportionately affected by respiratory conditions, such as asthma, which may also put them at increased risk of health effects from exposure to wildfire smoke.[25, 26, 27]

All children, even those with no pre-existing illness or chronic conditions, are considered sensitive to air pollution, including wildfire smoke." This is due to children's still developing lungs, inhaling more air, and spending more time outside engaging in more physical activity.[28]

Recommended Strategies

- Develop a robust air monitoring system throughout the County along with a communication strategy for alerting residents.[29]
- Provide easy access to room "high efficiency particular air" (HEPA) filter machines for residents at risk to borrow during days when wildfire smoke and other air quality issues are severe.[30]
- Work with the Durham healthcare community to proactively develop disease management plans for patients more sensitive to the health impacts of wildfire exposure.[31]
- Establish Resilience Hubs in areas with high percentages of vulnerable populations to build physical and social resilience to air quality issues associated with wildfires.[32]
- Develop a communication plan for wildfire smoke events for reducing/mitigating exposure and that addresses special needs of at-risk life stages and populations.
- Create and promote safe public spaces for impacted people to go to during wildfire or smoke events.
- Practice safe forest management strategies.

Current Initiatives & Activities

NC Department of Health and Human Services offers climate health information on wildfires in North Carolina. https://epi.dph.ncdhhs.gov/oee/programs/climate.html

NC Forest Service tracks daily fire activity using a database known as the "Signal 14". The data from Signal 14 is a rapid approximation of wildfire occurrence.
https://www.ncforestservice.gov/fire_control/sit_report.htm

EPA Smoke Sense App increases awareness of the known health effects associated with exposure to wildfire smoke and advances the scientific understanding of that relationship. https://www.epa.gov/air-research/smoke-sense-study-citizen-science-project-using-mobile-app

Wildfire Smoke: A Guide for Public Health Officials is designed to help local public health officials prepare for smoke events, to take measures to protect the public when smoke is present, and to communicate with the public about wildfire smoke and health.

https://www.airnow.gov/publications/wildfire-smoke-guide/wildfire-smoke-a-guide-for-public-health-officials/

Indoor Air Quality (IAQ) Tools for Schools Action Kit shows schools how to conduct a practical plan to improve indoor air problems at little or no cost using activities and in-house staff.
https://www.epa.gov/iaq-schools/indoor-air-quality-tools-schools-action-kit

Climate Resilience for Frontline Clinics Toolkit provides resources for health care providers, patients, and administrators to prepare for climate-related hazards, including wildfires.
https://www.americares.org/what-we-do/community-health/climate-resilient-health-clinics/

References

[1] Climate Central. (2023). *Wildfire Weather*. https://www.climatecentral.org/report/wildfire-weather

[2] Kunkel, K. E., Corbett, D. R., Perry, L. B., Easterling, D. R., Dello, K. D., Robinson, W. A., Ballinger, A., Dissen, J., Stevens, L. E., Bililign, S., Lackmann, G. M., Stewart, B. C., Champion, S. M., Jr., R. A. L., & Terando, A. J. (2020). *North Carolina Climate Science Report*. https://ncics.org/wp-content/uploads/2020/10/NC_Climate_Science_Report_FullReport_Final_revised_September2020.pdf

[3] Triangle Regional Resilience Partnership. (2018). *Resilience assessment executive summary*. https://www.centralpinesnc.gov/sites/default/files/uploads/publications/trrp_report_executivesummary_102418.pdf

[4] Eno-Haw Hazard Mitigation Planning Committee (HMPC). (2020). *Eno-Haw Regional Hazard Mitigation Plan*. https://www.orangecountync.gov/DocumentCenter/View/19321/Eno-Haw-Final-Hazard-Mitigation-Plan-PDF

[5] Catherine Clabby. (2017). *NC Fires Brought Severe Pollution*. NC Health News. https://www.northcarolinahealthnews.org/2017/01/13/nc-fires-brought-severe-pollution/

[6] Rappold, A. G., Stone, S. L., Cascio, W. E., Neas, L. M., Kilaru, V. J., Carraway, M. S., Szykman, J. J., Ising, A., Cleve, W. E., Meredith, J. T., Vaughan-Batten, H., Deyneka, L., & Devlin, R. B. (2011). Peat Bog Wildfire Smoke Exposure in Rural North Carolina Is Associated with Cardiopulmonary Emergency Department Visits Assessed through Syndromic Surveillance. *Environmental Health Perspectives*, *119*(10), 1415-1420. https://doi.org/10.1289/ehp.1003206

[7] Webster, P. (2023). Wildfires prompt calls for better public health preparedness. *The Lancet*, *401*. https://doi.org/10.1016/s0140-6736(23)01235-7

[8] ABC-11 Eyewitness News. (2023, July 18, 2023). *Wildfire smoke causes Code Orange Air Quality Alert for much of North Carolina on Tuesday*.

[9] Harvard Chan C-CHANGE. (2023). *Wildfires and Health*. Americares. https://www.americares.org/wp-content/uploads/PROVIDER.Wildfires_and_Health_2023Final.pdf

[10] Cascio, W. E. (2018). Wildland fire smoke and human health. *The Science of the total environment*, *624*, 586-595. https://doi.org/10.1016/j.scitotenv.2017.12.086

[11] Wettstein, Z. S., Hoshiko, S., Fahimi, J., Harrison, R. J., Cascio, W. E., & Rappold, A. G. (2018). Cardiovascular and Cerebrovascular Emergency Department Visits Associated With Wildfire Smoke Exposure in California in 2015. *Journal of the American Heart Association*, *7*. https://doi.org/10.1161/JAHA.117.007492

[12] Aguilera, R., Corringham, T., Gershunov, A., & Benmarhnia, T. (2021). Wildfire smoke impacts respiratory health more than fine particles from other sources: observational evidence from Southern California. *Nature Communications*, *12*. https://www.nature.com/articles/s41467-021-21708-0

[13] Stone S, S. J., Lahm P, Clune A, Wayland M, Mirabelli M,. (2019). *Wildfire Smoke Guide for Public Health Officials*. https://www.airnow.gov/publications/wildfire-smoke-guide/wildfire-smoke-a-guide-for-public-health-officials/

[14] Bryant RA, G. L., Gallagher HC, Pattison P, Lusher D, MacDougall C, et al.,. (2018). Longitudinal study of changing psychological outcomes following the Victorian Black Saturday bushfires. *Australian & New Zealand Journal of Psychiatry*, *52*(6), 542-551. https://doi.org/10.1177/0004867417714337

[15] Psarros, C., Theleritis, C., Economou, M., Tzavara, C., Kioulos, K. T., Mantonakis, L., Soldatos, C. R., & Bergiannaki, J.-D. (2017). Insomnia and PTSD one month after wildfires: evidence for an independent

role of the "fear of imminent death". *International journal of psychiatry in clinical practice*, *21*(2), 137-141. https://doi.org/10.1080/13651501.2016.1276192

[16] The North Carolina Forest Service. (2020). *2020 North Carolina Forest Action Plan*. https://www.ncforestactionplan.com/PDF/2020/FINAL-NC2020FAP.pdf

[17] Taylor, S. (2023). *UPDATE: Some NC Counties Forecasted to have Code Orange Air Quality on Friday* https://www.deq.nc.gov/news/press-releases/2023/06/08/update-some-nc-counties-forecasted-have-code-orange-air-quality-friday

[18] Taylor, S. (2023). *Unhealthy Air Quality Possible in NC This Week Due to Canadian Wildfires* https://www.deq.nc.gov/news/press-releases/2023/06/28/unhealthy-air-quality-possible-nc-week-due-canadian-wildfires

[19] Taylor, S. (2023). *Unhealthy Air Possible in NC This Week Due to Canadian Wildfires* https://www.deq.nc.gov/news/press-releases/2023/07/17/unhealthy-air-possible-nc-week-due-canadian-wildfires

[20] Davis, C., Tardif, E., & Kreuser, S. (2023). Rapid Reaction: Smoky Skies Create Unhealthy Air Quality. *Air Quality Blog*. https://airquality.climate.ncsu.edu/2023/06/13/rapid-reaction-smoky-skies-create-unhealthy-air-quality/

[21] U.S. EPA AirData. (2023). *Air Data - AQI Plot*. https://www.epa.gov/outdoor-air-quality-data/air-data-aqi-plot

[22] Reid, C. E., Brauer, M., Johnston, F. H., Jerrett, M., Balmes, J. R., & Elliott, C. T. (2016). Critical Review of Health Impacts of Wildfire Smoke Exposure. *Environmental Health Perspectives*, *124*(9), 1334-1343. https://doi.org/10.1289/ehp.1409277

[23] Rappold, A. G., Cascio, W. E., Kilaru, V. J., Stone, S. L., Neas, L. M., Devlin, R. B., & Diaz-Sanchez, D. (2012). Cardio-respiratory outcomes associated with exposure to wildfire smoke are modified by measures of community health. *Environmental health : a global access science source*, *11*(71). https://doi.org/10.1186/1476-069X-11-71

[24] Nardone, A., Casey, J. A., Morello-Frosch, P. R., Mujahid, M., Balmes, P. J. R., & Thakur, N. (2020). Associations between historical residential redlining and current age-adjusted rates of emergency department visits due to asthma across eight cities in California: an ecological study. *The Lancet: Planetary Health*, *4*(1), E24-E31. https://doi.org/10.1016/S2542-5196(19)30241-4

[25] Brim, S. N., Rudd, R. A., Funk, R. H., & Callahan, D. B. (2008). Asthma prevalence among US children in underrepresented minority populations: American Indian/Alaska Native, Chinese, Filipino, and Asian Indian. *Pediatrics*, *122*(1), e217–e222. https://doi.org/10.1542/peds.2007-3825

[26] Centers for Disease Control and Prevention. (March 29, 2023). *Data, Statistics, and Surveillance*. https://www.cdc.gov/asthma/asthmadata.htm

[27] United States Environmental Protection Agency. (2009). *Integrated Science Assessment (ISA) for Particulate Matter: Final Report*. https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=216546

[28] United States Environmental Protection Agency. (June 26, 2023). https://www.epa.gov/wildfire-smoke-course/which-populations-experience-greater-risks-adverse-health-effects-resulting#children

[29] United States Environmental Protection Agency. (November 6, 2023). *Wildfire Smoke Air Monitoring Response Technology (WSMART) Pilot*. https://www.epa.gov/air-sensor-toolbox/wildfire-smoke-air-monitoring-response-technology-wsmart-pilot

[30] United States Environmental Protection Agency. (August 8, 2023). *Wildfires and Indoor Air Quality (IAQ)*. https://www.epa.gov/indoor-air-quality-iaq/wildfires-and-indoor-air-quality-iaq

[31] Americares. *The Climate Resilience for Frontline Clinics Toolkit*. https://www.americares.org/what-we-do/community-health/climate-resilient-health-clinics/#toolkit

[32] Urban Sustainability Directors Network. *Resilience Hubs*. http://resilience-hub.org/

Section 11.04 *Severe Storms and Precipitation*

Overview

Storms bringing rain, snow, and wind are expected to increase in frequency and severity in the Piedmont Region of North Carolina as climate change accelerates.[1] Warmer air in the atmosphere holds more water, leading to more rain, wind, snow, or hail.[2] Large amounts of rain over a short period of time can lead to flooding, an increase in disease-carrying mosquitoes, water contamination, and mental health issues due to stress.[3] High winds topple trees and powerlines disrupting energy and transportation systems, leading to cascading impacts on the health and medical, energy, and transportation sectors.[4]

The NC Climate Science Report defines extreme precipitation events as days on which three inches or more precipitation falls over an area.[5] Rainfall can have a few separate extreme values including duration and intensity that are also significant. For example, flash floods can be dangerous even though the duration of the rainstorm is relatively short. At times, lower amounts of rainfall can fall on a smaller area in very short durations and create an extreme event. At other times, rain can fall continuously over an area for a long period of time. Both can accumulate water at the surface at a rate higher than what the ground can absorb. Vulnerability to these events is determined by several factors including the severity of weather events themselves, the built environment, and social and economic determinants of health such as income level, health insurance, and access to reliable transportation. Durham County is experiencing extreme precipitation events more frequently than historical averages and that trend is projected to increase in the next 30 to 80 years.[6]

Flooding causes the most adverse public health outcomes stemming from all extreme precipitation events that Durham might experience, which include fast, heavy downpours or prolonged periods of sustained rain. Human factors influence the severity of flooding including damage to or structural failures of dams and levees, altered drainage, and land-use patterns. Urban areas have a lot of impervious surfaces, which are surfaces that do not allow rainwater to soak into the ground, such as roads, pavement, parking lots, and buildings. This increases stormwater runoff and sometimes overflows storm drains. Infrastructure issues including clogged culverts, improperly graded asphalt, blocked drainage, and inadequate capacity of stormwater pipe systems also contribute to flooding.[7]

Flooding is currently ranked as the second most deadly weather-related hazard in the United States.[8] One hundred and eighty-one people died in North Carolina due to floods between 1959 and 2019, making it the state with the twelfth most flooding fatalities in the US.[9] Fifteen percent of those fatalities occurred between 2005-2019. The major hazards posed by flooding are the immediate threats to persons through fast-moving water and the debris carried in it. Flooding, especially flash flooding, can create emergency situations with very little warning. These events are especially dangerous to people in low-lying areas or areas with a large percentage of impervious surface.[10]

There are lingering health hazards posed by flooding that can be felt for hours, days, or weeks after the event. Flooded roadways present dangers for drivers who can misjudge the depth of the water or be swept into deeper water, leading to the vehicle being submerged, causing injuries and drowning deaths.[11] Water flooding or seeping into households, basements, and crawl spaces causes fungal or mold growth, which can make existing respiratory health problems worse. Additional issues include long-lasting power, infrastructure, and communications outages which can lead to

people having a lack of access to edible food and potable water or access to emergency services and relief. Excess standing water can provide more habitat for the water-dwelling larvae of insects like mosquitoes that can be disease vectors for serious illness including Zika, malaria, and West Nile fever, especially as warmer temperatures extend the range for those diseases.[12] The release of pesticides, animal waste, and hazardous chemicals into water sources can harm people and wildlife.

Flooding also impacts mental health. People who live in floodplains and fear the dangers presented by flooding or who have witnessed death or destruction during a prior flooding event can suffer from mental anguish, trauma, anxiety, and depression.[13] Mental health is an important component of health and the effects of living through, witnessing, or fearing a potentially life-threatening hazard because of where one lives can impact other determinants of health.

In addition to extreme precipitation, severe storms may lead to trees falling and power outages. Two people were killed by falling trees due to high winds in Durham between 2013-2023.[14] Extended power outages can have several public health impacts for sensitive groups including people dependent on electrically powered medical equipment or temperature-sensitive pharmaceuticals, those more sensitive to extreme heat or extreme cold, people susceptible to foodborne illness due loss of refrigeration for temperature-sensitive foods, and people who use combustion appliances in unventilated areas where carbon monoxide can concentrate.[15]

Secondary Data

Durham is experiencing more extreme storms and precipitation events, including a 129% increase in heavy precipitation events in the period from 2005-2014 compared to 1950-1959.[16] Durham is the 36th highest ranking city in the U.S. for extreme precipitation events overall, and the city with the 12th largest increase in these events over that time.[17]

Days with 1+ inch rain in 24-Hours in Durham County, NC 1950-2100

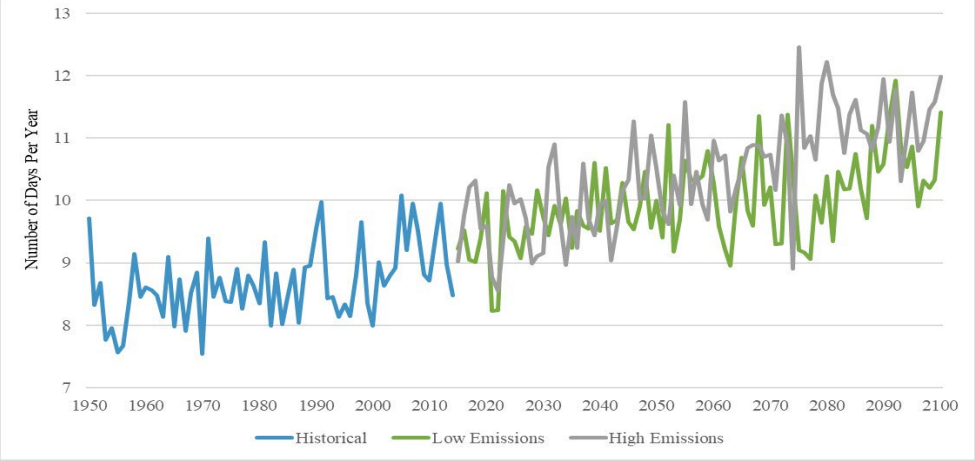


Figure 11.02(a) The number of days per year with 1" of precipitation or more over a 24-hour period for Durham County from 1950-2100.[18,19] The green and gray line show future projections based on scenarios in which humans reduce rates of greenhouse gas emission or continue to emit high levels of emissions, respectively.

Much of Durham County lies within floodplains or floodways and most census block groups are

ranked as "medium" or "high" risk for loss of access due to roads being either flooded or damaged during a high precipitation event.[20] The most affected areas were Braggtown, Southeast Durham, East Durham, Northeast Durham, and Southwestern Durham County. This affects public health by potentially making it harder for emergency responders to access the property and for residents to leave their homes to get food, supplies, and health care.

There are 112 dams in Durham County, of which 36 are listed as "High Hazard Dams" because a potential failure would likely cause loss of life and/or serious damage to structures and infrastructure.[21] Dam failures can cause flooding that is catastrophic and extremely hazardous downstream with fast-moving walls of water that can carry debris. The probability and severity of dam failure will increase with climate change.[22] Along with creating an immediate threat to human life, dam failures can also rapidly reduce or contaminate the potable drinking water supply in Durham County, creating a possible public health problem.[23]

Interpretations: Disparities, Gaps, and Emerging Issues

Impacts of extreme storm events are not evenly distributed throughout Durham County geographically or demographically. Rainfall varies across the County and local differences in topography, impervious surface coverage and the condition of stormwater infrastructure affect the impact of rain. Typically, areas with more pervious surfaces such as farms, parks, or other areas with unpaved soil or vegetation can absorb water that might otherwise cause a flooding event.

Approximately two percent (7,282 people) of Durham County residents live within a FEMA-designated flood hazard area.[24] Elderly people and children are more at-risk during flooding due to mobility issues and not understanding the risk associated with flooding. People living in poverty have fewer resources to mitigate flood risk and recover from flood damage or pay for health care associated with flood impacts.

Historical systematic racism has resulted in higher vulnerability to extreme precipitation events for certain populations in Durham. Eight historically redlined neighborhoods, clustered in the areas directly South, Southeast, and East of Downtown Durham have more risk of extreme precipitation events with lower than average tree coverage and higher than average impervious surface than the rest of Durham.[25] As in many Southern cities, formerly enslaved people were forced to settle in low-lying lands that frequently flooded and where mosquitoes were present because it was less expensive and considered undesirable by white landowners.[26] These neighborhoods, still predominantly lived in by people of color also have among the highest levels of poverty in the County. The average of 40.91% for people living in poverty in the eight census tracts is about 22% higher than Durham County's total average poverty level.[27] Along with being the most vulnerable to climate risk, the people living in these areas have the fewest resources available with which to combat the hazards from flooding or to recover after an event.

Recommended Strategies

- Conduct regional mapping assessment of stormwater conveyances and assess capacity.
- Create and implement green stormwater infrastructure programs and fee credit programs for stormwater retention.
- Expand education efforts to include citizen/community science efforts around local flooding such as NOAA Community Collaborative Rain, Hail, and Snow Network [28]
- Maintain and preserve upstream and urban forestry canopy and vegetation amounts in

areas where this has been neglected, including and especially formerly redlined neighborhoods.
- Establish Resilience Hubs in areas with high percentages of vulnerable populations to build physical and social resilience to extreme precipitation and storms.
- Develop and set standards for canopy percentage per neighborhood and for urban forestry levels.

Current Initiatives & Activities

City of Durham Stormwater Services
Provides services and public education to reduce the impacts of stormwater on people and the environment. https://durhamnc.gov/692/Stormwater-GIS-Services

Flood Inundation Mapping and Alert Network
Provides rain and stage gage data and flood alerts in real-time to support risk-based decisions. https://fiman.nc.gov/

Durham County Stormwater and Erosion Control Division
Provides services, enforces stormwater ordinances, and conducts public education on stormwater issues in the unincorporated areas of Durham County. https://www.dconc.gov/county-departments/departments-a-e/engineering-and-environmental-services/stormwater-and-erosion-control-division

References

[1] ncics.org [Internet]. North Carolina climate science report. Asheville (NC): North Carolina Institute for Climate Studies; c2010-2020 [cited 2024 Feb 5]. Available from: https://ncics.org/programs/nccsr/
[2] Climatesignals.org [Internet]. Atmospheric Moisture Increase. [cited 2024 Feb 9]. Available from: https://www.climatesignals.org/climate-signals/atmospheric-moisture-increase
[3] Du W, FitzGerald GJ, Clark M, & Hou XY. Health impacts of floods. Prehosp Disaster Med. 2010 May-Jun;25(3):265-72.
[4] Klinger C, Landeg O, & Murray V. Power Outages, Extreme Events and Health: a Systematic Review of the Literature from 2011-2012. PLoS Currents. 2014 Jan 2:6. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3879211/
[5] ncics.org [Internet]. North Carolina climate science report. Asheville (NC): North Carolina Institute for Climate Studies; c2010-2020 [cited 2024 Feb 5]. Available from: https://ncics.org/programs/nccsr/
[6] ncics.org [Internet]. North Carolina climate science report. Asheville (NC): North Carolina Institute for Climate Studies; c2010-2020 [cited 2024 Feb 5]. Available from: https://ncics.org/programs/nccsr/
[7] Hazard Mitigation Planning Committee (HMPC). Eno-Haw Regional Hazard Mitigation Plan [Internet]. Eno-Haw (NC); c2020 [cited 2024 Feb 5]. Available from: orangecountync.gov/DocumentCenter/View/19321/Eno-Haw-Final-Hazard-Mitigation-Plan-PDF
[8] NOAA.gov [Internet]. Weather Related Fatality and Injury Statistics 2022. [cited 2024 Feb 5] Available from: https://www.weather.gov/hazstat/
[9] Han Z., & Sharif H. O. (2021). Analysis of Flood Fatalities in the United States, 1959–2019. *Water*, *13*(13), 1871. Available from: https://doi.org/10.3390/w13131871
[10] Eros.usgs.gov [Internet]. Impervious Surface. [cited 2024 Feb 5]. Available from: https://eros.usgs.gov/earthshots/impervious-surface-0#:~:text=On%20these%20surfaces%2C%20rainfall%20does,more%20vulnerable%20to%20flash%20floods
[11] Kellar D. M. M., & Schmidlin, T. W. (2012). Vehicle-related flood deaths in the United States, 1995–2005. Journal of flood risk management, 5(2), 153-163.
[12] Lowe D, Ebi KL, Forsberg B. Factors increasing vulnerability to health effects before, during and after floods [Internet]. Int J Environ Res Public Health. 2013 Dec 11 [cited 2024 Feb 5];10(12):7015-67. doi: 10.3390/ijerph10127015. PMID: 24336027; PMCID: PMC3881153. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3881153/
[13] Lowe D, Ebi KL, Forsberg B. Factors increasing vulnerability to health effects before, during and after floods [Internet]. Int J Environ Res Public Health. 2013 Dec 11 [cited 2024 Feb 5];10(12):7015-67. doi: 10.3390/ijerph10127015. PMID: 24336027; PMCID: PMC3881153. Available from: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3881153/
[14] NCEO. (n.d.). [Internet] *Storm Events Database | National Centers for Environmental Information*. [cited 2024 Feb 5] Available from: https://www.ncdc.noaa.gov/stormevents/
[15] Dugan J, Byles D, Mohagheghi S. Social vulnerability to long-duration power outages [Internet]. International Journal of Disaster Risk Reduction. 2023 Feb 1 [cited 2024 Feb 5]. Available from: https://www.sciencedirect.com/science/article/pii/S2212420922007208#abs0010
[16] climatecentral.org [Internet]. Across U.S., heaviest downpours on the rise. Princeton (NJ): Climate Central; 2015 May 27 [cited 2024 Feb 5]. Available from: https://www.climatecentral.org/news/across-us-heaviest-downpours-on-the-rise-18989
[17] climatecentral.org [Internet]. Across U.S., heaviest downpours on the rise. Princeton (NJ): Climate Central; 2015 May 27 [cited 2024 Feb 5]. Available from: https://www.climatecentral.org/news/across-us-heaviest-downpours-on-the-rise-18989
[18] loca.ucsd.edu [Internet]. LOCA Statistical Downscaling (Localized Constructed Analogs); c2023 [cited 2023 Oct 04]. Available from: https://loca.ucsd.edu/
[19] Coupled Model Intercomaprison Project [Internet]. WCRP Model Intercomparison Projects; c2023 [cited

2023 Oct 04]. Available from: https://wcrp-cmip.org/model-intercomparison-projects-mips/

[20] Triangle Regional Resilience Assessment [Internet]. Durham (NC): Triangle J Council of Governments (TJCOG); c2018 [cited 2024 Feb 5]. Available from:
https://www.centralpinesnc.gov/sites/default/files/uploads/trrp_report_technicalreport_102418.pdf

[21] Smith, J. (2020, October 12). North Carolina Dam Inventory. NC Department of Environmental Quality Online GIS. https://data-ncdenr.opendata.arcgis.com/datasets/4ef4238790214334bd9261bcfa0e724a/explore

[22] Hazard Mitigation Planning Committee (HMPC). Eno-Haw Regional Hazard Mitigation Plan [Internet]. Eno-Haw (NC); c2020 [cited 2024 Feb 5]. Available from:
orangecountync.gov/DocumentCenter/View/19321/Eno-Haw-Final-Hazard-Mitigation-Plan-PDF

[23] Hazard Mitigation Planning Committee (HMPC). Eno-Haw Regional Hazard Mitigation Plan [Internet]. Eno-Haw (NC); c2020 [cited 2024 Feb 5]. Available from:
orangecountync.gov/DocumentCenter/View/19321/Eno-Haw-Final-Hazard-Mitigation-Plan-PDF

[24] National Environmental Public Health Tracking Network. (n.d.-b). [Internet] Centers for Disease Control and Prevention. [cited 2023 Oct 20] Available from: https://ephtracking.cdc.gov/

[25] DataWorks NC with Research Action Design [Internet]. Durham (NC): Durham Neighborhood Compass; c2020 [cited 2023 Oct 10]. Available from: https://compass.durhamnc.gov/en

[26] Anderson JB. Durham County: a history of Durham County, North Carolina. 2nd ed., rev expanded. Durham (NC): Duke University Press; 2011. 596 p.

[27] DataWorks NC with Research Action Design [Internet]. Durham (NC): Durham Neighborhood Compass; c2020 [cited 2024 Feb 5]. Available from: https://compass.durhamnc.gov/en

[28] https://www.cocorahs.org/

Section 11.05 *Public Health Emergency Preparedness*

Overview

Public health emergency preparedness focuses on the ability of public health agencies to plan for, respond to, and recover from emergencies that pose a risk to the health of the public. This is accomplished through planning, training, and exercising with other response partners and when an incident occurs, implementing the plan.

The Centers for Disease Control and Prevention (CDC) has "implemented a systematic process to assist state and local health departments with strategic planning by defining a set of public health preparedness capabilities. The resulting body of work, *Public Health Preparedness Capabilities: National Standards for State and Local Planning*, hereafter referred to as public health preparedness capabilities, creates national standards for public health preparedness capability-based planning and will assist state and local planners in identifying gaps in preparedness, determining the specific jurisdictional priorities, and developing plans for building and sustaining capabilities. These standards are designed to accelerate state and local preparedness planning, provide guidance and recommendations for preparedness planning, and, ultimately, assure safer, more resilient, and better prepared communities."[1] The fifteen Public Health Emergency Preparedness Capabilities are defined in *Public Health Preparedness Capabilities: National Standards for State and Local Planning*:[1]

1. Community Preparedness
2. Community Recovery
3. Emergency Operation Coordination
4. Emergency Public Information and Warning
5. Fatality Management
6. Information Sharing
7. Mass Care
8. Medical Countermeasure Dispensing and Administration
9. Medical Material Management and Distribution
10. Medical Surge
11. Nonpharmaceutical Interventions
12. Public Health Laboratory Testing
13. Public Health Surveillance and Epidemiological Investigation
14. Responder Safety and Health
15. Volunteer Management

COVID-19 Response

The Durham County multiagency response to COVID-19 has involved nearly all of the fifteen Public Health Emergency Preparedness Capabilities listed above. COVID-19 surveillance officially began at the Durham County Department of Public Health (DCoDPH) on January 27, 2020. On February 25, 2020, the DCoDPH incident management team was activated to respond to the COVID-19 threat. Durham County's first case of COVID-19 occurred on March 12, 2020. On March 16, 2020, Durham County Emergency Management Division (DCEM) activated the Durham County Emergency Operations Center inside the Health and Human Services Building to coordinate the growing response to COVID-19. In addition to reducing COVID-19 transmission by surveillance, contact tracing, testing, and screening, DCoDPH and DCEM also planned, coordinated, and performed many activities related to the COVID-19 response. These activities included:

- Supporting community efforts to meet food security and housing needs of vulnerable populations related to COVID-19
- Infection control and outbreak response to COVID-19 outbreaks within long-term care facilities and other congregate settings
- Facilitating, supporting, and providing guidance to the City and County reopening task forces
- Anticipating and planning for short- and long-term operational needs for the COVID-19 response
- Understanding and distributing COVID-19 specific guidance to staff, stakeholders, and the public.

Durham County's public health response to COVID-19 has been multifaceted, emphasizing surveillance and testing. During the acute phase of the response, DCoDPH strived to reach every COVID-positive resident of Durham County, collecting data on their contacts, travel, and employment, and assisting with isolation or quarantine needs. In 2020, Duke Health augmented contact tracing efforts, and DCoDPH partnered with state health services to boost staffing for these critical tasks. Specialized teams were also formed to handle outbreaks in high-risk settings like long-term care facilities.

Testing efforts were critical, with DCoDPH setting up community-based sites, particularly in hard-hit areas, to streamline testing accessibility. They tackled the heightened vulnerability of the unhoused to COVID-19 by implementing non-congregate sheltering and targeted testing strategies.

To inform the public, DCoDPH collaborated with Duke Health and DataWorksNC to launch the Durham County Coronavirus Data Hub, providing detailed, transparent data on local COVID-19 impacts. Continuous communication was maintained across various platforms, including social media and emergency alert systems, ensuring messages reached a broad audience and addressed the needs of communities of color disproportionately affected by the pandemic.

Food security was a significant concern, addressed through direct assistance and partnerships with local organizations to deliver food and supplies to those in isolation. In late 2020, the FDA's emergency use authorization of Pfizer and Moderna vaccines marked a turning point. Despite hesitancy due to the rapid development, DCoDPH was poised to tackle the logistical and operational hurdles of vaccination. By early 2021, in collaboration with Duke Health and Durham Public Schools, DCoDPH established a vaccination site focused on reaching marginalized populations, demonstrating a commitment to equitable health outcomes.

DCoDPH's diligence continued into the administration of updated boosters for the Delta and Omicron variants of COVID-19, following CDC approval in September 2022 and 2023, respectively.[2; 3] As of May 6, 2023, the final COVID case count from NC DHHS reported an estimated 104,443 laboratory-confirmed cases and 421 fatalities in Durham County.[4]

Primary Data

Evacuation and sheltering

“If you couldn’t remain in your home, where would you go in a community-wide emergency?”

In the Durham County County-wide Community Health Assessment Survey, participants most frequently responded that they would stay with a relative or friend if they had to evacuate (62.3%), followed by respondents who did not know (15.6%).[5] Emergency shelters were the choice of 12% of respondents. In the Comunidad Latina survey, 32.4% of respondents stated they would stay with a relative or friend, with 23.9% reporting that they would go to a disaster shelter.[6] About 23% of Comunidad Latina respondents were unsure of where they would go if they could not remain in their home.

Where would you go in a community-wide disaster, Durham County, 2022

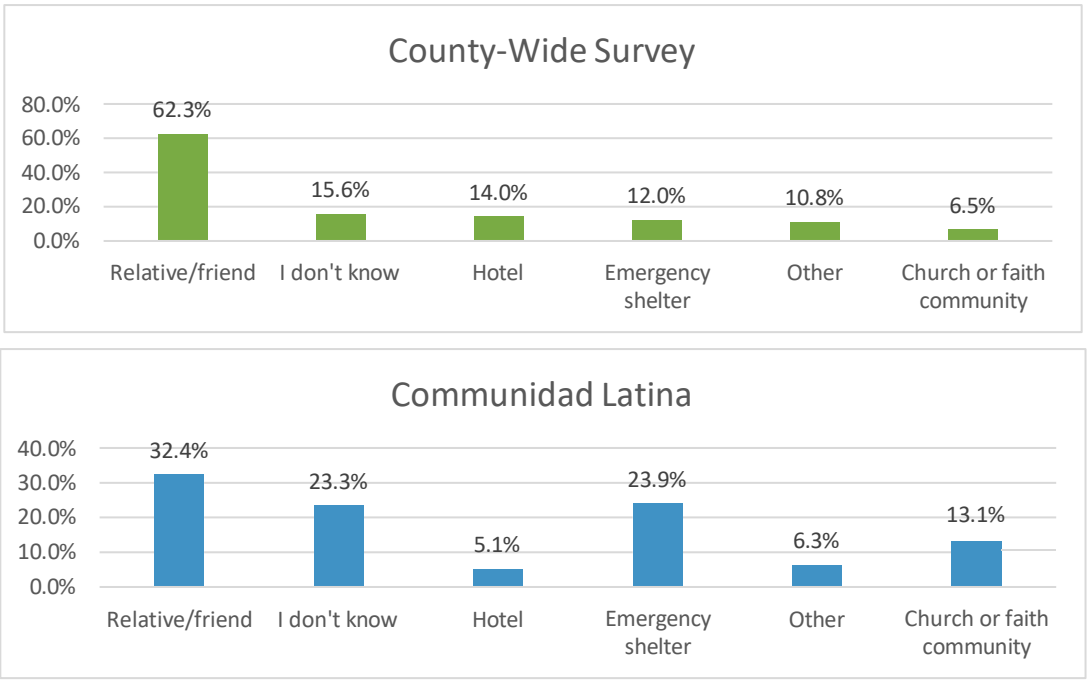


Figure 13.01(a): Where Would You Go in a Community-wide Emergency? County-wide and Comunidad Latina Sample Results, Durham County, 2022[5; 6]

"What would be the main reasons you might not evacuate or leave your home if asked to do so?"

Participants most often responded that they would leave if asked to do so (37.5%).[5] Other participants state that that they would not evacuate because of concern about leaving pets (19.9%), followed by concern about leaving property behind (10.7%) and concerns about personal or family safety (10.2%). In the Comunidad Latina survey, most people said they would leave if asked to evacuate (61.4%), with concern for property (11.4%) being the second most frequent response.[6]

Three-Day Emergency Kit and Plan

"Does your family have a basic three-day emergency supply kit and plan?"

Most participants responded that they have a three-day emergency response kit (55.5%).[5] Among whites, those that have or do not have a three-day emergency supply kit and plan are evenly split (50.0% each). People identifying as Black or African Americans respondents or "other" were more likely to report that they have an emergency supply kit (58.5% vs. 41.7%; 62.5% vs. 37.5%).

Sources of Emergency Information

"What would be your top two sources of information in a community disaster?"

The most reported first source of information in a community-wide disaster was friends, family, or word of mouth (27.6%) followed by TV (24.9%).[5] The most common second source of information during a community-wide disaster was internet or online news (44.5%) followed by TV (14%). Those that said 'other' mentioned the county website and those who answered social media mentioned Facebook, Twitter, Instagram, Reddit, and TikTok.

Top two choices for information about a community-wide disaster, Durham County, 2022

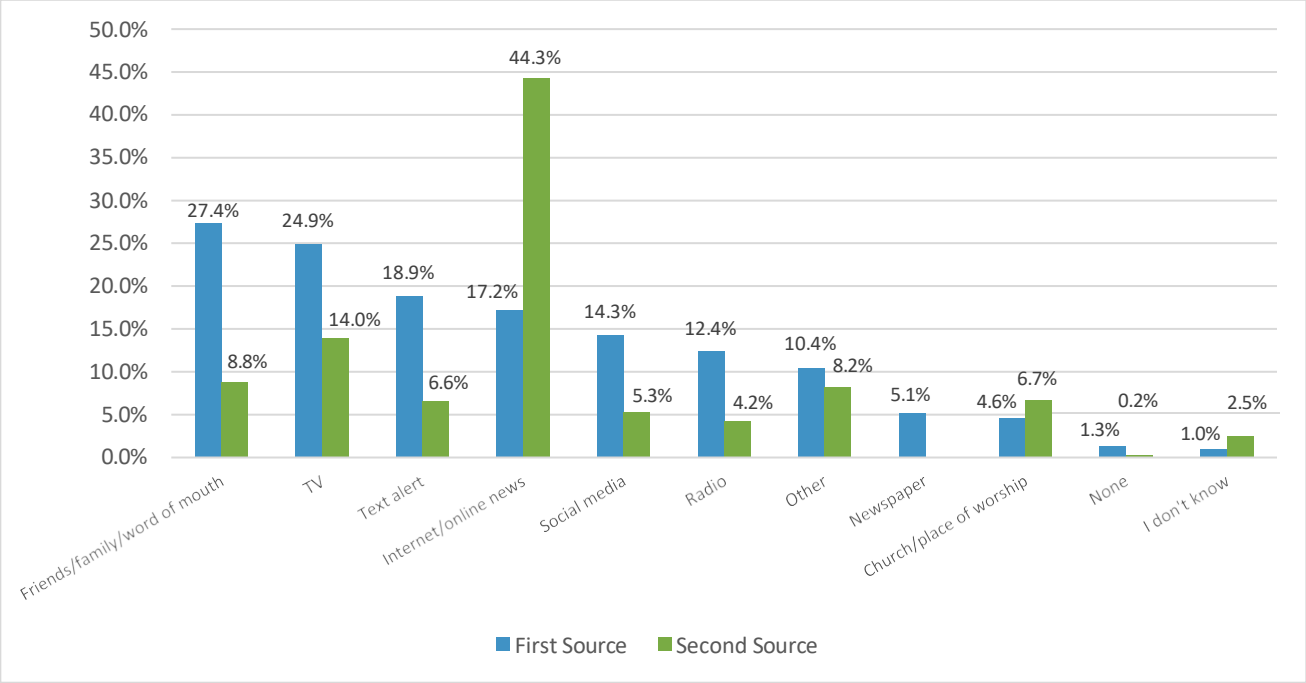


Figure 13.01(b): What would be your top two sources of information in a community-wide disaster? County-Wide Result, Durham County, 2022[5]

"Are you signed up for Alert Durham?"

Most participants were not signed up for AlertDurham (56.2%).[5] About one-third (32.9%) of respondents reported that they were signed up for AlertDurham (32.9%). AlertDurham usage did not vary significantly between races.

Interpretations: Disparities, Gaps, Emerging Issues

Examination of the 2022 Community Health Assessment Survey responses identified gaps related to community preparedness. As a frequent destination for respondents in both the county-wide and

Comunidad Latina survey, activating and operating emergency shelters are critical functions in Durham County's response to county-wide emergencies. Shelter planning, coordination and support fall under the CDC's Public Health Emergency Preparedness and Response mass care capability. The potential gaps identified fall into two broad categories: shelter capacity and shelter avoidance.

Shelter Capacity

A sizeable portion of respondents in both the county-wide and Comunidad Latina surveys stated that they would utilize an emergency shelter if a community-wide emergency forced them to leave their home (12% and 23.9%, respectively).[5; 6]

Shelter Avoidance

Reasons frequently given by respondents for not using an emergency shelter included concern about pets, perception about the seriousness of the situation, uncertainty about where to go, and concerns about personal or family safety. One critical emerging issue related to sheltering must be recognized, which is the ongoing COVID-19 pandemic. The COVID-19 pandemic is an issue that has required federal, state, local, and non-governmental organizations involved in emergency sheltering to implement control measures that can protect shelter residents from COVID-19. Sheltering during a surge in COVID-19 cases will pose additional challenges to shelter operations.

Recommended Strategies

- **Shelter Capacity** With a sizeable portion of respondents in both the county-wide and Comunidad Latina surveys stating that they would utilize an emergency shelter (12% and 23.3%, respectively), agencies involved with Durham County Mass Care planning, coordination and operations (e.g. Durham County Emergency Management, Durham County Department of Social Services (DSS), Durham County Department of Public Health, etc.) must incorporate high rates of shelter utilization into mass care planning and execution.[5; 6] Shelter planning and operation must also incorporate non-English language messaging to ensure the County meet the needs of the 8.7% of Durham residents who speak English less than "very well".[7] Current shelter plans incorporate translation services to serve the needs of non-English speakers, but it is critical that language does not become a barrier to shelter utilization.
- **Shelter Avoidance** Residents reported concern about their pets, perception about the seriousness of the situation, uncertainty about where to go and concerns about personal or family safety. These concerns highlight the importance of routine and crisis communications regarding emergency sheltering. Current sheltering plans make provisions for shelter users who arrive with pets, and law enforcement is provided at all shelters to ensure the safety of shelter residents. Communicating this information to residents would serve them well in a time of emergency. Timely and accurate communications will also be necessary to inform residents of the risks and challenges of any emergency situation and of steps that can reduce those risks, including using an emergency shelter.
- **Equity** Shelter planning, and emergency planning in general, must be developed to address inequities in vulnerable or historically marginalized populations. Future planning efforts should focus on how DCoDPH can best serve all Durham residents, using strategies such as trusted community communicators, inclusive planning groups, etc. Adding additional

preparedness questions to future community health assessments will aid DCoDPH in identifying and addressing inequalities preparedness and gaps in planning.

Current Initiatives & Activities

Durham County Department of Public Health The Durham County Department of Public Health has a full-time Public Health Preparedness Coordinator who develops Durham County Department of Public Health's plans for responding to public health needs after natural and man- made disasters, communicable disease outbreaks and any other event that requires public health preparedness capabilities. The Preparedness Coordinator also works to provide training and exercises, as well as outreach activities, for Durham County Department of Public Health, local community partners and community groups, and participates in the Durham County Local Emergency Planning Committee and the Duke Healthcare Preparedness Coalition. More information is available at https://www.dcopublichealth.org/services/environmental-health/public-health-preparedness

References

[1] Centers for Disease Control and Prevention Center for Preparedness and Response. (2019). *Public Health Emergency Preparedness and Response Capabilities*.
https://www.cdc.gov/orr/readiness/00_docs/CDC_PreparednesResponseCapabilities_October2018_Final_

[2] Centers for Disease Control and Prevention. (2022). *CDC Recommends the First Updated COVID-19 Booster* https://www.cdc.gov/media/releases/2022/s0901-covid-19-booster.html

[3] Centers for Disease Control and Prevention. (2023). *CDC Recommends Updated COVID-19 Vaccine for Fall/Winter Virus Season* https://www.cdc.gov/media/releases/2023/p0912-COVID-19-Vaccine.html

[4] NC Department of Health and Human Services. (2023). *Data Behind the Dashboards: County Cases and Deaths*. https://covid19.ncdhhs.gov/dashboard/data-behind-dashboards

[5] Durham County Department of Public Health. (2022). *Durham County Community Health Assessment County-Wide Data Dashboard: Data Trends from 2010-2022*
https://app.powerbigov.us/view?r=eyJrIjoiMjEwMjNjZDgtNzg5Zi00YjRmLThhMGItZTMzOThjMGJlOTE2IiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9

[6] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023*.
https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9

[7] U.S. Census Bureau. (2021). *2014-2018 American Community Survey, 5-Year Estimates*. https://www.census.gov/library/visualizations/interactive/people-that-speak-english-less-than-very-well.html

Chapter 12

Environmental Justice

Photo Courtesy of Discover Durham

This chapter includes:

- Water Access and Pollution
- Land Access, Gentrification, and Displacement

Introduction

Durham County is the second municipality in the state of North Carolina to include Environmental Justice as a stand-alone chapter in its Community Health Assessment (CHA). Including this chapter in the CHA highlights the significance of environmental justice and can be used as a resource for accessing local data, resources, and providing recommendations to equitably improve environmental health in Durham. During interviews conducted for this section, Alexis Lucky, Executive Director of Toxic Free NC said, "I also want to celebrate that this chapter is being included in the report this year because…the through line of environmental justice needs to be front and center, recognized, and spelled out."[1]

The Environmental Protection Agency defines environmental justice as "the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies".[2] The environmental justice framework focuses on root causes of environmental harms such as racism and discrimination, food apartheid, land tenure, and poverty. Environmental justice is an intersectional movement led by Black, Indigenous, People of Color (BIPOC) and disinvested communities.[3]

Section 12.01 *Water Access and Pollution*

Overview

Access to clean water and sanitation is a basic human right.[4] In Durham County not all inhabitants benefit from municipal water services. Approximately 20-25% of North Carolina residents (over two million individuals), rely on household or community wells for their water supply.[5] The regulatory oversight for wells requires improvements, with neither consistent regulation nor mandatory universal testing in place.[6] This can make water sources more vulnerable to contamination, especially from industrial pollutants seeping into the groundwater.[6]

The issue of water safety is further complicated by socioeconomic and racial disparities. Well testing, a critical measure for ensuring water quality, is less prevalent in communities characterized by lower income levels and higher populations of BIPOC individuals.[7-9] In addition, industrial pollution affects the environmental injustices they face.[10] This situation presents an urgent need for equitable water access and more rigorous environmental protections to safeguard the health and well-being of all Durham County residents.

Lived Experience

Bonita Green, Executive Director of the Merrick-Moore Community Development Association, conducted interviews about toxins and air quality in Durham. Green interviewed Jason Bzdula, the owner of Wolfberry Hawthorn Farm on Ferrel Road in Northeast Durham, and Alexis Lucky, Executive Director with Toxic Free North Carolina. Green gained insight into the environmental issues that are impacting farming as well as environmental toxins that persist in Durham County.

As of 2020, Wolfberry Hawthorn Farms is a Certified Naturally Grown (CNG) farm. This means the farming process includes no synthetic chemical pesticides, fungicides, or fertilizers.[11] Conserving water, rotating crops, and protecting pollinator habitats are all ecological practices

implemented in CNGs. This farm specializes in produce not widely grown in the area. On the farm's website, Bdzudla states, "The farm has been a one person operation since the beginning…[In] 2023, I was finally able to hire someone part time to run one of the farmers market booths and to work a few hours a week on the farm…Making a difference in my community and helping to promote small scale local farming, growing your own food and growing native plants instead of lawns is my goal."[11] Wolfberry Hawthorn Farm's produce can be found at South Durham's Farmers Market and on Tuesdays at the Chapel Hill Farmers Market from April to October.

When speaking with Bzdula, the impacts of clearing and grading surrounding his farm to build a new housing development were discussed. Bzdula reflects on his experience stating that one of the most significant changes he saw on his farm is the displacement of entire ecosystems that thrived in the forest near his farm. "Animals are being displaced, and they have to go somewhere. [It] takes months for that to balance out, and [the animals] end up here...I started having major deer issues, and they began jumping fences they had never tried to jump before. I lost a few crops and had to invest…in additional fencing to raise fencing even higher to ensure they couldn't jump it." In addition to wildlife displacement, Bzdula explained the impacts the blasting has had on his well water; another example of a barrier for those that can't rely on municipal water. "When they first cleared [the land], it impacted the groundwater as far as the house's sediment filter, which should have lasted eight years. I've had to replace the filters seven times after they cleared that."

Lucky also commented on water quality and discussed the importance of lead monitoring in water systems. "There has been inequity in the ability to address [lead] at the home level. I will be more likely to experience…health disparities due to those resource disparities…" Lucky goes on to discuss air pollution which she states is the result of cars, commercial businesses, local industries, and more development.

These interviews helped highlight the importance of environmental justice as it affects nearly everything we use daily, farms to grow food, air quality and water quality.

Secondary Data

Durham's drinking water comes from four sources, Lake Michie, Little River Reservoirs, Jordan Lake, and Teer Quarry.[12] Durham has two city treatment plants, Williams and Brown, that utilize gravity flow and electric power.[12] In 2022, these plants provided 29 million gallons a day of water to over 321,000 Durham residents.[12]

The Environmental Working Group (EWG), who conducts independent unbiased sampling of tap water throughout the United States, has taken samples in Durham for over six years. During this time, Durham has exceeded the national recommendation in each of its contamination tests for PFAS by a magnitude of 6x.[13] PFAS compounds are a class of non-stick, waterproof, stain-resistant compounds used in consumer products and industry. Best known are PFOA, formerly used to make DuPont's Teflon, and PFOS, formerly in 3M's Scotchgard. Very low exposure to some PFAS chemicals has been linked to cancer, thyroid disease, weakened childhood immunity and many other health problems.[13] Of the nine contaminants tested exclusively by the EWG group, Durham's tap water exceeded all of the EWG Health Guidelines ranging from a magnitude of 4x to 540x.[13] All of these contaminants are linked to higher risk of cancer and are incredibly difficult to remove from the groundwater. The EPA uses the Unregulated Contaminant Monitoring Rule

(UCMR) to collect data for contaminants that are suspected to be present in drinking water and do not have regulatory standards set under the Safe Drinking Water Act (SDWA).[14] The UCMR provides data on 29 different PFAS and lithium. Data points last updated January 11, 2024 show that Durham exceeds the contamination requirements for PFOS for seven of the eight tests.[14] PFOS is one of the most severe chemical compounds in the PFAS family, however, it is decreasing in concentrations over time with a half-life of around four years.[14] However, PFOS exposure has been demonstrated as early as fetal development during pregnancy since PFOS can easily pass through the placenta. Fetal exposure to PFOS is quite prevalent and has been detected in greater than 99% of umbilical cord serum samples. Investigation continues on the health effects of PFOS on the reproductive, developmental, liver, kidney, thyroid, and immunological effects in humans.[15; 16]

The following map illustrates the extent of water and sewer lines throughout Durham County. Black, Indigenous, and People of Color (BIPOC) communities often face barriers to clean and safe water.

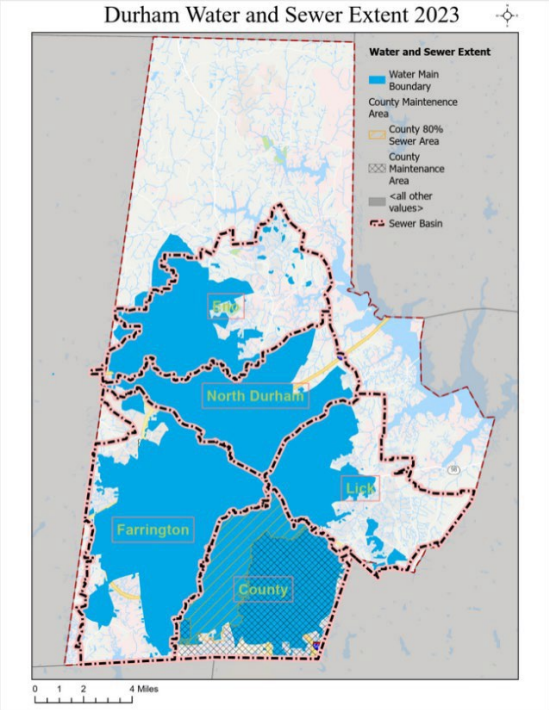


Figure 12.01a: The extent of water and sewer lines throughout Durham County.[17]

Interpretations: Disparities, Gaps, Emerging Issues

Durham's groundwater has been affected by the presence of Per-and polyfluoroalkyl substances (PFAs), widely recognized as "forever chemicals," alongside various other substances linked to potential carcinogenic, or cancer causing, effects.[18-20] The challenge with these contaminants is their resilience against existing water purification technologies. Complicating the situation, urban development and gentrification are intensifying the inequitable distribution of clean water. Residents living in proximity to construction sites are encountering well failures attributed to the impacts of nearby construction activities.[21] Additionally, while new housing developments are being equipped with municipal water connections, residents in pre-existing homes are left to

depend on their current water sources or bear the financial burden of connecting to the municipal system.[22]

Lucky describes the inequities seen in some neighborhoods in Durham. "[Pollutants] will often be cited in historically red lined areas...A history of redlining that is playing out even in environmental racism today, and so in the past few months, what that looks like in this news about the problem with Lead and Durham City Parks." Lucky goes on to state, "More commercial polluters [are] in communities where they may not have as many trees or as many parks…Communities of color, historically red-lined communities, low-income communities [are most at risk]."

Lucky is referring to the lead exposures in Durham County parks that was discovered in 2023.[23] All three parks where the higher-than-normal lead contamination was found were previously locations for city waste incinerators, which according to Lucky "…were built in historically Black or African American neighborhoods or low-income neighborhoods." A concerned Durham County resident went on record stating, "The park was our sanctuary, I mean, we all came here, and we played here every day. Every day. And like I said, who knows what the levels were then?" This prompted an investigation into the lead levels in the parks and the Durham County Department of Public Health began offering lead testing for children.

Communities of color and low-income areas often contend with inadequate water infrastructure, leading to a higher incidence of contamination and water loss. Such communities are disproportionately burdened by the proximity of polluting industries and inadequate waste management facilities, exposing them to a range of pollutants including heavy metals, nitrates, and emerging contaminants like PFAs. Climate change further intensifies these issues, bringing about more extreme weather events that affect water quality and availability, particularly in vulnerable communities. Additionally, the legal and regulatory frameworks lag in addressing the cumulative impacts of pollution, often leaving marginalized communities inadequately protected.

The consequences of water pollution and inequitable access extend beyond environmental degradation, profoundly impacting public health and economic stability in affected communities. Residents in areas with compromised water sources face increased risks of waterborne diseases and long-term health conditions, while also bearing the economic burdens of water treatment and property devaluation. Moreover, challenges in community engagement and representation hinder the ability of these communities to influence water management decisions. Addressing these multifaceted issues requires a holistic approach, integrating robust regulatory measures, scientific research, community-driven solutions, and inclusive policies to ensure that the right to clean water is upheld for all, marking a critical step towards achieving true environmental justice.

Water pollution further complicates the issue of water access. Industrial activities, inadequate waste management, and agricultural runoff occur near or within these BIPOC communities, leading to the contamination of their water sources. The exposure to pollutants not only affects the physical health of these communities, manifesting in higher rates of waterborne diseases, but also perpetuates a cycle of socio-economic disadvantages. Limited access to clean water hinders various aspects of daily life, affecting everything from personal hygiene and public health to economic opportunities and educational attainment.

Recommended Strategies

Addressing water pollution at the local level, particularly from an environmental justice perspective, requires a comprehensive, community-centered approach. Here are some recommended strategies:

1. Community Engagement and Education: Involve the local community, especially those disproportionately affected by water pollution, in decision-making processes. Provide education on water pollution, its health impacts, and ways to mitigate it. Encourage community-led initiatives and provide platforms for residents to voice their concerns and suggestions.

2. Enhanced Monitoring and Regulation: Implement stricter regulations on industries and agricultural operations to control the discharge of pollutants into water bodies. Ensure regular monitoring of water quality, particularly in vulnerable communities that rely on this water as drinking water. Publicize water quality data regularly to maintain transparency and accountability.

3. Infrastructure Investment: Invest in upgrading water treatment facilities with advanced technologies capable of removing modern contaminants like PFAs. Ensure that infrastructure development is equitable and does not disproportionately burden marginalized communities.

4. Polluter Pays Principle: Enforce the principle whereby polluters are held financially responsible for the pollution they cause. This can fund the cleanup and provide resources for affected communities.

5. Equitable Water Pricing: Implement water pricing strategies that ensure affordability for all, possibly through tiered pricing structures, so that lower-income households can access clean water without financial strain.

6. Green Infrastructure Development: Promote the development of green infrastructure, such as rain gardens, permeable pavements, and green roofs, to reduce runoff and naturally filter pollutants from water before it enters the watershed.

7. Local Well Testing Programs: Establish local programs for regular testing of wells, particularly in underserved communities. Provide resources for well maintenance and contamination mitigation.

8. Community Health Programs: Develop health programs to monitor and address health issues arising from water pollution, ensuring that affected communities have access to necessary healthcare services.

9. Promote Conservation and Pollution Prevention: Encourage water conservation and pollution prevention practices among residents and industries through incentives, education, and community programs.

10. Intersectoral Collaboration: Foster collaboration between various sectors - government, industry, NGOs, healthcare, and education - to address water pollution comprehensively and inclusively.

Current Initiatives and Activities

North Carolina Environmental Justice Network
NCEJN recently held a rally and environmental justice tour in West Badin to speak out against toxic exposure from Alcoa aluminum. Additionally, NCEJN holds an annual environmental justice summit to gather local advocates together for knowledge and resource sharing.

Walltown Community Association
A community-based organization focused on preserving history, building, and empowering residents of the Walltown Community. https://www.walltown.net/

Merrick-Moore Community Development Corporation
A Community Development Corporation dedicated to working within the community to build relationships, share information, and fulfilling community need. https://merrickmoorecdc.org/

Braggtown Community Association
A community-based organization focused on preserving the history of Durham's historic Braggtown community. https://sites.google.com/view/rootsofbraggtown/home

Pauli Murray Center
A Durham-based human rights nonprofit offering programming in history, education, arts, and activism with an intersectional human rights lens. https://www.paulimurraycenter.com/

Toxic Free NC
A nonprofit, educational and advocacy organization seeking to advance environmental health and equity and advocating for safer alternatives to chemicals. https://toxicfreenc.org/

References

[1] Lucky, A. (2023). *Executive Director of Toxic Free NC* [Interview].
[2] United States Environmental Protection Agency. (2024). *Learn About Environmental Justice*. https://www.epa.gov/environmentaljustice/learn-about-environmental-justice
[3] Chiro, G. d. (2020). Mobilizing 'Intersectionality' in Environmental Justice Research and Action in a Time of Crisis. In B. Coolsaet (Ed.), *Environmental Justice. Key Issues.* . Routledge.
[4] United Nations. *Human Rights to Water and Sanitation*. https://www.unwater.org/water-facts/human-rights-water-and-sanitation
[5] North Carolina Department of Health and Human Services Division of Public Health. (2021). *Private Wells: Facts and Figures*. https://epi.dph.ncdhhs.gov/oee/wellwater/figures.html
[6] News21 Staff, S.-B., J., Schneider, K. (2017). Industrial waste pollutes America's drinking water. https://publicintegrity.org/environment/industrial-waste-pollutes-americas-drinking-water/
[7] Freeman, K. (2023). Water contaminants identified, addressed in marginalized communities. *Environmental Factor*. https://factor.niehs.nih.gov/2023/10/community-impact/drinking-water-contaminants-solutions
[8] George, A., Gray, K., Wait, K., Gallagher, D., Edwards, M., Currie, J., Hogan, J., Kwasikpui, A.W., Pieper, K.J. (2023). Drinking Water Disparities in North Carolina Communities Served by Private Wells. *Environmental Justice*, *0*. https://ncnewsline.com/wp-content/uploads/2023/08/Drinking-Water-Disparities-in-North-Carolina-Communities-Served-by-Private-Wells_George-et-al-2023.pdf
[9] University of North Carolina at Chapel Hill. (2023). Study identifies disparities in testing and treating well water among low-income, BIPOC households in NC. https://phys.org/news/2023-08-disparities-low-income-bipoc-households-nc.html
[10] Tessum, C. W., Paolella, D.A., Chambliss, S.E., Apte, J.S, Marshall, J.D. (2021). PM2.5 polluters disproportionately and systemically affect people of color in the United States. *Science Advances*, *7*(18). https://doi.org/10.1126/sciadv.abf4491
[11] Wolfberry Hawthorn Farm. *About Us*. https://wolfberryhawthornfarm.com/
[12] City of Durham Department of Water Management. *2022 Water Quality Report. Tomorrow's Water Starts Today*. https://www.durhamnc.gov/ArchiveCenter/ViewFile/Item/6519
[13] Group, E. W. (2024). *Mapping the PFAS contamination crisis: New data show 5,021 sites in 50 states, the District of Columbia and four territories* https://www.ewg.org/interactive-maps/pfas_contamination/
[14] Environmental Protection Agency. (2024). *Fifth Unregulated Contaminant Monitoring Rule Data Finder* https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule-data-finder
[15] Blake, B. E., Fenton, S.E. (2020). Early life exposure to per- and polyfluoroalkyl substances (PFAS) and latent health outcomes: A review including the placenta as a target tissue and possible driver of peri- and postnatal effects. *Toxicology*, *443*. https://doi.org/doi.org/10.1016/j.tox.2020.152565
[16] Sunderland, E. M., Hu, H.C., Dassuncao, C., Tokranov, A.K., Wager, C.C., Allen, J.G. (2019). A Review of the Pathways of Human Exposure to Poly- and Perfluoroalkyl Substances (PFASs) and Present Understanding of Health Effects. *Journal of Exposure Science & Environmental Epidemiology*, *29*(2), 131-147. https://doi.org/10.1038/s41370-018-0094-1
[17] Zitta, J. P. (2023). Durham Water and Sewer Extent 2023. In.
[18] Wagner, A. (2023). Durham fences off park stream due to potential contamination, strong odors. *The News & Observer*. https://www.newsobserver.com/news/local/counties/durham-county/article278572384.html
[19] Wagner, A. (2022). Water in Raleigh, Durham, Chapel Hill contains PFAS above new EPA health advisory levels. *The News & Observer*. https://www.newsobserver.com/news/local/article262621292.html

[20] Lu, J. (2022). Toxic chemicals found in groundwater near Durham's future drinking water supply. *The Chronicle.* https://www.dukechronicle.com/article/2022/12/toxic-chemicals-found-in-groundwater-near-durhams-future-drinking-water-supply-duke-university

[21] Bokun, B. (2023). 'Please give us water': With failed wells, Durham County residents plead for city water line after living off fire hydrant connection. *CBS17*. https://www.cbs17.com/news/local-news/durham-county-news/please-give-us-water-with-failed-wells-durham-county-residents-plead-for-city-water-line-after-living-off-fire-hydrant-connection/

[22] Moore, M. H. (2023). Durham affodable apartments, townhome developments get green light. Here's where. *The News & Observer*. https://www.newsobserver.com/news/business/real-estate-news/article278021838.html

[23] Coffey, S. (2023). *Residents feel betrayed after report from Duke shows lead contamination in Durham parks* https://abc11.com/lead-in-durham-parks-duke-university-study-walltown-park-contamination/13373713/

Section 12.02 *Land Access, Gentrification & Displacement*

Overview

Gentrification, land access, and displacement may not immediately sound like environmental justice issues. However, the concept of environmental justice includes a reflection of a whole range of actions, or inaction, that deny participation and an impactful opportunity for residents of a community to live without threat to their health, safety, and wellbeing. Thus, development and land management strategies that do not incorporate a consideration of long-term stability will inherently bring instability to communities with less financial resources. Recent research from the National Institute of Health (NIH) reflects a need for additional research on the impacts of gentrification and explains that individuals living in gentrifying areas experience major changes in social and environmental conditions in a short period of time that can be detrimental to health.[1]

History of Displacement in Durham

Durham County occupies and manages land that was not granted to white settlers. The land was part of the homeplaces of the Eno, Occaneechi, Shakori, Tuscarora, Lumbee, Cheraw, Saponi and Catawba peoples. After settlement, the accumulation of large areas within and around Durham County for agricultural production using enslaved Black and Indigenous labor became the predominant characteristic of mapped land. For example, the Cameron-Bennehan plantations (including Stagville) were approximately 3,000 acres of land.[2] It is important to keep in mind that the plantation dominated land use in antebellum times but also long after. The end of slavery in 1865 triggered an increase in population for then Orange County, which was later ratified into Durham County in 1881.

The system of private property ownership entrenched stratification from its foundation with structures and rules creating systems as to who could own land, and then how much could be accumulated. Even after land ownership was broadened to a group larger than just white males, communities were formally and informally zoned and divided by race. It became illegal to formally zone communities by race in 1917 (Buchanon v. Wharley, 245 U.S. 60 (1917)).[3]

Other privately controlled tools, like racially restrictive covenants in deeds, were legally used for even longer, until 1948 when it was determined to be unconstitutional (Shelley v. Kraemer, 334 U.S. 1 (1948).[4] The indelible inscription of the Home Owners Loan Corporation risk maps or "redlining maps" became essential in the iconography of American apartheid.[5] The impact of these maps locked generations of Black or African American and other People of Color out of lending ("redlining"), but also to protected and prioritized loans in white and upper-class neighborhoods ("greenlining"). The effects of racially restrictive covenants and redlining are still part of our landscape and are difficult to remove.[6; 7]

The images below are from the Bull City 150 Uneven Ground exhibit. The image on the right is from 1972 when the work of dismantling the Black community of Hayti was nearing completion for construction of the Durham Freeway.[8]

Those making more than 500% of the poverty level, increased by 6.8% from 2015 to 2022.[9] While local government and developers plan for new Durhamites, those who have called Durham home for decades, and in some cases generations, deal with a complex history, paying increased rent and taxes, or struggling to find a new home.[10] Additionally, Durham rent costs have significantly risen since the beginning of the COVID-19 pandemic, while wages have failed to keep up with rental costs and evictions have steadily increased since the end of the moratoria.[11] Durham residents of color are disproportionately burdened by low wage and pandemic-vulnerable work as well as eviction.[12]

Primary Data

Affordable housing was one of the top issues Durham County-wide (23.4%) Community Health Assessment (CHA) participants identified as having an impact on their quality of life.[13] White CHA participants in the County-wide survey were over three times as likely as Black or African American County-wide CHA participants to own their home. The racial disparity in home ownership increased since the 2019 County-wide CHA survey, when white respondents were twice as likely to own their home as Black or African American respondents.

Among the county-wide survey participants, six percent reported being evicted or displaced while living in Durham County in the past three years while the 8.2% of Comunidad Latina survey respondents reported the same.[14]

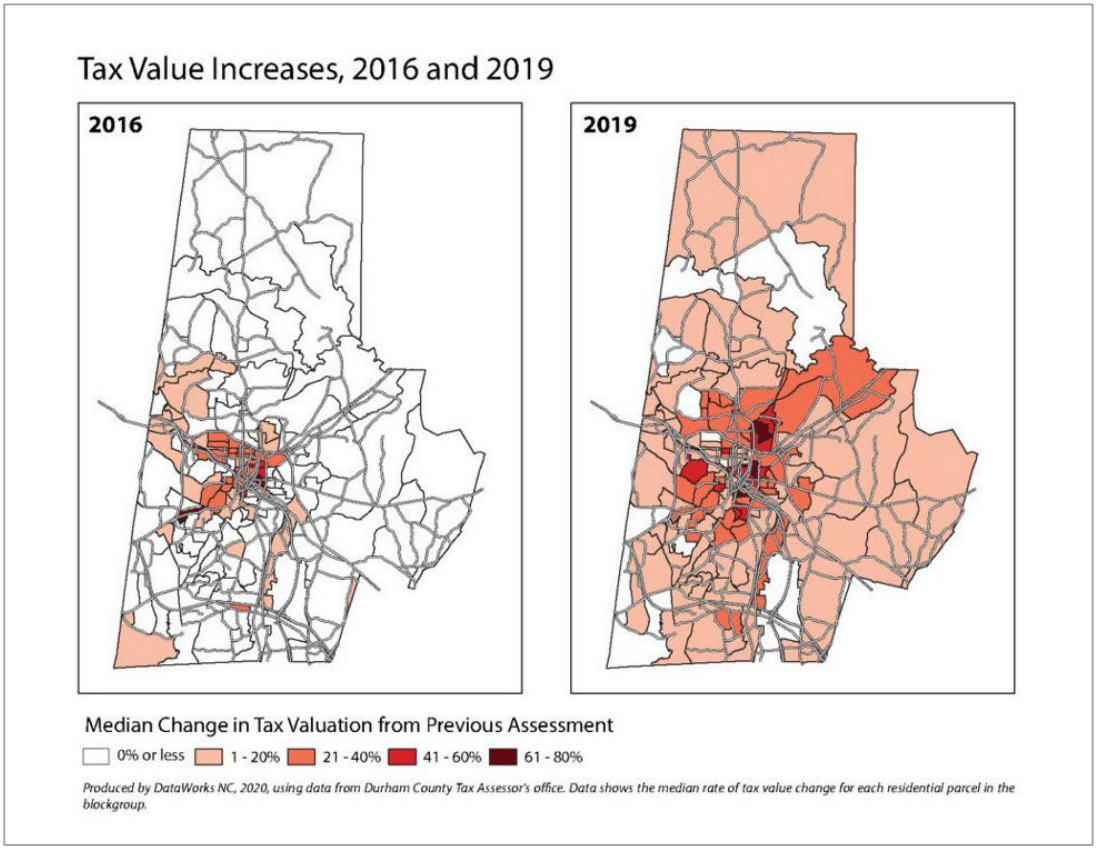
Of the Comunidad Latina survey participants that reported having difficulty finding housing, 33% reported not being able to find a place to live that they could afford while 39% of County-wide survey participants reported the same.

Among the county-wide survey participants (31.2%) and the Comunidad Latina participants (44%) reported their housing impacted their health in a good way. When asked what people, places or things make your neighborhood a good place to live, both County-wide and Comunidad Latina survey participants said their neighbors, the quiet and safety of their neighborhood.

Secondary Data

Gentrification and Property Taxes

North Carolina law allows for a reappraisal of land every eight years.[15] In areas facing rapid gentrification, however, increases in appraised value can have a significant impact on the annual property taxes.[16]



12.01 (a) Tax Value Changes Durham, NC[17]

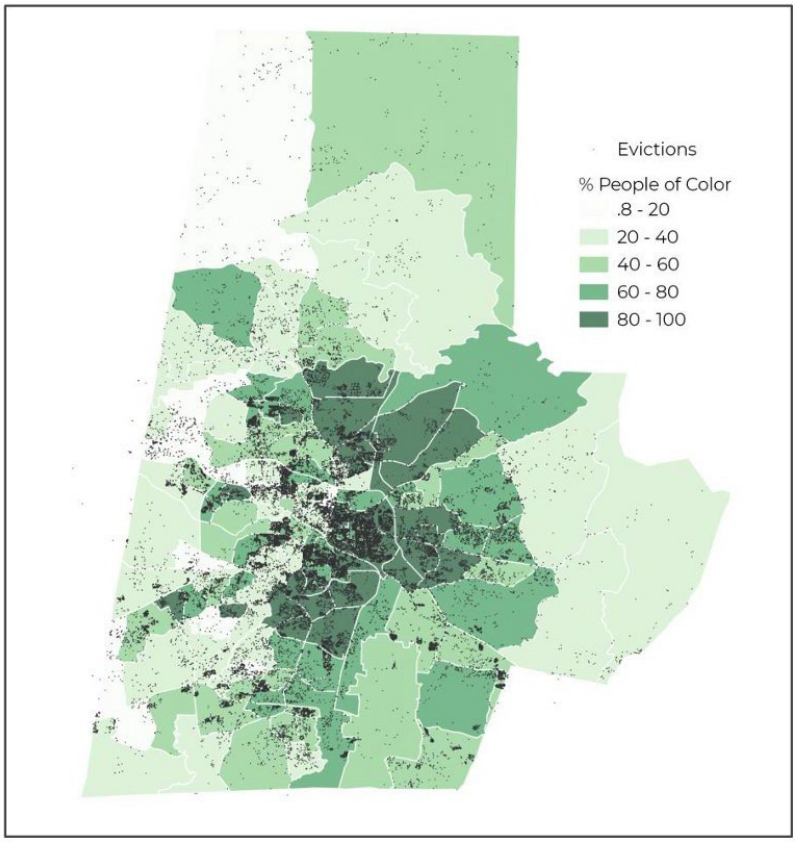
In 2019, more than 3,900 residential properties in Durham had an increase in tax value of 100% or more.[17] This especially impacts homeowners that are elderly or on a fixed income, as those increases in taxes could lead to the loss of property through foreclosure. Heir owners of property are also at risk if there is not a clear plan between the owners as to how they will pay tax bills or they become delinquent after the death of the primary property owner.

Durham's next reappraisal will begin in 2025 and it will be vital for residents to know the process for challenging reappraisal and Durham's creation of programs to offset increases in tax bills. For more information, visit the 2025 General Appraisal (Revaluation) page.

Interpretations: Disparities, Gaps, Emerging Issues

Evictions in Durham

In Durham County, residents of color are much more likely to be evicted and see evictions in their neighborhoods than white residents.[18] For the county overall, the average eviction rate in 2022 was 21 evictions per square mile, with more than 6,000 evictions occurring in Durham County.[19] When broken down by neighborhood racial composition, however, it reveals how structural racism operates in eviction rates. In neighborhoods with the largest Black or African American population, the average eviction rate in 2022 was 75 evictions per square mile. In predominantly white neighborhoods, the average eviction rate in 2022 was only 2 evictions per square mile. These patterns are represented in the map below showing few eviction events in predominantly white block groups (lighter green) and high concentrations of evictions in block groups with high proportions of residents of color.



Evictions, Durham, NC 2022[20]

Structural racism in displacement operates through ways other than evictions, as well. People currently buying homes in Durham make more money on average than people already living here, and renters have much lower average wealth than homeowners. The Durham Neighborhood Compass tool shows how distributions of these factors also follow racialized gradients. In Durham County in 2022, 44.7% of housing is renter occupied. In 2021, 49.5% of renters are cost-burdened or paying over 30% of their monthly income in rent. However, this percentage has been falling over the past few years.

Recommended Strategies

- Utilize a form of community benefits agreements, especially in areas that are changing in character because of homes that are rebuilt.
- Utilize mapping tools to determine areas that are most highly impacted by foreclosure, tax delinquencies, evictions, and code violations. For matters being considered for referral to tax foreclosure, use an intermediary referral to determine possible financial or legal resources. Within the communities identified as most highly impacted by foreclosure, code violations or evictions, coordinate specific outreach to provide tailored resources to current residents, whether they are legal, social, or financial services.
- Establish a revolving fund so residents can apply for immediate financial assistance to avoid displacement.
- Reestablish Durham's Longtime Homeowner Grant (tax assistance program) with broadened financial eligibility criteria to ensure effective use.

Current Initiatives & Activities

Durham Community Land Trustees
Durham Community Land Trustees (DCLT) is a community land trust that builds strong communities by developing, managing, and advocating for permanent affordable housing. DCLT offers residents with low and moderate incomes a stable foundation for achieving economic security in Durham. https://dclt.org/

Low Income Homeowners Relief Program
The LIGHR Program will provide property tax help on current taxes for eligible homeowners. https://www.dconc.gov/county-departments/departments-f-z/social-services/aging-and-adult-services/low-income-housing-relief-lihr***Durham People's Alliance Coalition for Affordable***

Housing and Transit
Durham People's Alliance leads the Coalition for Affordable Housing & Transit so residents of all incomes can afford to live near rail transit stations and bus hubs in Durham.

Land Loss Prevention Project
The Land Loss Prevention Project was founded in 1982 by the North Carolina Association of Black Lawyers to curtail epidemic losses of Black owned land in North Carolina. The Land Loss Prevention Project provides legal assistance at no cost to limited resource landowners to enable the preservation and protection of land, home, and farm ownership.
https://www.landloss.org/index.html

Legal Aid of North Carolina
Legal Aid of North Carolina is a statewide, nonprofit law firm that provides free legal services in civil matters to low-income people in order to ensure equal access to justice and to remove legal barriers to economic opportunity. Legal Aid attorneys represent Durham tenants facing eviction.
https://legalaidnc.org/

References

[1] Genee S Smith, R. J. T. (2020). Gentrification: A Priority for Environmental Justice and Health Equity Research. https://doi.org/10.18865/ed.30.3.509
[2] North Carolina Historic Sites. *Historic Stagville History*. https://historicsites.nc.gov/all-sites/historic-stagville/history
[3] Buchanan v. Warley, 245 (U.S. Supreme Court 1917). https://supreme.justia.com/cases/federal/us/245/60/
[4] Shelley v. Kraemer, 334 (U.S. Supreme Court 1948). https://supreme.justia.com/cases/federal/us/334/1/
[5] Allison De Marco, H. H. (2018). Racial Inequality, Poverty, and Gentrification in Durham, North Carolina. . https://fpg.unc.edu/sites/fpg.unc.edu/files/resource-files/durham_final_web.pdf
[6] Godsil, R. D. (2004). Viewing the Cathedral from Behind the Color Line: Property Rules, Liability Rules, and Environmental Racism. *Emory LJ*, *53*, 1807.
[7] Massey, D. S. (1990). American apartheid: Segregation and the making of the underclass. *American journal of sociology*, *96*(2), 329-357.
[8] Bull City 150, N. C. O. o. A. a. H. *Dismantling Hayti*. https://www.bullcity150.org/uneven_ground/dismantling_hayti/
[9] US Census. (2022). *Durham County, NC* https://data.census.gov
[10] McDonald, T. (2020). Durham Commissioners Pump the Brakes on Braggtown Developments After Protests from Residents. *INDY Week*. https://indyweek.com/news/durham/braggtown-gentrification-vote/
[11] Killeen, J. (2022). *Who Owns Durham*. https://docs.google.com/presentation/d/1495DeEbXoQ6KsJOmtUi96eFtUfZ-Gxv8f4z7nGphYdE/edit#slide=id.p
[12] Lindsay M. Monte, D. J. P.-L. (2021). *COVID-19 Pandemic Hit Black Households Harder than white households, even when pre-pandemic socio-economic disparities are taken into account*. https://www.census.gov/library/stories/2021/07/how-pandemic-affected-black-and-white-households.html
[13] Partnership for a Healthy Durham. (2022). *Durham County-wide Community Health Assessment Survey data report*. https://healthydurham.org
[14] Partnership for a Healthy Durham. (2023). *Durham County Community Health Assessment Comunidad Latina survey data report*. https://healthydurham.org
[15] North Carolina Department of Revenue, U. S. o. G. *Tax Administration North Carolina Course: Section 71-Reappraisal*. Retrieved from https://www.ncdor.gov/documents/manuals/tax-administration-north-carolina-course-section-71-reappraisal/open
[16] John Killeen, L. T. D. (2020). *Changing Neighborhood, Higher Taxes: Tax Value Icreases 2016 and 2019*. https://dataworks-nc.org/2020/changing-neighborhood-higher-taxes/
[17] Dataworks NC. *Tax Value Change 2019* https://compass.durhamnc.gov/en/compass/REVAL/blockgroup/
[18] Dataworks NC. *Evictions (Summary Ejectments), 2022* https://compass.durhamnc.gov/en/compass/SUMEJECT/blockgroup/
[19] NC, D. (2022). *Evictions (Summary Ejectments), 2022*. https://compass.durhamnc.gov/en/compass/SUMEJECT/blockgroup/
[20] McClure, L. (2023). *Health Survey Questions on Racism: Community Input from Durham, NC. DataWorks NC*. https://dataworks-nc.org/wp-content/uploads/Racism-focused-Survey-Questions-Brief-Report-English.pdf

Chapter 13

Older Adults and Adults with Disabilities

Photo Courtesy of Discover Durham

This chapter includes:

- Older Adults and Adults with Disabilities

13.01 *Older Adults and Adults with Disabilities*

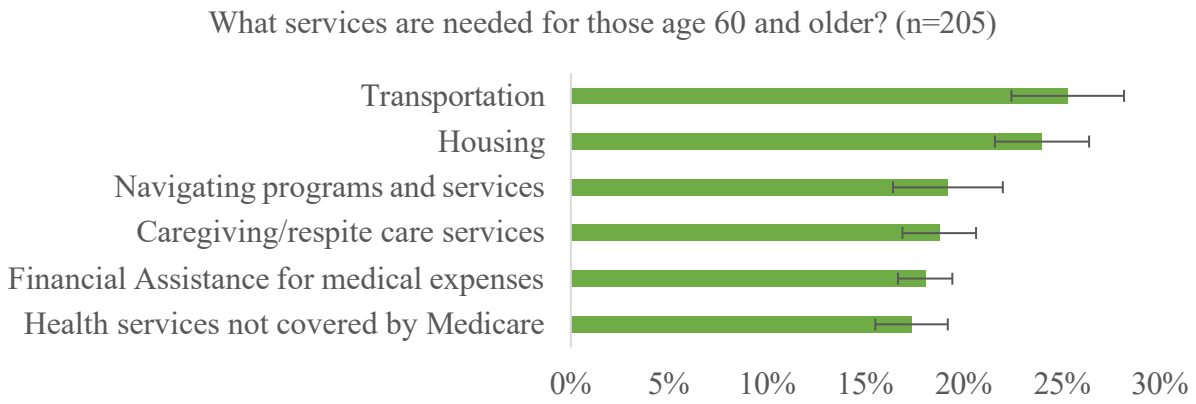
Overview

There are many types of disabilities, some physical and some mental. Examples of physical disabilities include vision and hearing loss or impairment.[1] Mental health disabilities include trouble remembering or learning, communicating, or living with a mood disorder.[1] The 2022 American Community Survey reports 1.3% of adults ages 18-64 have a disability while 7.3% of adults ages 65 and older have a disability.[2] The survey further reports that 1.4% of people have a vision disability, 2% have a hearing disability, and 5% have a cognitive disability.[2]

The North Carolina Office of State Budget and Management estimates that by 2030, Durham County will have more residents ages 65 and older than ages 0-17.[3] This increase will have significant social and economic impacts. Improving community infrastructure that facilitates access to basic needs and essential services such as public transportation and adult services. It will also require the end of harmful community and individual-level biases about older adults and adults with disabilities.

Primary Data

Participants (13.3%) in the Durham County Community Health Assessment County-Wide survey listed caring for someone with an illness or disability as a primary source of stress.[4] In the County-Wide survey, 15.3% of participants reported their primary source of stress was caring for their own disability or illness.[4] Out of the participants in the Comunidad Latina survey, 7.3% of them reported their primary source of stress was also caring for their own disability or illness.[5] According to the County-wide survey, the top ways to support residents over 60 years-old include better transportation (25.3%), better housing (24%), and navigating programs and services (20.8%).[4]



15.01 (a) Services needed for adults ages 60 and older from the 2022 County-wide Durham County Community Health Assessment survey.[4]

Secondary Data

The Durham County 65 and older population accounts for 14.8% of Durham County residents. This age group is expected to grow by 23.2% by 2030.[3] In 2022, 11.2% of North Carolinians have a disability and 16.8% of adults ages 65-74 have a disability.[2]

The older North Carolinian population is disproportionately female. Women represent 56% of the 65 and older group.[2] This gender composition widens toward the oldest age, as women in Durham County have a longer life expectancy compared to men. From 2018-2020, women lived an average of 82.5 years and men lived an average of 77.2 years.[6]

Providers and Healthcare

Durham County has one of the best provider-to-patient ratio in the state.[7] In 2022, there was one primary care provider for every 790 residents, one mental health provider for every 150 residents, and one dentist for every 1,360 residents. All these provider-to-patient ratios are better than the state of North Carolina.

Of the 49,273 Durham County residents ages 65 and older, 99.2% were insured. In 2022 in Durham County, 90.3% of adults with disabilities had health insurance.[2]

Mental Health and Wellbeing

Both older adults and adults with disabilities are at higher risk of experiencing multiple forms of neglect, exploitation, and abuse compared to adults without disabilities.[8] In 2019, 25% of those aged 65 and older experienced anxiety and depression amid the COVID-19 pandemic.[9] However, depression and anxiety were reported more among younger adults. Symptoms of depression often look different in older adults.[10] Instead of reporting feelings of sadness, older adults will complain of aches, low motivation, lack of energy, and other physical problems. In addition to the daily stresses of the disabled and elderly, there are certain diseases and conditions that can lead to depression. For example, Parkinson's disease, stroke, cancer, and diabetes can lead to depression and anxiety in some adults.

Social isolation is the lack of relationships with other people and "little to no social support or contact".[11] Social isolation and loneliness or the feeling of being alone or disconnected from others, has been linked to increased risk of developing several health conditions including heart disease, type two diabetes, depression, anxiety, dementia, and early death.[11] In the US, several groups are at higher risk of social isolation or loneliness including older adults and adults with disabilities. Additionally, social isolation and loneliness has an economic impact on healthcare spending. One in four adults ages 65 and older are socially isolated in the US.[11] An estimated $406 billion is spent each year on loneliness in the US.[11]

In 2018, adults with disabilities reported experiencing frequent mental distress almost five times as often as adults who do not have disabilities.[12] The Centers for Disease Control and Prevention (CDC) defines "frequent mental distress as 14 or more mentally unhealthy days in the past 30 days".[12] Over half (55.6%) of adults who have health conditions that affect their cognitive and mobility functions reported mental distress in the 2018 Behavioral Risk Factor Surveillance System data.[12]

With age, a person can become cognitively impaired or experience cognitive decline.[13] Cognitive decline is often associated with dementia – an umbrella term that includes different forms of memory loss, most notably, Alzheimer's disease. In 2019, Alzheimer's disease was in the top five leading causes of death for Durham County residents.[14]

Economic Security

Adults with disabilities and older adults experience similar social and health challenges to one another. Adults with disabilities ages 18-64 have higher rates of poverty (25%) than adults without disabilities (12%).[15] In Durham County, poverty among older adults has decreased since 2020. In 2020, the percentage of adults 65 years-old and older living in poverty was 7.4%. This increased to 10.8% in 2021 and fell back down to 6.1% in 2022.[2] However, in households where at least one person is over 60 years-old, the percentage living below the federal poverty line is 28.5%.[2]

Interpretations: Disparities, Gaps, Emerging Issues

Health disparities by race, ethnicity, socioeconomic status, and disability status for older adults and adults with disabilities persist today. Adults with disabilities are four times as likely to report their health status as fair or poor more often compared to those without disabilities.[16] As recently as the 1960s and 1970s, people with disabilities were often institutionalized, forced into sterilization, and were stripped of equal rights compared to people without disabilities.[16] It wasn't until 1990 when the Americans with Disabilities Act (ADA) was enacted declaring that people with disabilities had equal rights with others.[16]

Dementia is a complex disease and is not fully understood but there are clear socio-economic, racial, and ethnic disparities. Adults with lower educational attainment, unaffordable and unsafe housing, and less access to healthcare have a higher risk of developing dementia.[17] Black or African Americans and Hispanics or Latina/o/x are thus, at higher risk for developing dementia due to the toxic limitations of structural racism preventing these populations from getting equitable care. Additionally, studies are now showing that toxic stress and racism is linked to cognitive decline.[18] By 2040, an estimated 40% of Americans living with Alzheimer's will be Black or African American or Hispanic or Latina/o/x.[19] Black or African American's are twice as likely to develop Alzheimer's than whites and Hispanic or Latina/o/x are 1.5 times as likely to develop Alzheimer's than whites.[19]

There is a significant difference in life expectancy for races and ethnicities in Durham County.[7]

Race	Asian	Black or African American	Hispanic or Latina/o/x	White
Life expectancy (years)	91.7	76.4	89.2	81.8

15.02 (b) Life Expectancy by race/ethnicity in Durham County, 2023.

Black, Indigenous, people of color (BIPOC) communities must navigate the complicated system of healthcare to have the same quality and equitable care as whites. Often, people and families living in these communities are uninsured, live below the federal poverty line, and/or have lower

educational attainment.[20] These barriers contribute to poor health outcomes, such as shorter life expectancies, and perpetuate racial inequities.

Recommended Strategies[21],[22]

- Implement policies and procedures for addressing accommodation needs for people with disabilities.
- Provide accessibility for people with mobility impairments and provide clear signage.
- Focus on abilities rather than disabilities.
- Improve public transportation.
- Provide social events and engagement with these populations.
- Provide resources to help caregivers stay healthy and deliver quality care to their care recipients.
- Increase early assessment and diagnosis, risk reduction, and prevention and management of chronic diseases for people with or at risk of Alzheimer's disease and other dementias.
- Increase the use of other clinical preventive services like blood pressure checks, cancer screenings, and blood sugar testing.
- Increase the number of people who speak to a health care provider about their worsening memory.

Current Initiatives & Activities

Aging Well Durham (AWD) promotes collaborative efforts to build a safe, affordable, accessible, connected, and inclusive community for aging adults in Durham. AWD serves as the backbone agency that coordinates implementation, monitoring and evaluation of the Durham Master Aging Plan (MAP). www.agingwelldurham.org

Durham Master Aging Plan (MAP) is a five-year plan developed with community members and multisector partners using AARP's domains of livability. The MAP includes goals, objectives, and strategies that will foster lifelong community engagement, participation and well-being for older adults in Durham County. https://healthydurham.org/cms/wp-content/uploads/2021/05/Durham-MAP_FINAL.pdf

The Benefits Enrollment Center (BEC) is located at the Duke Division of Community Health in the Department of Family Medicine and Community Health. BEC helps individuals who have Medicare in accessing healthy food, needed medical care, prescriptions, heating assistance and other supportive services.
https://fmch.duke.edu/patient-care-community-health/benefits-enrollment-center

Dementia Inclusive Inc. serves a catalyst for enhancing the well-being of persons living with dementia and imagines a Durham where persons living with dementia are valued as individuals and are fully supported in their pursuit of quality of life and well-being. Dementia Inclusive, INC. (dementiainclusiveinc.org)

Diaper Bank of North Carolina works to improve access to personal hygiene products and other necessities. This includes providing adult incontinence supplies and other resources for

grandparents and family care providers. Diapers — Diaper Bank of North Carolina - Diapers and Period Supplies (ncdiaperbank.org)

Duke Caregiver Support Program offers free support to family caregivers. It is not a requirement to be a Duke Health patient. The Program connects family caregivers to verified service organizations and resources at Duke Health and in Durham. https://www.dukehealth.org/support-services/caregiver-support

Durham Center for Senior Life offers a wide array of programs and services for older adults including an adult day health center, congregate meals, transportation, adult education, exercise classes, socialization, health promotion, caregiver support services, information referrals, and case assistance. Durham Center for Senior Life | Nonprofit Organization (dcslnc.org)

Durham County Department of Social Services – Aging and Adults Services promotes the independence and dignity of older adults, persons with disabilities and their families through a community-based system of opportunities, services, benefits, and protections. www.dconc.gov

Just for Us is a home-based primary care program with the goal of supporting older adults in maintaining their health while in the safety of their homes. Just for Us works with primary care providers and established health care teams to ensure access to quality coordinated care in clients' homes. www.fmch.duke.edu

Meals on Wheels of Durham delivers a nutritious meal, a safety check, and a smile. Services are available to any resident of Durham County who is homebound as the result of age, disability, or illness. www.mowdurham.org

Senior PharmAssist promotes healthier living for Durham seniors by helping them obtain and better manage needed medications and health education, Medicare insurance counseling, community referral, and advocacy. www.seniorpharmassist.org.

References

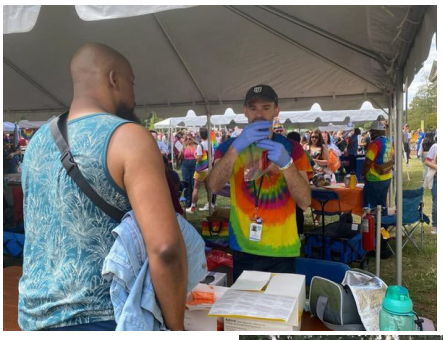
[1] Centers for Disease Control and Prevention. Disability and Health Overview. 2020, September 16. https://www.cdc.gov/ncbddd/disabilityandhealth/disability.html
[2] US Census. Durham County, NC. 2022. https://data.census.gov
[3] NC Office of State Budget and Management, Standard Population Estimates, Vintage 2020; Population Projections, Vintage 2030. https://www.osbm.nc.gov/facts-figures/population-demographics/state-demographer-data
[4] Partnership for a Healthy Durham. 2022 Durham County County-wide Community Health Assessment Survey data report. 2023. https://healthydurham.org
[5] Partnership for a Healthy Durham. 2023 Durham County Community Health Assessment Comunidad Latina survey data report. 2023. https://healthydurham.org
[6] Partnership for a Health Durham. 2022 State of the County Health Report Durham County. 2023. https://healthydurham.org
[7] County Health Rankings. 2022 Durham County, NC. 2022. https://countyhealthrankings.org
[8] North Carolina Department of Health and Human Services. Adult Protective Services. Division of Public Health. https://www.ncdhhs.gov/divisions/aging-and-adult-services/adult-protective-services
[9] Koma, W., True, S., Fuglesten, J., Biniek, J., Cubanski, K.O. and Garfield, R. One in Four Older Adults Report Anxiety or Depression Amid the COVID-19 Pandemic. Kaiser Family Foundation. Oct. 9, 2020. Found on the internet at https://www.kff.org/medicare/issue-brief/one-in-four-older-adults-report-anxiety-or-depression-amid-the-covid-19-pandemic/
[10] Robinson, L., Smith, M., Segal, J. Depression in Older Adults: signs, symptoms, treatment. HelpGuide https://www.helpguide.org/articles/depression/depression-in-older-adults.htm#:~:text=Depressed%20older%20adults%20may%20not%20feel%20%E2%80%9Csad%E2%80%9D&text=They%20may%20complain%2C%20instead%2C%20of,of%20depression%20in%20the%20elderly.
[11] Centers for Disease Control and Prevention. Health Risks of Social Isolation and Loneliness. https://www.cdc.gov/emotional-wellbeing/social-connectedness/loneliness.htm
[12] Cree, R. A., Okoro, C. A., Zack M. M., Carbone, E. Frequent mental distress among adults, by disability status, disability type, and selected characteristics – United States, 2018. Morbidity and Mortality Weekly Report. 2020, Sept 11. https://www.cdc.gov/mmwr/volumes/69/wr/mm6936a2.htm#suggestedcitation
[13] Alzheimer's.gov What is Mild Cognitive Impairment? National Institutes of Health. https://www.alzheimers.gov/alzheimers-dementias/mild-cognitive-impairment
[14] North Carolina Division of Public Health. Leading causes of death in North Carolina: health data query system. 2019. https://schs.dph.ncdhhs.gov/interactive/query/lcd/lcd.cfm
[15] Statista. Poverty rate among people with and without disabilities in the US from 2008 to 2021. https://www.statista.com/statistics/979003/disability-poverty-rate-us/
[16] Krahn, G. L., Klein Walker, D., Correa-de-Araujo, R. Persons with disabilities as an unrecognized health disaparity population. American Journal of Public Health (105(suppl 2) 2015, April. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4355692/
[17] Alzheimer's Association. Hispanic Americans more likely to develop dementia. Why? 2022. Alzheimer's Magazine. https://www.alz.org/news/2022/hispanic-americans-more-likely-to-develop-dementia
[18] Alzheimer's Association. Racism and Memory. 2023. Alzheimer's Magazine. https://www.alz.org/news/2023/racism-and-memory
[19] US Against Alzheimer's. The Costs of Alzheimer's for African Americans. https://www.usagainstalzheimers.org/health-disparities-race-and-alzheimers

[20] Artiga, S., Hill, S. What is driving widening racial disparities sin life expectancy? 2023, May 23. KFF. https://www.kff.org/racial-equity-and-health-policy/issue-brief/what-is-driving-widening-racial-disparities-in-life-expectancy/

[21] Disabilities, Opportunities, Internetworking, and Technology. Strategies for working with people who have disabilities. https://www.washington.edu/doit/strategies-working-people-who-have-disabilities

[22] North Carolina Department of Health and Human Services. Strategic Housing Plan. https://www.ncdhhs.gov/ncdhhs-strategic-housing-plandraftmay-2023/download?attachment

Chapter 14
LGBTQ+ Issues



Photos Courtesy of Durham County Department of Public Health

This chapter includes:

- LGBTQ+ Barriers to Healthcare
- LGBTQ Infectious Disease

LGBTQ+ Issues

Overview

The term "LGBTQ+" refers to a diverse community of people who identify as lesbian, gay, bisexual, transgender, queer or questioning, and other self-identifying terms related to gender identity and sexual orientation. This chapter will use the umbrella term LGBTQ+ to refer to people within this community, as well as descriptors like same-sex or different-sex in reference to couples, while recognizing the limitations of these terms and the diversity of experiences and identities within them. Gender identity and sexual orientation are only two components of a person's identity. Race, ethnicity, socioeconomic class, ability, and immigration status are some of the additional aspects of a person's identity that affect their health, well-being, and access to healthcare. Additional marginalized identities can compound the stigma and discrimination faced by LGBTQ+ people.

Many members of the LGBTQ+ community live in North Carolina. The 2021 Southern LGBTQ Experiences survey found that approximately 4% of the state's overall population identifies as a member of the LGBTQ+ community. This , represents approximately 422,000 individuals.[1] No respondents self-reported as transgender on the 2023 Durham County Community Health Assessment surveys.[2] It should be noted that the responses to these surveys are biased by self-reporting. This means that it is possible for someone to answer a question untruthfully therefore causing an under or over estimation of the population. .Among the 2019 Durham Youth Listening Project participants (ages 13-18 years old), four percent identified as transgender and five percents nonbinary, gender nonconforming, agender, or gender fluid.[3] Nearly eight percent of respondents identified as bisexual and 10% as lesbian or gay. A total of six percent identified as pansexual, ~three percent as queer, and ~ two percent listed another sexual orientation, other than heterosexual.

The presidential Executive Order 13988 implemented January 20, 2021, "Preventing and Combating Discrimination on the Basis of Gender Identity or Sexual Orientation" supports the enforcement of Title VII (protects employee rights based on gender or sexual identity).[4] LGBTQ+ people still lack legislative protection against discrimination at the federal and state level. The Equality Act has repeatedly failed to pass, which would codify federal protections based on gender identity and sexual orientation in employment, housing, public accommodations, and healthcare.[5] In June 2020, the Supreme Court held (*Bostock v. Clayton County)* that firing individuals because of their sexual orientation or transgender status violates Title VII's prohibition on discrimination because of sex.[6] However, in October 2022, a federal district court vacated Equal Employment Commission's (EEOC) policy implementing this ruling in *Texas v. Equal EEOC*.[7] In June 2023, the Supreme Court ruled that nondiscrimination laws could not be enforced against businesses that offer "expressive products and services" such as wedding websites in *303 Creative LLC v. Elenis*.[8]

Across the United States, more than half of all states lack laws prohibiting discrimination against LGBTQ+ individuals and families.[9] Additionally, a growing number of states have passed or introduced legislation that limit or prohibit gender-affirming care for transgender youth and adults.[10] In 2022, 315 anti-LGBTQ+ bills were introduced into state legislatures and 29 of those

bills were passed into law. In addition, there are escalating attempts to erase LGBTQ+ people from public life via book bans, prohibited speech in schools, outlawing drag performances, and lawsuits to overturn protective legislation, to name a few.

The Office of Civil Rights (OCR) housed in the US Department of Health and Human Services (HHS), is a leader for LGBTQ+ rights and anti-discriminatory legislation.[11] The OCR provides enforcement of Title VII and Title IX, which prohibit the discrimination based on sex for employment. Parents or caregivers and healthcare providers who believe their child or patient was denied gender-affirming care can file a complaint with the OCR which can launch an investigation into that violation of civil rights. HHS Secretary, Xavier Becerra went on record to state,

"It is the position of the Department of Health and Human Services that everyone – including LGBTQ people – should be able to access health care, free from discrimination or interference, period."[12]

In November 2021, Durham County's Board of Commissioners passed a non-discriminatory piece of legislation for government employees and public accommodations.[12] Unfortunately, this law does not protect LGBTQ+ individuals from discrimination from public accommodations owned/administered by religious organizations or non-profits who only provide services to their members and guests of the members. Discrimination, stigma, and lack of federal or state protections result in poorer health outcomes for LGBTQ+ people.[12] Statewide data from the Williams Institute survey found that LGBT people in North Carolina were more likely to experience socioeconomic inequities, likely driven by discrimination.[13] These inequities included higher unemployment, lack of insurance, food insecurity, and income below the poverty level.[14] In August 2023, the NC state legislature overrode a gubernatorial veto to pass multiple anti-transgender laws, including a ban on gender-affirming care for minors.[15] However, if a minor was receiving gender-affirming care prior to August 1, 2023, that patient can still receive care if the provider deems it medically necessary and has parental consent.[16]

This chapter summarizes some of the health inequities LGBTQ+ communities face as a result of stigma and discrimination. There is a severe lack of lack of health data on LGBTQ+ people living in Durham County. The National Academies of Science has made a national call to action for improved data collection on sexual orientation and gender identity "to drive research agendas, monitor population trends, guide the equitable distribution of funding and other resources, and inform policies to advance equity by effectively addressing disparities affecting sexual and gender diverse populations."[17] Thus, one of the aims of this chapter in the Durham County Community Health Assessment is to continue to raise visibility of the LGBTQ+ community and the need for a better understanding of the health and healthcare needs of its members.

Key terms in this Chapter

Research on the experiences of LGBTQ+ communities use a number of terms for sexual orientation and gender identity that are substantially distinct and not interchangeable.
For the purposes of sharing a common language and nomenclature in this chapter, these are the definitions that will provide a framework within this chapter:

Cisgender - */"siss-jendur"/ – adj.*: A person who identifies with the gender that society assigns to them. "Cis" is a Latin prefix meaning "on the same side". You are cisgender if you do not feel conflict with the gender assigned to you at birth. Cis people can be gender nonconforming.
Gender identity - *noun*: One's innermost concept of self as male, female, a blend of both or neither – how individuals perceive themselves and what they call themselves. One's gender identity can be the same or different from their sex assigned at birth (i.e., the biological sex listed on their birth certificate)
Gender non-conforming - *adj*: A gender identity label that indicates people who do not subscribe to gender expressions or roles expected of them by society. Anyone who does not fit neatly into a gender role. Often abbreviated as "GNC"
Heteronormativity – *noun*: the assumption, in individuals or in institutions, that everyone is heterosexual (e.g. when learning a woman is married, asking her what her husband's name is) and that heterosexuality is superior to all other sexualities. Leads to invisibility and stigmatizing of other sexualities. Heteronormativity also leads us to assume that only masculine men and feminine women are straight
Intersex – *adj.*: An umbrella term used to describe a wide range of natural variations in sex characteristics that do not seem to fit typical binary notions of male or female bodies. Intersex may also be used as an identity term for someone with one of these conditions.
LGBTQ+ - Abbreviation for terms sexual- and gender-minoritized people may self-identify with (i.e., lesbian, gay, bisexual, transgender, or queer), with the "+" signifying that there are many others that may not be comprehensively represented by this acronym.
Non-binary - *adj.*: A person whose gender identity does not fit the strict man/woman dichotomy. Some non-binary people feel that their gender identity is between man and woman, is simultaneously fully man and fully woman, changes from man to woman and back, is a separate entity without connection to man or woman, is similar to either man or woman but is not quite either, is entirely neutral, or does not exist at all. Nonbinary people may or may not consider themselves to fit within the transgender umbrella.
Queer - *adj.*: an umbrella category used to define the whole LGBTQ+ community or as an alternative to the labels of lesbian, gay, and bisexual. Due to its historical use as a derogatory term, it is not embraced or used by all members of the LGBTQ community.
Transgender - *adj.*: Transgender is used to describe people whose gender identity is different from what is typically associated with the sex assigned to them at birth. Many transgender people are women or men, while many others have a different gender identity, such as non-binary, gender fluid, genderqueer, gender diverse or gender expansive.

Section 14.01 *LGBTQ+ Barriers to Healthcare*

Overview

LGBTQ+ people face historical and current structural and interpersonal discrimination that create a higher prevalence of many health conditions as well as increased barriers to healthcare access and engagement. LGBTQ people's experiences with stigma and discrimination can affect their mental and physical health including being at higher risk for heart disease, cancer, asthma, depression, and diabetes.[18] These health inequities are often compounded for LGBTQ+ people of color.[19] A subset of these health inequities will be explored in subsequent sections of the report.

This section will focus specifically on barriers to preventive and treatment-related healthcare for LGBTQ+ people.

Barriers to accessing and engaging in healthcare exist at structural, institutional, and interpersonal levels.[20] U.S. healthcare requires access to resources such as employer-based health insurance, self-purchased health insurance, or ability to self-pay. Because many LGBTQ+ people experience higher unemployment and lower income than cisgender heterosexual people, they may not be able to afford healthcare services.[21] Due to pervasive stigma and discrimination, LGBTQ+ people are more likely to live in socially and/or financially unstable circumstances that require them to prioritize strategies for survival over seeking healthcare. LGBTQ+ people who are able to access healthcare services may face institutional barriers such as intake forms that do not allow them to accurately represent their gender, chosen name, and/or appropriate pronouns. In addition, members of the LGBTQ+ community can experience healthcare providers not believing them, suggesting that the patient is to blame, make assumptions about the patient, or dismiss their concerns.[19]

Progress is slow and seemingly endless barriers prevent LGBTQ+ people get access to healthcare, insurance providers are approving gender-affirming care and procedures. Blue Cross Blue Sheild of North Carolina provides coverage for genital procedures, chest procedures (including mastectomies), voice therapy, gender-affirming hormone therapy for pubertal delay and more.[22] The LGBTQ Center of Durham has a page listing gender-affirming care providers that are local to Durham County. The list can be accessed here: https://www.lgbtqcenterofdurham.org/medical/.

Secondary Data

Structural Barriers

According to a report by National Academies of Science Engineering and Medicine, more than 74% of people in the U.S. acknowledge that LGBTQ+ people experience some discrimination.[23] In a national online survey of 1,528 self-identified LGBTQ+ adults, one in three faced discrimination of some kind, which negatively impacted their economic well-being and health.[24] Approximately 30% of LGBTQ+ people had difficulty accessing medical care due to cost, including more than half of transgender respondents.[28] The National Center for Health Statistics found that among LGB people, problems accessing care due to cost was most common among bisexual people, followed by gay/lesbian respondents.[25]

LGBT respondents to the Census Bureau's Household Pulse Survey reported worse experiences than cisgender heterosexual respondents on all measures of economic hardship: 21.6% of LGBT respondents lost employment income compared with 16% of non-LGBT people; 13.5% of LGBT people experienced food insecurity v. 7.4% of non-LGBT people; and 35.6% of LGBT people had difficulty paying expenses v. 25.8% of non-LGBT people. These data illustrate the economic risk that limits access and ability to pay for healthcare services.[26]

Institutional and Interpersonal Barriers

LGBTQ+ patients, particularly transgender and nonbinary people, often come in contact with providers who lack the knowledge or experience to provide appropriate care for them. A 2020

study found that transgender people faced unique obstacles, including one in three transgender patients needing to teach their doctor in order to receive appropriate care.[27]

Healthcare facilities vary in their competency to provide welcoming, high-quality care for LGBTQ+ people. The Healthcare Equality Index (HEI) is a national LGBTQ+ benchmarking tool that evaluates healthcare facilities' policies and practices related to the equity and inclusion of their LGBTQ+ patients, visitors, and employees.[28] In 2022, the HEI evaluated 2,000 healthcare facilities nationwide. Two facilities in Durham, both at Duke, completed the HEI and received a perfect score for patient non-discrimination, equal visitation, training, patient services and support, transgender inclusive health insurance, and patient and community engagement.[29]

Interpretations: Disparities, Gaps, Emerging Issues

When discussing limited access to healthcare for LGBTQ+ identifying individuals, the focus is most often directed to illnesses and diseases that are more prominently-associated with or severe in these communities (e.g., HIV, breast cancer, lung cancer).[30] Access to health care that is safe, affirming, and nondiscriminatory is important in order to promote overall wellness and reduce the risk of trauma. Physical, mental, and social well-being are all critical parts of wellness, and the maintenance of overall health must be uplifted in order to prevent and/or reduce the severity of illnesses and diseases.

Gaps

1. Lack of data / limited accurate representation of LGBTQ+ clients in healthcare
2. Limited LGBTQ+ specific education for healthcare providers
3. Lack of accountability for turning away or the mistreatment of clients
4. Lack of insurance coverage for gender affirming care options
5. Limited funding for patients with financial hardships

Emerging Issues

1. Offensive language creating more stigma, and restricting access to care and education for transgender and nonbinary youths.
2. Due to House Bill 808, certain gender affirming care (e.g. hormone therapy, affirming surgeries) is not available to people under the age of 18 in the state of North Carolina, and gender affirming providers and clinics are frequently targets of violence[31]
3. Social inequalities, such as the inability to access health insurance through employment, can lead to increased risk and severity of illnesses for LGBTQ+ individuals.[32]
4. Traumatizing experiences related to stigma and bias from healthcare providers may have a lasting impact on the health outcome of LGBTQ+ people.

Recommended Strategies

Several issues will need to continue to be evaluated and addressed, including:

- Collecting sexual orientation and gender identity data in health-related surveys and health records in order to identify LGBTQ+ health disparities.

- Appropriately inquiring about and being supportive of a patient's sexual orientation and gender identity to enhance the patient-provider interaction and regular use of care.
- Providing medical students with training to increase provision of culturally competent care.
- Implementing anti-bullying policies in schools, which expand to cyber bullying.
- Providing supportive social services to reduce suicide and homelessness among youth.
- Collecting and reporting nationally representative data on LGBTQ+ Americans.
- LGBTQ+ elder health and well-being; intergenerational support to reduce isolation.
- Utilization of an LGBTQ+ wellness model.
- Implementing LGBTQ+ and specifically transgender-oriented sexual health education.
- Recognizing transgender health needs as medically necessary.
- Deploying Ambulatory response teams and support that are specific to increasing overall health outcomes for trans and nonbinary people (e.g., Trans Buddy in Nashville, TN).[33]

Current Initiatives & Activities

LGBTQ Center of Durham

Creating Visibility. Encouraging Partnerships. Fostering Community. Standing for Justice. And just simply providing Durham with a "Family Room." For more information about available community resources and what programming the LGBTQ Center of Durham provides, please review https://www.lgbtqcenterofdurham.org. In 2023, the LGBTQ Center of Durham developed the statewide initiative, **Southern Queer Survivor Network (SQSN)**, to provide support to LGBTQ+ individuals in NC who are survivors of domestic violence (DV) and sexual assault (SA). The LGBTQ Center of Durham has a **Queer Youth Program** which provides support to youth (13-17) and transitional youth (18-24) in the Triangle area. There is a week-long queer youth summer camp during the month of July which operates on a sliding scale for equitable access to youths and families.

Gender and Sexual Diversity Initiative

The Gender and Sexual Diversity Initiative offers dynamic, interactive, and educational trainings for healthcare providers around best practices for working with LGBTQ+ individuals. From social service and medical providers, to everyday workplace employees, our goal is to improve the climate and support systems for LGBTQQIA+ communities in their everyday environments by fostering understanding, imparting knowledge, and providing strategies for creating safe and affirming environments. https://www.carolinapartners.com/gender-sexual-diversity-initiative

HEART Team

Holistic Empathetic Assistance Response Teams (HEART) are unarmed mental health professionals who respond to nonviolent behavioral and mental health crisis 911 calls.[34] https://www.durhamnc.gov/4576/Community-Safety

Duke Gender Affirming Treatment and Transition Care

Duke Health offers multiple health services to transgender, gender-diverse, nonbinary, and

gender-nonconforming people. https://www.dukehealth.org/treatments/gender-affirming-treatment-and-transition-care

Healing with CAARE
Healing with CAARE's mission is to provide effective prevention and case management services to at-risk persons and their families in Durham by referring health and social resources that can alleviate isolation yet foster independence; to empower the population with preventative health education, counseling, and testing by establishing and maintaining networks and utilizing resources that address the health and social needs of the community; and to provide decent housing that is affordable to low- to moderate-income people. https://www.caareinc.org/

Lincoln Community Health Center
Lincoln Community Health Center strives to be a provider of primary and preventive health care that is of high quality, culturally competent, efficient and customer-centered in a state-of-the-art facility in collaboration with other community partners. http://lincolnchc.org

Planned Parenthood
Planned Parenthood Federation of America, Inc., or Planned Parenthood, is a nonprofit organization that provides reproductive health care in the United States and globally. https://www.plannedparenthood.org/health-center/north-carolina/durham/27704/durham-health-center-4171-90860

North Carolina Harm Reduction Coalition
Encourage and motivate the implementation of harm reduction interventions, public health strategies, drug policy transformation, and criminal justice reform in North Carolina through leadership, advocacy, resource, policy development, and education. https://www.nchrc.org/

UNC Chapel Hill Family Medicine
The University of North Carolina at Chapel Hill's Family Medicine department provides supportive services and gender affirming care while accepting most insurances.

UNC Student Health Action Coalition (SHAC)
The University of North Carolina at Chapel Hill's Student Health Action Coalition provides supportive services to students as well as individuals who are uninsured or underinsured. https://www.med.unc.edu/shac/programs/gender-affirming-care/

References

[1] Southern Equality. LGBTQ North Carolinians. 2023, May. https://southernequality.org/wp-content/uploads/2023/05/CSE-ComingofAge-Breakout-NC.pdf
[2] Partnership for a Healthy Durham. 2022 Durham County-wide Community Health Assessment. 2023. https://healthydurham.org
[3] City of Durham Office on Youth. (2021, February). *Durham youth listening project*. https://www.durhamnc.gov/DocumentCenter/View/36680/Durham-Youth-Listening-Project-Report-2021
[4] Federal Registrar. Preventing and Combating Discrimination on the Gender identity or sexual orientation. 2021, January 25. National Archives. https://www.federalregister.gov/documents/2021/01/25/2021-01761/preventing-and-combating-discrimination-on-the-basis-of-gender-identity-or-sexual-orientation
[5] Equality Act, S. 5, 118 Cong. (2023). https://www.govtrack.us/congress/bills/118/s5.
[6] U.S. Equal Employment Opportunity Commission. (n.d.) Sexual orientation and gender identity (SOGI) discrimination. https://www.eeoc.gov/sexual-orientation-and-gender-identity-sogi-discrimination
[7] State of Texas v. Equal Employment Opportunity Commission et al., No. 2:21cv00194 - Document 74 (N.D. Tex. 2022). https://www.texasattorneygeneral.gov/sites/default/files/global/files/Proposed%20Amendment.pdf.
[8] 303 Creative LLC et al. v. Elenis et al., 600 U.S. __ (2023). https://www.supremecourt.gov/opinions/22pdf/21-476_c185.pdf.
[9] Migdon, B. (2023, June 21). Democrats reintroduce Equality Act amid Pride Month. *The Hill*. https://thehill.com/blogs/blog-briefing-room/4060836-democrats-reintroduce-equality-act-amid-pride-month/
[10] Movement Advancement Project. (2023, February). *Under Fire: The War on LGBTQ People in America*. https://www.mapresearch.org/under-fire-report.
[11] Department of Health and Human Services. Protecting the rights of lesbian, gay, bisexual, transgender, queer, and intersex (LGBTQI+) people. The Office of Civil Rights. https://www.hhs.gov/ocr/lgbtqi/index.html
[12] Human Rights Campaign. (2023). *MEI 2023: See Your Cities' Scores*. https://www.hrc.org/resources/mei-2023-see-your-cities-scores.
[13] Williams Institute, UCLA School of Law. https://williamsinstitute.law.ucla.edu/wp-content/uploads/LGBT-Adult-US-Pop-Jul-2020.pdf.
[14] Movement Advancement Project. (Date). *North Carolina's Equality Profile.* https://www.lgbtmap.org/equality_maps/profile_state/NC.
[15] Schoenbaum, H. Veto overridden: ban on gender-affirming care for minors takes effect in North Carolina. Associated Press. 2023, August 17. https://apnews.com/article/transgender-health-care-veto-override-north-carolina-536351cc360a92cdd21f298f6212e6d2
[16] ABC 11. Transgender North Caarolinians file lawsuit challenging gender-affirming care ban for minors. 2023, October 11. https://abc11.com/transgender-nc-lawsuit-lambda-legal/13896013/
[17] National Academies of Sciences, Engineering, and Medicine 2020. *Understanding the Well-Being of LGBTQI+ Populations*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25877.
[18] Lick, D. J., Durso, L. E., Johnson, K. L., et al. Minority stress and physical health among sexual minorities. 2013, September 10. Sage Journals. https://journals.sagepub.com/doi/10.1177/1745691613497965
[19] Mahowald, L. LGBTQ people of color encounter heightened discrimination. 2021, June 24. https://www.kff.org/report-section/lgbt-peoples-health-and-experiences-accessing-care-report/ https://www.americanprogress.org/article/lgbtq-people-color-encounter-heightened-discrimination/
[20] Teti, M., Kerr, S., Bauerband, L. A., Koegler, E., & Graves, R. (2021). A Qualitative Scoping Review of Transgender and Gender Non-conforming People's Physical Healthcare Experiences and Needs. *Frontiers in public health*, *9*, 598455. https://doi.org/10.3389/fpubh.2021.598455.

[21] Human Rights Campaign. Understanding poverty in the LGBTQ+ community. https://www.hrc.org/resources/understanding-poverty-in-the-lgbtq-community

[22] Blue Cross Blue Shield. Gender-affirming care. https://www.bluecrossnc.com/members/gender-care

[23] National Academies of Sciences, Engineering, and Medicine 2020. *Understanding the Well-Being of LGBTQI+ Populations*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25877.

[24] Gruberg, S., Mahowald, L., & Halpin, J. (2020, October, 6). *The State of the LGBTQ Community in 2020.* Center for American Progress. https://www.americanprogress.org/article/state-lgbtq-community-2020/.

[25] National Center for Health Statistics. *National Health Interview Study: Adult Summary Health* Statistics. https://wwwn.cdc.gov/NHISDataQueryTool/SHS_adult/index.html.

[26] United States Census Bureau. 2021. *Household Pulse Survey: Measuring Emergent Social and Economic Matters Facing U.S. Households. https://www.census.gov/library/stories/2021/11/census-bureau-survey-explores-sexual-orientation-and-gender-identity.html*

[27] Gruberg, S., Mahowald, L., & Halpin, J. (2020, October, 6). *The State of the LGBTQ Community in 2020.* Center for American Progress. https://www.americanprogress.org/article/state-lgbtq-community-2020/.

[28] Human Rights Campaign. (2022, March). *Healthcare Equality Index 2022*. https://reports.hrc.org/hei-2022.

[30] Gillespie, C. (2022, November 23). *7 Major Health Disparities Affecting the LGBTQ+ Community.* Health. https://www.health.com/mind-body/lgbtq-health-disparities.

[31] Lhant, V. Protection Gender-affirming care. 2023. Human Rights Campaign. https://www.hrc.org/magazine/2023-winter/protecting-gender-affirming-care

[32] Centers for Disease Control and Prevention. (2014). *About LGBT Health*. Lesbian, Gay, Bisexual, and Transgender Health. https://www.cdc.gov/lgbthealth/about.htm.

[33] Vanderbilt University Medical Center. (n.d.). *Trans Buddy Program*. Program for LGBTQ Health. https://www.vumc.org/lgbtq/trans-buddy-program.

[34] City of Durham. (n.d.). *Community Safety.* https://www.durhamnc.gov/4576/Community-Safety

Section 14.02 *LGBTQ+ Infectious Diseases*

Overview

There is a robust history of inequity related to infectious diseases among Lesbian, Gay, Bisexual, Transgender, Queer, and other (LGBTQ+) sexually and gender diverse communities nationwide and globally. Most attention and research has been related to Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) and other sexually transmitted infections (STIs), particularly among cisgender men who have sex with men (MSM). Recently, transgender women are increasingly included in such research. Transgender women and cisgender MSM are at increased risk for acquiring HIV, compared to the general population. [1-4] While about 12% of MSM in the U.S. are living with HIV/AIDS (LWHA), HIV-positivity among transgender women reaches almost 20%.[5; 6]

Much less is known about other LGBTQ+ populations, who may also face inequities in infectious diseases due to disparities described in prior chapters. Many state and national reports on infections and immunizations fail to include diverse gender identities or sexual orientation. This has made it difficult to assess and address existing disparities. In response, local clinicians, researchers, and community-based organizations (CBOs) in Durham and surrounding counties are making efforts to learn more about infectious diseases within LGBTQ+ populations and take steps to address inequities they encounter.

Secondary Data

The North Carolina Division of Health and Human Services' (NCDHHS) HIV/STD/Hepatitis Surveillance Unit analyzes and reports data on STIs to inform public health officials, health departments, medical providers, and community members.[7] Gender identity is recorded only as "man," "woman," or "transgender," with transgender persons often combined with cisgender persons to create binary gender categories. Sexual orientation is not directly captured in these reports, but rates of transmission among MSM are reported. It is important to understand the demographics of persons diagnosed with STIs so that prevention, diagnosis, and treatment interventions can be geared toward populations that could benefit most.

Limited information on HIV, syphilis, Hepatitis B and C, COVID-19, and Mpox in LGBTQ+ populations is described below.

HIV

According to the 2022 North Carolina HIV Surveillance Report, 1,366 North Carolina residents were newly diagnosed with HIV in 2022, and 36,581 were known to be living with HIV/AIDS (LWHA).[8] Durham County ranked third among North Carolina counties for the number of residents known to be living with HIV in 2022 (1,906), behind Mecklenburg (7,249) and Wake (3,877) Counties.[9] Among adults and adolescents newly diagnosed with HIV in 2022, the most likely route of transmission was "male-male sex" (57.8%), followed by heterosexual sex (18.7%).[8]

Data on LGBTQ+ populations in this report is limited to MSM and transgender populations across North Carolina (NC), without distinguishing transgender men, transgender women, or non-binary identities.[8; 9] MSM is reported, but not sexual orientation specifically. Of the 36,581 people known to be LWHA in NC in 2022, 445 identified as transgender, 20,335 identified as MSM, and 1,240 identified as MSM and reported intravenous (IV) drug use. Of those newly diagnosed with HIV in

2022, 40 reported identifying as transgender, compared with 1,078 identifying as men and 248 identifying as women. The report acknowledged that rates of transgender diagnosis are likely underreported due to stigma.[9] Assessing the interaction between race and transgender identity, 26 of the 40 transgender persons with new HIV diagnosis described their race/ethnicity as Black or African American compared with seven identifying as white, and seven as Hispanic or Latina/o/x. This overrepresentation of Black or African American transgender individuals has been present at least since 2018. In 2022, 15 people who were diagnosed with AIDS identified as transgender; nine were Black or African American, two were Hispanic or Latina/o/x, three were white, and one identified with multiple races.

Regarding MSM, rates of new HIV diagnosis remained relatively stable from 2018-2022, apart from a drop in 2020 that may be attributed to decreased testing during the COVID-19 pandemic.[9] In 2022, 885 people were newly diagnosed with HIV and reported that they were MSM. This translates to 703.9 diagnoses per 100,000 MSM, which is much higher than heterosexual women (2.8 diagnoses per 100,000) and heterosexual men (3 diagnoses per 100,000). Of note, transgender persons were included in these rates and classified by their binary gender identity. When addressing the interaction between race and mode of transmission, Black or African American persons are again over-represented among MSM newly diagnosed with HIV with a rate of 2,043.9 HIV diagnoses per 100,000 Black or African American North Carolinians in 2022. MSM identifying as multiple races were the next most affected (1,472.4 diagnoses per 100,000 persons), followed by Hispanic or Latina/o/x (1,270.4 per 100,000 persons).

One study examined PrEP use and STI diagnoses among persons started on PrEP by PrEP programs within the Duke Infectious Diseases Clinic and Lincoln Community Health Center.[10] MSM made up 81.2% of the 271 patients started on PrEP between 2015 and 2018; of those, 5.2% identified as transgender. Almost half of all patients discontinued PrEP care, but MSM were more likely than non-MSM persons to continue PrEP. Over half (57%) of transgender persons discontinued PrEP during the study period. Four patients were diagnosed with HIV in the setting of intermittent care or low medication adherence. The authors concluded that "Further efforts from both academic and community-based programs are required to implement effective STI prevention as well as elucidate patterns and causes of PrEP discontinuation and encourage persistence in care." [10]

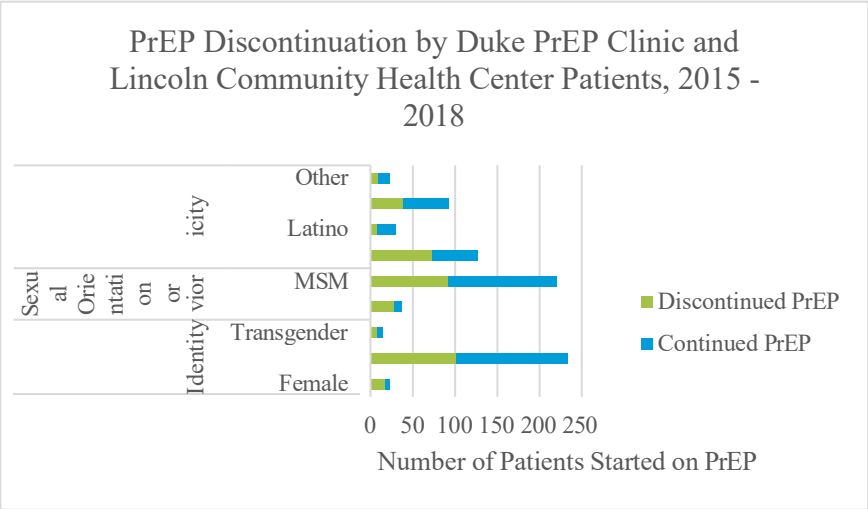


Figure 1.1 *PrEP Discontinuation by Duke PrEP Clinic and Lincoln Community Health Center Patients, 2015 – 2018.* Adapted from Table 2 and Figure 1 by Clement et al. [10]

Syphilis

According to the 2022 North Carolina STD Surveillance Report, early syphilis diagnoses have increased yearly since 2020 in Durham and most other counties.[11] Neither sexual orientation nor mode of transmission were recorded. Of those new diagnoses, 62 persons identified as transgender (1.5%), compared with 3,185 (77.2%) identifying as male and 876 (21.2%) identifying as female. The report does not specify the racial makeup of transgender persons diagnosed with syphilis, but among all those diagnosed, 56% were Black or African American, 34% were white, and 7% identified with multiple races.[8]

Hepatitis B and Hepatitis C

Data on Hepatitis B and C do not include gender identities other than "men" and "women." MSM is reported as an "exposure category" for Hepatitis B reporting.[12] Of the 142 North Carolinians diagnosed with acute Hepatitis B in 2021, four were classified as MSM, compared with 43 from IV drug use and 65 from heterosexual contact. Of the 27,312 North Carolinians living with chronic Hepatitis B, 302 were classified as MSM, compared with 609 from IV drug use and 4,939 from heterosexual contact.

COVID-19

Vaccine data collected using National Immunization Surveys (NIS) do include sexual orientation.[13] NIS are phone surveys used to monitor vaccination coverage for specific vaccinations and age groups. The NIS on COVID-19 vaccination has included information on sexual orientation since its inception in 2021, with three categories: "heterosexual/straight," "gay/lesbian/bisexual/other," and "don't know/refused".[14] State-wide vaccine uptake is similar between groups, reaching approximately 90% uptake of the initial vaccine series by April 2022.[14] With each booster vaccine, rates of receipt decreased for all sexual orientation categories to around 65% for the first booster in May 2022. Percentages of uptake of the Bivalent booster dose were 33% among heterosexual/straight participants and 43% among those identifying as gay/lesbian/bisexual/other. However, this difference was not statistically significant.[14]

MPox

Infectious diseases providers and researchers have assessed patient demographics of those diagnosed within the Duke Health Care System. Of those tested for mpox, gender identity was unspecified in 66.5% of those who tested negative and 78.8% of those who tested positive. Similarly, of those tested, sexual orientation was unspecified for 70.5% of those who tested negative and 82.7% of those who tested positive.[15] Because of this, it is difficult to determine rates of mpox diagnosis among local LGBTQ+ populations.

Interpretations: Disparities, Gaps, Emerging Issues

LGBTQ+ communities in Durham County represent marginalized populations subject to systemic inequities, including in the realm of communicable disease acquisition, prevention, diagnosis, and treatment. Although local data are sparce, it is well-established that transgender women and cisgender MSM are at increased risk for acquiring HIV. [1-4] About 12% of MSM in the U.S. are living with HIV [6], and the rate of HIV-positivity among transgender women is almost 20%. [5] Despite this, PrEP use may be less than 3% among sexually active transgender persons [17],

compared with 20-30% among cisgender MSM. [18-22] Additionally, transgender women with HIV are less likely to be retained in care, start and adhere to HIV treatment, and reach viral suppression than the general population.[23-26] These disparities stem from systemic oppression of LGBTQ+ communities.[27-29] Despite this, the focus of infection-related data collection has typically been MSM rather than sexual orientations and generally excludes diverse gender identities. This makes it difficult to understand how local LGBTQ+ communities are impacted by communicable diseases – an understanding that is necessary to identify inequities and areas of highest need so that targeted interventions can be implemented. To address this disparity, local clinician researchers are using innovative strategies, described below.

Recommended Strategies

- Medical providers and researchers participate in LGBTQ+ health education programs that foster competent, respectful interactions with LGBTQ+ patients and participants.
- Integrate health services to reduce barriers to care.
- Medical providers routinely discuss sexual health and offer STI testing and PrEP to all patients.
- Include standardized sexual orientation and gender identity demographic questions on contact tracing documentation and patient intake forms used to update medical records.
- Teach LGBTQ+ inclusive sexual health education in schools to address all forms of sexual behavior and acknowledge gender-diverse bodies.
- Form collaborative teams with researchers, clinicians, CBO's and impacted populations to build trusting relationships with LGBTQ+ populations, conduct research, and administer interventions.
- Consider the intersectionality of LGBTQ+ identities with other oppressed or marginalized identities when designing and implementing interventions to address inequities related to infectious diseases in LGBTQ+ communities.

Current Initiatives & Activities

Alliance of AIDS Services – Carolina provides HIV testing, treatment, and support resources for those of all backgrounds. They have an intentionally diverse staff, including bilingual team members, and provide resources in non-traditional locations including street corners, homeless shelters, night clubs, etc. https://www.aas-c.org/

Duke Adult Gender Medicine Clinic provides adult transgender and non-binary patients comprehensive gender affirming care, including hormone therapy and specialty referrals for surgery, voice therapy, counseling, and more within this clinic at the Duke Health Center South Durham. The clinic now offers STI testing and PrEP care. https://www.dukehealth.org/treatments/adult-gender-medicine/gender-affirming-hormone-therapy

Duke Infectious Disease and PrEP Clinics, part of the DukeHealth system and provide HIV clinical and preventative care.
https://www.dukehealth.org/treatments/infectious-diseases
and https://www.dukehealth.org/locations/duke-prep-clinic-hiv-prevention

Durham County Department of Public Health offers comprehensive STI testing in an affirming environment. Patients can get started on PrEP and be referred to a local provider to continue care. https://www.dcopublichealth.org/services/std-hiv-testing

Lincoln Community Health Center is located within the Durham County Department of Public Health and provides a variety of primary health services, HIV clinical care and case management, access to PrEP, and gender affirming hormone therapy for transgender patients. https://lincolnchc.org/

Partnership for a Healthy Durham works to improve the physical, mental, and social health and well-being of Durham's residents. The Access to Care action plan includes strategies to prevent the spread of STIs and HIV which disproportionately impact people of color. https://healthydurham.org/committees/access-to-care

Planned Parenthood in Durham offers HIV testing, education and referrals; PrEP; and gender affirming hormone therapy.
https://www.plannedparenthood.org/health-center/north-carolina/durham/27704/durham-health-center-4171-90860

NC Harm Reduction Coalition encourages and implements harm reduction interventions, public health strategies, drug policy transformation, and justice reform in NC and the American South through leadership, advocacy, resource and policy development, and education. http://www.nchrc.org/

North Carolina AIDS Action Network is tasked with developing and implementing a coordinated plan to end the HIV epidemic in North Carolina. http://www.ncaan.org/nc-ending-the-epidemic-plan-announcement/

Testing.com offers information about STI testing options available in Durham. https://www.testing.com/std-testing/durham-nc/

Triangle Empowerment Center is a nonprofit community-based organization serving Durham, Chapel Hill, Raleigh and surrounding communities to reduce disparities faced by minority communities in areas such as healthcare and housing. They offer PrEP and HIV resources, LGBTQ+ support groups, and help facilitate community-based research. https://www.triempowerment.org/

References

[1] Owens, D. K., Davidson, K. W., Krist, A. H., Barry, M. J., Cabana, M., Caughey, A. B., Curry, S. J., Doubeni, C. A., Epling, J. W., Kubik, M., Landefeld, C. S., Mangione, C. M., Pbert, L., Silverstein, M., Simon, M. A., Tseng, C. W., Wong, J. B., & Force, U. P. S. T. (2019). Preexposure Prophylaxis for the Prevention of HIV Infection: US Preventive Services Task Force Recommendation Statement. *JAMA*, *321*(22), 2203-2213. https://doi.org/10.1001/jama.2019.6390
[2] McNulty, A., & Bourne, C. (2017). Transgender HIV and sexually transmissible infections. *Sex Health*, *14*(5), 451-455. https://doi.org/10.1071/SH17050
[3] Herbst, J. H., Jacobs, E. D., Finlayson, T. J., McKleroy, V. S., Neumann, M. S., Crepaz, N., & Team, H. A. P. R. S. (2008). Estimating HIV prevalence and risk behaviors of transgender persons in the United States: a systematic review. *AIDS Behav*, *12*(1), 1-17. https://doi.org/10.1007/s10461-007-9299-3
[4] Clark, H., Babu, A. S., Wiewel, E. W., Opoku, J., & Crepaz, N. (2017). Diagnosed HIV Infection in Transgender Adults and Adolescents: Results from the National HIV Surveillance System, 2009-2014. *AIDS Behav*, *21*(9), 2774-2783. https://doi.org/10.1007/s10461-016-1656-7
[5] Becasen, J. S., Denard, C. L., Mullins, M. M., Higa, D. H., & Sipe, T. A. (2019). Estimating the Prevalence of HIV and Sexual Behaviors Among the US Transgender Population: A Systematic Review and Meta-Analysis, 2006-2017. *Am J Public Health*, *109*(1), e1-e8. https://doi.org/10.2105/AJPH.2018.304727
[6] Crepaz, N., Hess, K. L., Purcell, D. W., & Hall, H. I. (2019). Estimating national rates of HIV infection among MSM, persons who inject drugs, and heterosexuals in the United States. *AIDS*, *33*(4), 701-708. https://doi.org/10.1097/QAD.0000000000002111
[7] Unit, H. S. H. S. (2023). *Facts & Figures: North Carolina HIV/AIDS, STDs, and Viral Hepatitis B and C*. North Carolina Department of Health and Human Services https://epi.dph.ncdhhs.gov/cd/stds/figures.html
[8] Unit, N. C. H. S. H. S. (2023). *2022 North Carolina HIV Surveillance Report*. D. o. P. H. North Carolina Department of Health and Human Services, Communicable Disease Branch. https://epi.dph.ncdhhs.gov/cd/stds/figures/2022-HIVSurveillanceReportSummary.pdf
[9] Unit, N. C. H. S. H. S. (2023). *2022 North Carolina HIV Surveillance Data Tables*. D. o. P. H. North Carolina Department of Health and Human Services, Communicable Disease Branch. https://epi.dph.ncdhhs.gov/cd/stds/figures/2022-NorthCarolinaHIVSurveillanceDataTables.xlsx
[10] Clement, M. E., Nicchitta, M., Sun, Y., Ellis, A., Chakraborty, H., McGee, K., Eagle, C., Frye, J., Taylor, D., Okeke, N. L., Johnston, B., Sena, A. C., & McKellar, M. (2021). Preexposure Prophylaxis Outcomes in an Urban Community in North Carolina: Discontinuation of Care and Sexually Transmitted Infections. *Sex Transm Dis*, *48*(3), 183-188. https://doi.org/10.1097/OLQ.0000000000001288
[11] Unit, N. C. H. S. H. S. (2023). *2022 North Carolina STD Surveillance Report*. D. o. P. H. North Carolina Department of Health and Human Services, Communicable Disease Branch. https://epi.dph.ncdhhs.gov/cd/stds/figures/2022-STDSurveillanceReportSummary.pdf
[12] Unit, N. C. H. S. H. S. (2022). *2021 North Carolina Hepatitis B/C Surveillance Report*. D. o. P. H. North Carolina Department of Health and Human Services, Communicable Disease Branch. https://epi.dph.ncdhhs.gov/cd/stds/figures/2021-Hep-AnnualReportFinal.pdf
[13] Prevention, C. f. D. C. a. (2018). *About the National Immunization Surveys (NIS)*. https://www.cdc.gov/vaccines/imz-managers/nis/about.html
[14] Diseases, N. C. f. I. a. R. (2023). *COVID-19 Vaccination Coverage and Vaccine Confidence Among Adults*. Centers for Disease Control https://www.cdc.gov/vaccines/imz-managers/coverage/covidvaxview/interactive/adults.html
[15] Mourad, A. (2023). Conducting Research During an Outbreak: What Can We Learn from Mpox? In H. Cunningham (Ed.).

[16] Carrico, S., Zitta, J. P., Stevens, E., Jenkins, R., Mortiboy, M., & Jenks, J. D. (2023). Mpox Vaccination and the Role of Social Vulnerability in Durham County, North Carolina, USA. *J Racial Ethn Health Disparities*. https://doi.org/10.1007/s40615-023-01827-8
[17] Sevelius, J. M., Poteat, T., Luhur, W. E., Reisner, S. L., & Meyer, I. H. (2020). HIV Testing and PrEP Use in a National Probability Sample of Sexually Active Transgender People in the United States. *J Acquir Immune Defic Syndr*, *84*(5), 437-442. https://doi.org/10.1097/QAI.0000000000002403
[18] Chen, Y. T., Duncan, D. T., Del Vecchio, N., Timmins, L., Pagkas-Bather, J., Lacap, S., Hotton, A., Knox, J., Hanson, H., Koli, K., Durrell, M., Dehlin, J., & Schneider, J. A. (2021). COVID-19-Related Stressors, Sex Behaviors, and HIV Status Neutral Care Among Black Men Who Have Sex With Men and Transgender Women in Chicago, USA. *J Acquir Immune Defic Syndr*, *88*(3), 261-271. https://doi.org/10.1097/QAI.0000000000002770
[19] Garlow, E. W., Onwubiko, U. N., Holland, D. P., & Chamberlain, A. T. (2022). Association between having a regular healthcare provider and pre-exposure prophylaxis use among men who have sex with men: a cross-sectional survey. *J Behav Med*, *45*(3), 428-437. https://doi.org/10.1007/s10865-022-00308-3
[20] Malone, J., Reisner, S. L., Cooney, E. E., Poteat, T., Cannon, C. M., Schneider, J. S., Radix, A., Mayer, K. H., Haw, J. S., Althoff, K. N., Wawrzyniak, A. J., Beyrer, C., Wirtz, A. L., & American Cohort to Study, H. I. V. A. A. T. W. S. G. (2021). Perceived HIV Acquisition Risk and Low Uptake of PrEP Among a Cohort of Transgender Women With PrEP Indication in the Eastern and Southern United States. *J Acquir Immune Defic Syndr*, *88*(1), 10-18. https://doi.org/10.1097/QAI.0000000000002726
[21] Bonett, S., Dowshen, N., Bauermeister, J., Meanley, S., Wirtz, A. L., Celentano, D. D., Galai, N., Arrington-Sanders, R., & Group, P. S. (2022). Characterizing the PrEP Continuum for Black and Latinx Sexual and Gender Minority Youth. *AIDS Behav*, *26*(4), 1211-1221. https://doi.org/10.1007/s10461-021-03476-6
[22] Chandra, C., Weiss, K. M., Kelley, C. F., Marcus, J. L., & Jenness, S. M. (2021). Gaps in Sexually Transmitted Infection Screening Among Men who Have Sex with Men in Pre-exposure Prophylaxis (PrEP) Care in the United States. *Clin Infect Dis*, *73*(7), e2261-e2269. https://doi.org/10.1093/cid/ciaa1033
[23] Poteat, T., White, R. H., Footer, K. H. A., Park, J. N., Galai, N., Huettner, S., Silberzahn, B. E., Allen, S. T., Glick, J., Beckham, S. W., Gaydos, C. A., & Sherman, S. G. (2021). Characterising HIV and STIs among transgender female sex workers: a longitudinal analysis. *Sex Transm Infect*, *97*(3), 226-231. https://doi.org/10.1136/sextrans-2019-054414
[24] Pitasi, M. A., Clark, H. A., Chavez, P. R., DiNenno, E. A., & Delaney, K. P. (2020). HIV Testing and Linkage to Care Among Transgender Women Who Have Sex with Men: 23 U.S. Cities. *AIDS Behav*, *24*(8), 2442-2450. https://doi.org/10.1007/s10461-020-02804-6
[25] Baguso, G. N., Turner, C. M., Santos, G. M., Raymond, H. F., Dawson-Rose, C., Lin, J., & Wilson, E. C. (2019). Successes and final challenges along the HIV care continuum with transwomen in San Francisco. *J Int AIDS Soc*, *22*(4), e25270. https://doi.org/10.1002/jia2.25270
[26] Mizuno, Y., Frazier, E. L., Huang, P., & Skarbinski, J. (2015). Characteristics of Transgender Women Living with HIV Receiving Medical Care in the United States. *LGBT Health*, *2*(3), 228-234. https://doi.org/10.1089/lgbt.2014.0099
[27] Fredriksen-Goldsen, K. I., Simoni, J. M., Kim, H. J., Lehavot, K., Walters, K. L., Yang, J., Hoy-Ellis, C. P., & Muraco, A. (2014). The health equity promotion model: Reconceptualization of lesbian, gay, bisexual, and transgender (LGBT) health disparities. *Am J Orthopsychiatry*, *84*(6), 653-663. https://doi.org/10.1037/ort0000030

[28] National Academies of Sciences, E., and Medicine. (2020). *Understanding the Well-Being of LGBTQI+ Populations*. T. N. A. Press.
[29] James, S. E., Herman, J. L., Rankin, S., Keisling, M., Mottet, L., & Anafi, M. (2016). *Executive Summary of the Report of the 2015 U.S. Transgender Survey*. N. C. f. T. Equality.
[30] Billock, R. M., Mucha, P. J., Samoff, E., Dennis, A. M., Pence, B. W., Lund, J. L., & Powers, K. A. (2020). Network Interconnectivity and Community Detection in HIV/Syphilis Contact Networks Among Men Who Have Sex With Men. *Sex Transm Dis*, *47*(11), 726-732. https://doi.org/10.1097/OLQ.0000000000001250
[31] Dennis, A. M., Cressman, A., Pasquale, D., Frost, S. D. W., Kelly, E., Guy, J., Mobley, V., Samoff, E., Hurt, C. B., McNeil, C., Hightow-Weidman, L., Carry, M., Hogben, M., & Sena, A. C. (2022). Intersection of Syphilis and Human Immunodeficiency Virus (HIV) Networks to Identify Opportunities to Enhance HIV Prevention. *Clin Infect Dis*, *74*(3), 498-506. https://doi.org/10.1093/cid/ciab431
[32] Dennis, A. M., Frost, S. D. W., Enders, K., Cressman, A. E., Volz, E., Adams, N., Miller, W. C., Cohen, M. S., Mobley, V., Samoff, E., & Eron, J. J. (2021). HIV-1 Transmission linkages among persons with incident infection to inform public health surveillance. *EClinicalMedicine*, *37*, 100968. https://doi.org/10.1016/j.eclinm.2021.100968
[33] Billock, R. M., Samoff, E., Lund, J. L., Pence, B. W., & Powers, K. A. (2021). HIV Viral Suppression and Pre-exposure Prophylaxis in HIV and Syphilis Contact Tracing Networks: An Analysis of Disease Surveillance and Prescription Claims Data. *J Acquir Immune Defic Syndr*, *88*(2), 157-164. https://doi.org/10.1097/QAI.0000000000002739
[34] Gonzalez Rodriguez, H., Barrington, C., McCallister, K. N., Guy, J., Hightow-Weidman, L., Hurt, C. B., McNeil, C. J., & Sena, A. C. (2022). Perceptions, experiences, and preferences for partner services among Black and Latino men who have sex with men and transwomen in North Carolina. *Ethn Health*, *27*(6), 1241-1255. https://doi.org/10.1080/13557858.2021.1899137
[35] LeMasters, K., Atkins, K., Oloonabadi, S. A., Munn, T., Eng, E., & Lightfoot, A. F. (2021). How Can We PrEP? Exploring Black MSM's Experiences With Pre-Exposure Prophylaxis Through Photovoice. *AIDS Educ Prev*, *33*(1), 16-32. https://doi.org/10.1521/aeap.2021.33.1.16
[36] Mann-Jackson, L. (2020). Using community-based participatory research to address STI/HIV disparities and social determinants of health among young GBMSM and transgender women of colour in North Carolina, USA. *Health Soc Care Community*. https://doi.org/10.1111/hsc.13268
[37] Golub, S. A. (2018). PrEP Stigma: Implicit and Explicit Drivers of Disparity. *Curr HIV/AIDS Rep*, *15*(2), 190-197. https://doi.org/10.1007/s11904-018-0385-0
[38] Brooks, R. A., Nieto, O., Landrian, A., & Donohoe, T. J. (2019). Persistent stigmatizing and negative perceptions of pre-exposure prophylaxis (PrEP) users: implications for PrEP adoption among Latino men who have sex with men. *AIDS Care*, *31*(4), 427-435. https://doi.org/10.1080/09540121.2018.1499864
[39] Mayer, K. H., Agwu, A., & Malebranche, D. (2020). Barriers to the Wider Use of Pre-exposure Prophylaxis in the United States: A Narrative Review. *Adv Ther*, *37*(5), 1778-1811. https://doi.org/10.1007/s12325-020-01295-0
[40] Wood, S. M., Lee, S., Barg, F. K., Castillo, M., & Dowshen, N. (2017). Young Transgender Women's Attitudes Toward HIV Pre-exposure Prophylaxis. *J Adolesc Health*, *60*(5), 549-555. https://doi.org/10.1016/j.jadohealth.2016.12.004

[41] Sevelius, J. M., Keatley, J., Calma, N., & Arnold, E. (2016). 'I am not a man': Trans-specific barriers and facilitators to PrEP acceptability among transgender women. *Glob Public Health*, *11*(7-8), 1060-1075. https://doi.org/10.1080/17441692.2016.1154085

[42] Wilson, E. C., Jin, H., Liu, A., & Raymond, H. F. (2015). Knowledge, Indications and Willingness to Take Pre-Exposure Prophylaxis among Transwomen in San Francisco, 2013. *PLoS One*, *10*(6), e0128971. https://doi.org/10.1371/journal.pone.0128971

[43] Brooks, R. A., Cabral, A., Nieto, O., Fehrenbacher, A., & Landrian, A. (2019). Experiences of Pre-Exposure Prophylaxis Stigma, Social Support, and Information Dissemination Among Black and Latina Transgender Women Who Are Using Pre-Exposure Prophylaxis. *Transgend Health*, *4*(1), 188-196. https://doi.org/10.1089/trgh.2019.0014

[44] Chandler, C. J., Creasy, S. L., Adams, B. J., Eaton, L. A., Bukowski, L. A., Egan, J. E., Friedman, M. R., Stall, R. D., & Whitfield, D. L. (2021). Characterizing Biomedical HIV Prevention Awareness and Use Among Black Transgender Women in the United States. *AIDS Behav*, *25*(9), 2929-2940. https://doi.org/10.1007/s10461-021-03189-w

[45] Chesser, S. (2019). Cultivating citizen science for all: Ethical considerations for research projects involving diverse and marginalized populations. *Int J Soc Research Methodol*. https://doi.org/10.1080/13645579.2019.1704355

[46] Quinn, K., Bowleg, L., & Dickson-Gomez, J. (2019). "The fear of being Black plus the fear of being gay": The effects of intersectional stigma on PrEP use among young Black gay, bisexual, and other men who have sex with men. *Soc Sci Med*, *232*, 86-93. https://doi.org/10.1016/j.socscimed.2019.04.042

Section 4.03 *LGBTQ+ Mental Health & Substance Use*

Overview

It has been known for decades that, in general, individuals with LGBTQ+ identities are more likely to experience mental health and substance use concerns compared to those who do not hold those identities.[1] This is not due to any specific or innate psychological aspect of LGBTQ+ identity. Rather, the unequal burden of mental health and substance use concerns among LGBTQ+ individuals is now understood to be largely due to social and structural inequities.[2] In other words, LGBTQ+ individuals often face unique types of stigma and discrimination that can lead to mental health and substance use concerns. LGBTQ+ individuals with multiple marginalized identities (e.g., LGBTQ+ people of color[3] or disabled LGBTQ+ individuals[4]), transgender, and gender non-conforming individuals often experience even higher levels of stigma and discrimination resulting in mental health concerns.

This section will review highlights around mental health and substance use disparities among LGBTQ+ individuals as well as key drivers of these disparities.

Primary Data

In order to protect the identities of community respondents, it is not possible to specifically report outcomes from the Durham County Community Health Assessment Survey, county-wide, and Comunidad Latina samples, for LGBTQ+ individuals. See below for secondary data relating to mental health and substance use among LGBTQ+ individuals.

Results from the 2020 City of Durham Youth Listening Project[5] showed that Durham youth recommended that special attention in Durham be paid to supporting mental health among LGBTQ+ youth. Youth also recommended that mental health providers have training in working with youth who have experienced traumatic stress. Notably, nearly three in 10 respondents identified as a sexual orientation other than heterosexual, including lesbian/gay (10%), bisexual (8%), pansexual (6%), queer (3%) or questioning/another sexual orientation (2%). Nearly one in 10 of respondents in the listening session identified as either transgender (4%) or non-binary/gender non-conforming/agender/gender fluid (5%).

Results from the 2021 Durham County Youth Risk Behavior Survey (YRBS)[6] indicate that in Durham, 28% of high school students identify as LGBTQ+. Findings indicated that Durham high school students who are bisexual were more likely to report depressive symptoms, and reported more frequent days with poor mental health.

This highlights the importance of attending to the mental health needs of LGBTQ+ young people as they feel increasingly comfortable disclosing LGBTQ+ identities yet may experience unsupportive or traumatic environments.

Secondary Data

Given the inability to explore LGBTQ+ mental health and substance use quantitatively within the City of Durham or Durham County, we provide an overview of current data from up-to-date national and state-level publicly available sources.

LGBTQ+ Adult Mental Health

Up-to-date estimates on the prevalence of mental health concerns among lesbian, gay, and bisexual individuals and individuals with other sexual-diverse identities were drawn from the 2021 and 2022 National Surveys on Drug Use and Health.[7] This is a nationally representative survey among people in the United States completed yearly by the Substance Abuse and Mental Health Services Administration (SAMHSA). Up-to-date estimates on the prevalence of mental health concerns among transgender, non-binary, and gender non-conforming (TNB) individuals is less readily available, so data for this purpose is used from the TransPop study, a national probability study that collected data 2016-2018.[8]

Bisexual individuals had particularly high risk for mental health concerns – 54% of bisexual women and 43% of bisexual men have had a mental health concern during the past year – compared to 25% of heterosexual women and 18% of heterosexual men.[8] Gay and lesbian individuals were also more likely than heterosexual individuals to have had a mental health concern during the past year, with rates at 39% for lesbian women and at 38% for gay men.[7] Rates of mental health concerns differed significantly between bisexual and lesbian women, but not between bisexual and gay men.[7] This appeared to be driven by particularly high rates of mental health concerns among bisexual women.

Looking at specific mental health concerns, lesbian, gay, and bisexual individuals were also more likely than heterosexual individuals to have had depression (a major depressive episode) in the past year.[7] Again, bisexual individuals had the highest rates of depression, with 26% of bisexual women and 20% of bisexual men having had depression in the past year.[7] Lesbian, gay and bisexual individuals were also more likely than heterosexuals to have suicidal thoughts and suicide attempts in the past year. More than one in 10 LGB individuals had serious thoughts of suicide within the past year.[7]

When looking at reports of past-year mental health, 44% of transgender adults had suicidal thoughts, 21% engaged in non-suicidal self-injury, and 7% had attempted suicide.[8] Compared to cisgender individuals, transgender individuals had a higher likelihood of serious psychological distress, suicidal thoughts, suicide attempts, and non-suicidal self-injury.[8]

LGBTQ+ Adult Substance Use

Rates of any alcohol use among heterosexual, lesbian, and bisexual women are 50%, 58%, and 59%, respectively. Rates of binge alcohol use (i.e., consuming four or more drinks on one occasion) among heterosexual, lesbian, and bisexual women are 21%, 29%, and 32%, respectively; and rates of heavy alcohol use (i.e., binge drinking for five or more days per month) among heterosexual, lesbian, and bisexual women are 4%, 11%, and 9%, respectively. Compared to heterosexual women, lesbian and bisexual women are more likely to use any alcohol, to engage in binge alcohol use, and to engage in heavy alcohol use.[8]

Rates of any alcohol use among heterosexual, gay, and bisexual men are 56%, 65%, and 58%, respectively. Rates of binge alcohol use among heterosexual, gay, and bisexual men are 27%, 26%, and 31%, respectively; and rates of heavy alcohol use among heterosexual, gay, and bisexual men are 8%, 9%, and 8%, respectively. Among men, statistical differences by sexual orientation were not found in any of these measures of alcohol use.[8]

Rates of cannabis use among heterosexual, lesbian, and bisexual women are 18%, 39%, and 46%, respectively. Rates of stimulant use among heterosexual, lesbian, and bisexual women are 3%,

5%, and 8%, respectively. Rates of using opioids (either non-prescription opioids or using opioids not as prescribed) among heterosexual, lesbian, and bisexual women are 3%, 6%, and 10%, respectively. Compared to heterosexual women, lesbian and bisexual women are more likely to use engage in all of these types of drug use.

Rates of cannabis use among heterosexual, gay, and bisexual men are 24%, 41%, and 43%, respectively. Rates of stimulant use among heterosexual, gay, and bisexual men are 5%, 8%, and 11%, respectively. Rates of using opioids among heterosexual, gay, and bisexual men are 4%, 5%, and 7%, respectively. Compared to heterosexual men, gay and bisexual men are more likely to use engage in all of these types of drug use.[7] Compared to heterosexual adults, gay and bisexual adults are also more likely to meet criteria for substance use disorders (alcohol use disorder or drug use disorder) compared to heterosexual individuals.[7]

Regarding tobacco use, sexual minority women and bisexual men have notably higher likelihood of cigarette smoking than their heterosexual counterparts. Rates of cigarette smoking among heterosexual, lesbian, and bisexual women are 14%, 25%, and 27%, respectively. Rates of cigarette smoking among heterosexual, gay, and bisexual men are 19%, 21%, and 25%, respectively.[7]

Among TNB individuals, 28% engaged in hazardous alcohol use and 31% had drug use concerns. Compared to cisgender individuals, transgender individuals in this most recent national probability study were not more likely to have substance use concerns. However, there were differences in substance use within groups of TNB individuals. Non-binary individuals had particularly high rates of both hazardous drinking (45%) and drug use concerns (42%) compared to transgender men (25% hazardous drinking; 18% drug use concerns) or women (17% hazardous drinking; 33% drug use concerns).

LGBTQ+ Youth Mental Health & Substance Use

Secondary data on LGBTQ+ mental health is drawn from data specific to the state of North Carolina from the 2022 National Survey on LGBTQ Youth Mental Health.[9] Data on substance use are drawn from the same survey, but are not specific to North Carolina.[10]

Among LGBTQ+ youth in North Carolina, 46% seriously considered suicide in the past year, 12% attempted suicide in the past year, 60% experienced depression symptoms, and 74% experienced anxiety symptoms. Data specifically from TNB youth indicated that 53% seriously considered suicide in the past year, 16% attempted suicide in the past year, 70% experienced depression symptoms, and 81% experienced anxiety symptoms.[11]

Among LGBTQ+ youth nationally, 56% used alcohol (including 47% under the age of 21). More than one in three LGBTQ+ youth (34%) used cannabis during the past year. One in ten LGBTQ+ youth (11%) used a prescription drug that was not prescribed to them in the past year.[12]

The recommendations from the City of Durham Youth Listening Project to focus on LGBTQ+ mental health have even more support when combined with findings above.[20]

LGBTQ+ Traumatic Stress

Information on traumatic stress among LGBTQ+ individuals is drawn from a recent systematic review[11] (a study that compiles results across multiple other studies to improve overall knowledge) and adverse childhood experiences data from the 2019 Behavioral Risk Factor Surveillance System[12] (a national survey from the Centers for Disease Control).

Compared to individuals who do not identify as sexual or gender minorities, LGBTQ+ individuals have two-fold higher risk of posttraumatic stress disorder (PTSD; a mental health condition that can happen after a traumatic event that includes flashbacks, nightmares, and other difficulties).[8] Among the LGBTQ+ community, those with highest risk include TNB and bisexual individuals.[8] Compared to those who identify as non-LGBTQ+, LGBTQ+ individuals are also more likely to have experienced adverse childhood experiences, such as interparental violence, physical abuse, or emotional abuse. They are also more likely to experience adult traumatic events, such as interpersonal violence and sexual assault.[14]

It is important to note that there is no evidence to suggest that adverse childhood experiences cause in individual to identify as LGBTQ+. Rather, current evidence suggests that LGBTQ+ individuals experience more sources of stress, mistreatment and discrimination from a young age due to social stigma.

Interpretations: Disparities, Gaps, Emerging Issues

As stated in the beginning of this section, LGBTQ+ individuals living in Durham face disparities in mental health and substance use concerns, which are understood to be a result of social and structural inequities.

Specific inequities include a higher likelihood of physical violence, sexual assault, and discrimination across the lifespan. For example, in the 2022 National Survey on LGBTQ Youth Mental Health,[13] 77% of North Carolina youth had experienced discrimination based on LGBTQ+ identity, and 36% had experienced threat or harm based on LGBTQ+ identity. Sadly, among LGBTQ+ youth in North Carolina, only one third identified home as an LGBTQ-affirming space.

It is not possible to adequately discuss mental health among LGBTQ+ communities in Durham without addressing LGBTQ+ state-level policy. In 2023 several pieces of new legislation that specifically target LGBTQ+ (and especially TNB) youth may impact the mental health of LGBTQ+ youth and adults in Durham.

These pieces of legislation include: restricting discussion of sexual orientation or gender identity in schools (SB49), banning gender-affirming medical care for TNB youth (HB808), requiring school staff to report transgender students to their parent(s) regardless of the student's report of safety at home (SB49), and banning openly transgender students (middle school through higher education) from participating in sports consistent with their gender identity (HB574).

These pieces of legislation – along with longstanding social inequities – are a threat to the health and wellbeing of LGBTQ+ individuals in Durham.[14] Protecting LGBTQ+ youth, and improving conditions for LGBTQ+ adults relies upon Durhamites working to de-stigmatize, acknowledge, and celebrate LGBTQ+ identities throughout our communities. Well-known protective factors that can work against systemic discrimination among LGBTQ+ individuals include supportive social and peer networks, fostering a positive sense of self, and visibility of openly LGBTQ+ individuals.[15,16] Access to LGBTQ-affirming mental healthcare is also a crucial component.[17]

Recommended Strategies

It is recommended that mental health providers approach mental healthcare with LGBTQ+ individuals using theory or models that have been specifically designed for LGBTQ+ populations whenever possible. Such models may include Pachankis and colleagues' principles of LGBTQ-affirmative mental healthcare[18] (e.g., facilitate emotion awareness, regulation, and acceptance; restructure minority stress cognitions) or Freeman-Coppadge and Langroudi's intersectional approach to LGBTQ-affirmative psychotherapy.[19]

Given high rates of PTSD among LGBTQ+ individuals, it is highly recommended that providers who specialize in mental healthcare for LGBTQ+ individuals move beyond a "trauma-informed" approach to seek out and attain training in PTSD treatment, such as Cognitive Processing Therapy (CPT), Eye Movement Desensitization and Reprocessing (EMDR), Prolonged Exposure Therapy (PE), Narrative Exposure Therapy (NET), Trans-Affirmative Narrative Exposure Therapy (TA-NET), or Trauma-Focused Cognitive Behavioral Therapy (TF-CBT; PTSD treatment designed for children).

Current Initiatives & Activities

LGBTQ+ Center of Durham

The LGBTQ Center of Durham supports LGBTQ+ people through services, programming, resources, and support networks that center their wellbeing and allows them to thrive. The Center commits to centering the experiences of those who are the most marginalized among us. The Center provides services and events such as: the Host Home Program, LGBTQ+ Youth Center, Durham Pride, and other gender-inclusive support programs. Services are open to the entire community and seek to make room for all people. Phone: (919) 827-1436. Instagram: @lgbtqdurham. Website: https://www.lgbtqcenterofdurham.org/

LGBTQ+ Youth Center of Durham

The importance of social support and visibility for the mental health of LGBTQ+ youth and adults underscores the importance of community and school organizations, such as the LGBTQ+ Center of Durham, the LGBTQ+ Youth Center of Durham, and all of the Genders & Sexualities Alliances at schools across Durham. The residents of Durham have clearly seen the important of this, as the LGBTQ+ Youth Center was made possible in part by the City of Durham's Participatory Budgeting process, in which Durham residents voted in 2019 to prioritize the health and safety of LGBTQ+ youth. The center LGBTQ+ Youth Center is a primary resource for LGBTQ+ youth within Durham and the Triangle. The Center serves youth ages 12-24 through programming, drop-in space, and events. The Youth Center staff are available to meet with Gender and Sexuality Alliances at local middle and high schools.

The Youth Center has space for programming, access to meeting rooms, two full-time staff members, and access to all the resources of the LGBTQ+ Center of Durham. Instagram: @queeryouthdurham. https://www.lgbtqcenterofdurham.org/program/youthcenter/

Local Resource List of the LGBTQ+ Center of Durham

The LGBTQ+ Center of Durham maintains a comprehensive list of LGBTQ-affirming healthcare services with contact information for organizations and individuals in independent practice. Website: https://www.lgbtqcenterofdurham.org/resources/

Durham VA Health Care System LGBTQ+ Health
VA Durham Health Care System employees receive training in clinical care that is responsive to the unique needs of LGBTQ+ Veterans. The facility's two trained LGBTQ+ Veteran Care Coordinators are fully equipped to support the health, wellbeing, and dignity of LGBTQ+ Veterans and their families. LGBTQ+ Veteran Care Coordinator Phone: 919-257-0156. Website: https://www.va.gov/durham-health-care/health-services/lgbtq-veteran-care/

Duke Gender-Affirming Treatment and Transition Care
Duke Health offers a comprehensive array of health services to transgender, gender-diverse, nonbinary, and gender-nonconforming people. They have a team of experts trained to provide high-quality, compassionate care to individuals who are considering transitioning, going through the process, or have already completed their transition and require ongoing care. Phone: 919-660-LGBT (660-5428). Website: https://www.dukehealth.org/treatments/gender-affirming-treatment-and-transition-care

Duke Child and Adolescent Gender Care Clinic
Pediatric clinic that provides an integrative, holistic approach to provide compassionate family-centered care to transgender youth, gender-expansive youth, and children with differences of sex development. Appointments: 919-684-8361. Website: https://www.dukehealth.org/locations/duke-child-and-adolescent-gender-care-clinic

Radical Healing
Radical Healing is an intentional, radically inclusive, multiracial, and multicultural campus for healing and wellness. Their practices are centered around lifting up the needs of all people, including those most marginalized by society. Experts at Radical Healing specialize across disciplines, including counseling (individual and group), psychiatric medication management, and educational groups. Phone: 919-899-2640. Instagram: @radical_healing_durham. Website: https://www.radicalhealing.us/

iNSIDEoUT180
iNSIDEoUT180 is a youth-led network of safer spaces, resources, and opportunities for LGBTQ+ youth to unite and organize. Instagram: @insideout180; Facebook: https://www.facebook.com/insideout180/

Rainbow Collective for Change
Rainbow Collective for Change builds safe spaces for LGBTQIA+ and gender diverse children and families and aims to raise a generation of inclusive and anti-racist humans. They host events, camps, and provide advocacy. Instagram: @rainbowcollectiveforchange. Website: https://www.rainbowcollectiveforchange.org/

References

[1] Equity, C. o. (2023). *Center of Excellence for LGBTQ+ Behavioral Health Equity*. https://lgbtqequity.org/
[2] CDC. (2014). *About LGBT Health.* Center for Disease Contral and Prevention. https://www.cdc.gov/lgbthealth/about.htm
[3] Salerno, J.P. (2023). *Impact of Racism Microagressions and LGBTQ-Related Minority Stressors: Effects on Psychological Distress Among LGBTQ+ Young People of Color.* Retrieved from https://www.cdc.gov/pcd/issues/2023/22_0371.htm
[4] GLAAD, R. &. (2023). *LGBTQ People with Disabilities*. https://glaad.org/disabilities/
[5] Youth, C. o. (2021). *Durham Youth Listening Project.* Durham, NC: City of Durham Office on Youth.
[6] Health, D. C. (2022). *2021 Durham County Youth Risk Behavior Survey.* Durham, NC: Durham County Department of Public Health.
[7] SAMHSA. (2023). *Lesbian, Gay, and Bisexual Behavioral Health: Results from the 2021 and 2022 National Surveys on Drug Use and Health (SAMHSA Publication No. PEP23-07-01-001)*. Substance Abuse and Mental Health Services Administration (SAMHSA). https://www.samhsa.gov/data/report/LGB-Behavioral-Health-Report-2021-2022
[8] Jeremy D. Kidd, N. A. (2023). Prevalence of substance use and mental health problems among transgender and cisgender U.S. adults: Results from a national probability sample. *Psychiatry Research* , 115339.
[9] Project, T. T. (2022). *2022 National Survey on LGBTQ Youth Mental Health North Carolina*. https://www.thetrevorproject.org/wp-content/uploads/2022/12/The-Trevor-Project-2022-National-Survey-on-LGBTQ-Youth-Mental-Health-by-State-North-Carolina.pdf
[10] The Trevor Project. (2022). *Substance Use and Suicide Risk Among LGBTQ Youth.* https://www.thetrevorproject.org/research-briefs/substance-use-and-suicide-risk-among-lgbtq-youth-jan-2022/
[11] Mattia Marchi, A.D. (2023). Post-traumatic stress disorder among LGBTQ people: A systemic review and meta-analysis. Epidemiology and Psychiatric Sciences, 1-10.
[12] Phillip M. Hughes, T. L. (2022). Adverse Childhood Experiences Across Birth Generation and LGBTQ+ Identity, Behavioral Risk Factor Surveillance System, 2019. *American Journal of Public Health*, 662-670.
[13] Hatzenbuehler, M. L. (2010). The impact of institutional discrimination on psychiatric disorders in lesbian, gay, and bisexual populations: A prospective study. *American Journal of Public Health, 100*, 452-459.
[14] Hendricks, M. L. (2012). A conceptual framework for clinical work with transgender and gender nonconforming clients: An adaptation of the Minority Stress Model. *Professional Psychology: Research and Practice*, 460.
[15] Hatzenbuehler, M. L. (2009). How does sexual minority stigma “get under the skin”? A psychological mediation framework. *Psychological Bulletin*, 707.
[16] Levenson, J. S. (2023). Trauma-informed and affirmative mental health practices with LGBTQ+ clients. *Psychological Services*, 134.
[17] Pachankis, J. E. ((2022).). *Transdiagnostic LGBTQ-affirmative cognitive-behavioral therapy: Therapist guide.* Oxford University Press.

Chapter 15
COVID-19

Photo Courtesy of Durham County Department of Public Health

This chapter includes:

- COVID-19 Vaccinations
- COVID-19 Barriers
- COVID-19 Resilience

Section 15.01 *Lived Experiences*

Overview

In the years since the 2020 Durham County Community Health Assessment was written, the COVID-19 pandemic has left an indelible mark on the fabric of society, altering the very essence of communal existence. As this section delves deeper into the personal narratives and lived experiences of community members, the magnitude of the pandemic's impact becomes more palpable. Each story is a testament to the resilience and fortitude of the human spirit in the face of adversity, illustrating the diverse ways in which individuals have grappled with unprecedented challenges.

In an attempt to capture the full nature of the pandemic's impact on individuals and communities within Durham, this chapter utilizes in-depth interviews and focus groups, as well as surveys and questionnaires to outline the multifarious influences of COVID-19, from economic hardships to mental health struggles to disparities in access to healthcare, across Durham County. Quotes from individual interviews and focus groups, characterized by their open-ended nature, serve as a vessel for the expression of raw emotions, ranging from profound grief and loss to unwavering determination and hope, and shed light on the intricate interplay between personal struggles and broader societal dynamics.

Surveys and questionnaires provide a quantitative lens to examine the varied challenges faced by members of the community. Data gleaned from these surveys have underscored the stark realities of the pandemic's aftermath and catalyzed intervention strategies aimed at alleviating the burdens borne by the most vulnerable segments of the populace.

As the landscape of the pandemic continues to evolve, organizers remain steadfast in amplifying the voices of the community, ensuring that their stories are poised to inform and shape the journey toward a future marked by greater resilience and understanding.

Primary Data

Data from the 2022 Durham County Community Health Assessment County-wide Survey reveals that the pandemic has had a significant impact on the community's health and well-being. Key findings include the following trend data from the Durham County Community Health Assessment County-Wide Data Dashboard:[1]

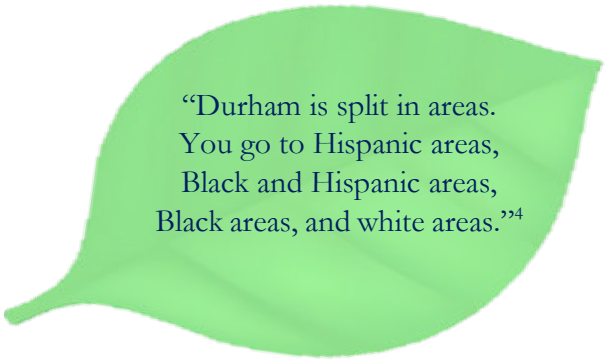
- **Mental health:** In the 2022 Durham County-Wide CHA survey COVID-19 questionnaire, respondents were asked how their mental health has changed since March 2020. About twelve percent of participants reported that their mental health improved while 40% reported that their mental health worsened. Nearly 42% of people reported no change in their mental health.

- **Financial hardship:** One in four community members reported experiencing financial hardship due to the pandemic.[2] The percentage of community members reporting financial hardship has increased from 20% in 2016 to 25% in 2022.[1]

- **Access to health care:** One in five community members reported having difficulty accessing health care due to the pandemic.[2] The percentage of community members

reporting having difficulty accessing health care increased from 15% in 2016 to 20% in 2022.[1]

- **Communities of Color/Low-Income Communities:** These communities were disproportionately impacted by the pandemic (Durham County Community Health Assessment Survey, 2022, p.23). Black or African American residents are twice as likely to have been hospitalized for COVID-19 as white residents, and twice as likely to die from COVID-19 as white residents. (Durham Neighborhood Compass, 2023, p1). Residents with lower incomes and educational attainment are more at risk of negative health outcomes from COVID-19 (Durham Neighborhood Compass, 2023, p. 2).



Interpretations: Disparities, Gaps, Emerging Issues

The analysis provided offers an in-depth look at the systemic repercussions of the COVID-19 pandemic on Durham County, revealing deep-seated inequalities across several key domains, including mental health support, financial assistance, and healthcare accessibility.

The pandemic has intensified pre-existing inequities within Durham County, with a pronounced adverse effect on communities of color and low-income groups. The economic downturn, triggered by necessary public health measures, led to significant job losses and financial difficulties, complicating the ability of individuals to meet essential housing payments. Housing costs rapidly increased while wages did not. This has resulted in increased instances of overcrowded living conditions, evictions, and homelessness. In North Carolina, 14% of households experienced at least one of the following housing problems: overcrowding, high housing costs, lack of kitchen facilities, or lack of plumbing facilities. This ranged from 9% to 23% of households across counties in the state, during 2023 according to County Health Rankings. In Durham this number was 16%. [4] Such conditions hindered effective adherence to COVID-19 preventative measures, including quarantine and isolation, due to a lack of separate living areas for infected individuals.

Systemic barriers have notably affected historically marginalized communities, especially Black or African American individuals and those with lower socioeconomic and educational backgrounds, in accessing COVID-19 testing, treatment, and vaccinations.[3] These findings suggest the necessity for customized interventions and policy measures to foster the well-being and resilience of all community members during and after the pandemic, ensuring equitable recovery initiatives.

The findings underscore a significant increase in reported mental health challenges with work, finances, and relationships identified as major stressors. Similarly, the rise in financial hardship experienced by one in four residents underscores the need for targeted financial assistance programs to alleviate the economic strain faced by households and businesses. Moreover, the data

indicates an increase in the percentage of residents facing challenges in accessing healthcare, suggesting disparities in healthcare accessibility. This issue poses a significant risk, especially for vulnerable populations, potentially contributing to exacerbated health outcomes and further widening existing health disparities.

Systemic barriers have notably affected historically marginalized communities, especially Black or African American individuals and those with lower socioeconomic and educational backgrounds. These findings suggest the necessity for customized interventions and policy measures to foster the well-being and resilience of all community members during and after the pandemic, ensuring equitable recovery initiatives.

Emerging Issues

The long-term health impacts of the pandemic are still being studied. However, the pandemic has had a significant impact on the mental health of many community members. This is likely due to several factors, including:

Grief and loss: The COVID-19 pandemic has led to a significant increase in the number of orphans in North Carolina (NC), with an estimated 1,000 children losing a parent or caregiver to the virus (Zeng et al., 2023). This bereavement is not merely an individual experience but has reverberating effects on the broader community, leaving families grappling with trauma, uncertainty, and a sense of profound loss. The sudden disruption in family structures and support systems, compounded by the inability to bid proper farewells or grieve collectively due to pandemic restrictions, further complicated the process of mourning and healing for those left behind.

Social isolation: The implementation of necessary social distancing measures and lockdowns led to increased social isolation for many individuals, exacerbating feelings of loneliness, anxiety, and depression. Prolonged isolation has the potential to have enduring psychological effects on individuals, especially those already vulnerable to mental health challenges. The implications of this prolonged isolation on the community's overall well-being and the potential long-term consequences for mental health underscore the critical need for targeted support and intervention programs that address the psychological toll of social isolation.

Community Voices

Below is a compilation of quotes from Durham Youth Listening Project and Be Heard Durham that collectively articulate a shared yearning for increased inclusivity and support within the community.[4,6] One perspective highlights the need for a more inclusive environment, while another underscores the importance of establishing accessible avenues for those facing challenges to seek assistance. Additionally, there is a resounding call for the development of enhanced programming, targeting citizens of different age groups, including teens, young adults, and seniors. The issue of homelessness among teenagers is brought to the forefront, emphasizing the urgent need for dedicated spaces tailored to their unique circumstances. Together, these quotes encapsulate a community-wide vision for a more inclusive, supportive, and proactive environment that effectively addresses the diverse needs of its members.

“I'm one that would like to see more inclusion there.”

[We need to be] “Making sure that people know who they can talk to when they do have a problem.”

“Would like to see more programming for citizens, more active programming for the teens, young adults, and our seniors.”

“Homeless teenagers cannot stay in adult housing. There's no place for them to go.”

Recommended Strategies

Strengthening Mental Health Support

Establishing and expanding accessible mental health support services is crucial. This can include the provision of community-based counseling centers, hotlines for emotional support, and outreach programs aimed at destigmatizing mental health issues. Collaborating with local mental health organizations and professionals can help ensure the availability of comprehensive mental health resources tailored to the diverse needs of the community.

Financial Assistance Programs

Implementing targeted financial assistance programs for affected individuals and businesses can provide much-needed relief. This can include grants, low-interest loans, and financial counseling services to help individuals and businesses navigate the economic challenges posed by the pandemic. Partnering with local financial institutions and nonprofit organizations can facilitate the distribution of financial aid and resources to those in need.

Enhancing Healthcare Accessibility

Improving healthcare accessibility through the establishment of mobile health units, telemedicine services, and community health clinics can help address the disparities in healthcare access. Collaborating with healthcare providers and community organizations to offer free or low-cost healthcare services, especially in underserved areas, can ensure that all residents have equitable access to essential medical care and resources.

Targeted Support for Marginalized Communities

Developing targeted support programs for marginalized communities, including people of color and those with lower socioeconomic status, is essential. This can involve initiatives such as community health fairs, culturally sensitive healthcare outreach programs, and educational workshops focused on health literacy and disease prevention. Collaborating with community leaders and advocacy groups can help ensure that these programs are effectively tailored to address the specific needs and challenges faced by these communities.

Comprehensive Bereavement Support

Establishing comprehensive bereavement support programs for families and children who have lost loved ones to COVID-19 is critical. This can involve providing grief counseling services, support groups, and specialized resources for children and adolescents coping with the loss of a parent or caregiver. Partnering with local grief counseling centers, schools, and social service

agencies can help ensure that bereaved families receive the necessary emotional and practical support to navigate the complex process of mourning and healing.

Community Engagement and Education

Promoting community engagement and education through informative workshops, public health campaigns, and awareness programs can foster a culture of resilience and proactive health management. Empowering residents with knowledge about preventive healthcare, mental wellness, and available support resources can encourage proactive health-seeking behaviors and promote a sense of community solidarity in navigating the challenges posed by the pandemic.

Policy Change

Engaging in advocacy efforts to promote policy changes aimed at addressing systemic inequalities and promoting equitable access to healthcare and resources is essential. This can involve advocating for policies that prioritize community health, allocating resources for under-invested communities, and supporting initiatives aimed at reducing health disparities. Collaborating with local policymakers, community leaders, and advocacy groups can help amplify the voices of the community and drive meaningful policy reforms for the long-term well-being of Durham County residents.

Current Initiatives & Activities

Bull City Strong – A community-based partnership to reduce the increased risk of contracting, being hospitalized, and dying from COVID-19 among Black or African American, Hispanic or Latina/o/x, and other historically marginalized populations in Durham County. The project operates with backbone support from the Durham County Department of Public Health and aims to improve health literacy in Durham to further an equitable community response to COVID-19. https://www.dcopublichealth.org/services/health-education/bull-city-strong

- Focus groups – Conversations with individuals who spoke Arabic, Mandarin, Vietnamese, and Haitian Creole established an in-depth understanding of the strengths, challenges, and needs of non-English and non-Spanish speaking communities of Durham County. These focus groups helped gauge sentiment on various community-related issues, aiming to help provide culturally and linguistically appropriate health information services that reflect the full diversity of Durham's residents.

Durham County Department of Public Health – Partners with the community to advance health equity, protect the environment, and promote health and wellness for all. Throughout the pandemic, DCoDPH provided contact tracing, vaccination clinics, vaccine distribution, and home testing supplies. https://www.dcopublichealth.org/

HEART Program – Launched in 2022, HEART is Durham's Crisis Response Program (Holistic Empathetic Assistance Response Teams) includes four crisis response units that aim to connect people experiencing non-violent mental health crises or quality of life concerns with the right care. Crisis call diversion embeds mental health clinicians in Durham's 9-1-1 call center. Community response teams are unarmed first responders to non-violent calls for service. Care

navigators follow up with people after meeting with a first responder to help connect to the community-based care they need and want. Co-response pairs clinicians with Durham police officers to respond to certain calls for service that pose a greater potential safety risk. https://www.durhamnc.gov/4576/Community-Safety

LATIN-19 – Born out of a collective passion for supporting and amplifying the voices of the Latina community, LATIN-19 (the Latinx Advocacy Team & Interdisciplinary Network for COVID-19) was founded in March 2020 to reduce the negative impact of COVID-19 on the physical, mental, and social health of Latina communities in the Triangle area. The organization's mission has since expanded to all issues concerning health and wellness among the Latina community to reduce health disparities and inequities. https://latin19.org/

AACT+ – The African American COVID Task Force emerged in the summer of 2020 to invite individuals and organizations to share stories about their firsthand experiences with the pandemic and to draw on their collective knowledge, energy, and influence to create change in how Black and African American community members receive information about COVID-19. Now known as the African American Community Taskforce, the group seeks to address racism in healthcare and the need for patient advocacy through a focus on information dissemination, COVID testing, community resources, advocacy, research funding, physical and mental health, and information about and access to the COVID vaccine in traditionally underserved communities.

Museum of Durham History – The Museum of Durham History works to promote an understanding of diverse perspectives about the Durham community and its history. The museum conducted interviews with youth during the pandemic, which were integrated into an exhibit, *Stranger Times,* that highlights the reflections of Durham teen experience with COVID-19 and the associated stay-at-home order. The exhibit is on display through Spring 2024. https://www.museumofdurhamhistory.org/

References

[1] Durham County Department of Public Health. (2023). *Durham County Community Health Assessment County-Wide Data Dashboard.* https://app.powerbigov.us/view?r=eyJrIjoiMjEwMjNjZDgtNzg5Zi00YjRmLThhMGItZTMzOThjMGJlOTE2IiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9

[2] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

[3] Anuli Njoku, M. J., Rochelle Felix. (2021). Changing the Narrative: Structural Barriers and Racial and Ethnic Inequities in COVID-19 Vaccination. *Environmental Research and Public Health*, *18*. https://doi.org/10.3390/ijerph18189904

[4] Equitable Community Engagement. *Be Heard Durham.* https://behearddurham.portal.lvn.org/

[5] Zeng, D., Gu, Y., Xu, Y., Wheeler, B. W., Young, H., & Lin, D. (2023). The impact of the COVID-19 pandemic on orphans in North Carolina. *New England Journal of Medicine*, 389(10), 901-903.

[6] City of Durham Office on Youth. (February 2021). *Durham Youth Listening Project*. www.durhamnc.gov/officeonyouth

[7] Durham, North Carolina | County Health Rankings & Roadmaps Accessed(2/8/2024

[8] County Health Rankings & Roadmaps. (2021). County Health Rankings 2021: North Carolina. Retrieved from https://www.countyhealthrankings.org/sites/default/files/media/document/CHR2021_NC.pdf

Section 15.02 *COVID-19 Vaccinations*

Overview

Sixty years ago, not much was known about messenger ribonucleic acid (mRNA) and its link to viruses.[1] Scientists would spend decades researching this relationship until a breakthrough occurred in the early 2000s.[1] Since then, vaccine advancements and further research set the scene for the SARS-CoV-2 global pandemic and its life saving vaccine.[1] An international collaboration of public health workers operated around the clock to find a vaccine to aid the body's fight against COVID-19. Within 100 days of the pandemic, the National Institutes of Health (NIH) funded and supported laboratory research which laid the groundwork for the rapid development of the mRNA COVID-19 vaccine.[1]

SARS-CoV-2 Vaccine Development Timeline[1]:

March 11, 2020 — The World Health Organization (WHO) declares COVID-19 a pandemic.
March 16, 2020 — NIH clinical trials for the Moderna mRNA vaccine begin.
April 17, 2020 — NIH launches Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV), a first-of-its-kind public-private partnership for developing COVID-19 treatments and vaccines.
May 15, 2020 — Operation Warp Speed launches to coordinate federal government efforts that speed up the approval and production of reliable COVID-19 diagnostics, vaccines, and treatments.
November 16, 2020 — A large-scale phase three clinical trial of the Moderna mRNA vaccine shows promising interim results.
December 2020 — The Food and Drug Administration (FDA) grants emergency use authorization (EUA) to the Pfizer-BioNTech and Moderna mRNA vaccines for people ages 16 and older.
August 23, 2021 — The FDA grants full approval to the Pfizer-BioNTech mRNA vaccine for people ages 16 and older.
October 29, 2021 — The FDA grants an EUA to the Pfizer-BioNTech mRNA vaccine for children ages 5 to 11.
June 17, 2022 — The FDA grants an EUA to the Pfizer-BioNTech and Moderna mRNA vaccines for children ages 6 months or older.
August 31, 2022 — The FDA grants an EUA of the Moderna and Pfizer-BioNTech COVID-19 vaccines to authorize bivalent formulations for use as a booster dose. These updated boosters contain mRNA components for both the original strain of SARS-CoV-2 and its Omicron variant.
December 8, 2022 — The FDA grants an EUA to the Pfizer-BioNTech and Moderna bivalent COVID-19 vaccines for children ages six months or older.

What are mRNA vaccines and how do they work?

There are many types of vaccines that all achieve the same goal: preventing and reducing severity of disease.[2] See chapter eight, *Communicable Diseases*, for more information on how vaccines work to boost immunity. The technology used for mRNA vaccines is not new, but this vaccine technology was first successfully used for the SARS-CoV-2 virus.[3] Pfizer-BioNTech and Moderna were the two pharmaceutical research companies to successfully create mRNA COVID-19 vaccines.[2] Additional vaccines using different technology were also developed including the protein subunit vaccine from Novavax.[2]

Most vaccines introduce a weakened or inactivated pathogen to our bodies which triggers an immune response to that pathogen. mRNA vaccines work a little differently where they introduce a protein – or just part of a protein – to your body which then learns to replicate that protein using the cell's own DNA replication machinery. This protein, called the spike protein, is now displayed on the surface of the cell, and is detected by your immune system which then produces antibodies. Once these antibodies are made, you are protected from infection and severe disease outcomes caused by COVID-19.[2]

There are other COVID-19 vaccines that did not use the mRNA technology. The Novavax vaccine works by introducing a part of a protein to the body and the adjuvant, ingredient in the vaccine that helps the immune system respond, is also able to trigger the production of antibodies.[2] This protein subunit technology is also not new and was first used to develop a hepatitis B vaccine over thirty years ago and later, the pertussis (whooping cough) vaccine.

Primary Data

The 2022 Durham County Community Health Assessment County-wide and 2023 Comunidad Latina surveys asked two questions regarding COVID-19 vaccination. The first question asked if the participant received at least one dose of the COVID-19 vaccine. The second question asked why a survey respondent did not get the vaccine, if the participant answers 'no' to the first question. Among the County-wide survey participants, 94% reported receiving at least one dose of the COVID-19 vaccine while 83.2% of the Comunidad Latina survey participants received at least one dose.[4; 5] Those that answered 'no' to the first question reported not getting the vaccine because they couldn't get time off work, they don't believe in/trust the vaccine, they don't want to get COVID-19 from the vaccine, and they don't want to experience any adverse symptoms from the vaccine.

Durham County Department of Public Health began vaccinating prioritized individuals in December 2020. As more and more of the population became eligible for vaccines, a significant spike in vaccine adoption was seen between quarters one (January-March) and two (April-June) of 2021. However, a key point to make is that whites were five times as likely to be fully vaccinated in quarter one of 2021 than Hispanic or Latina/o/x residents and nearly twice as likely as Black or African Americans. Vaccinations steadily increased in 2021 and began leveling off in 2022 and only slightly improved in 2023. This means more and more of the population is getting vaccinated so the percent change over time will decrease. As of quarter two (April-June) of 2023, 53% of Black or African Americans, 56% of Hispanic or Latina/o/x residents, and 67% of whites were fully vaccinated.[6]

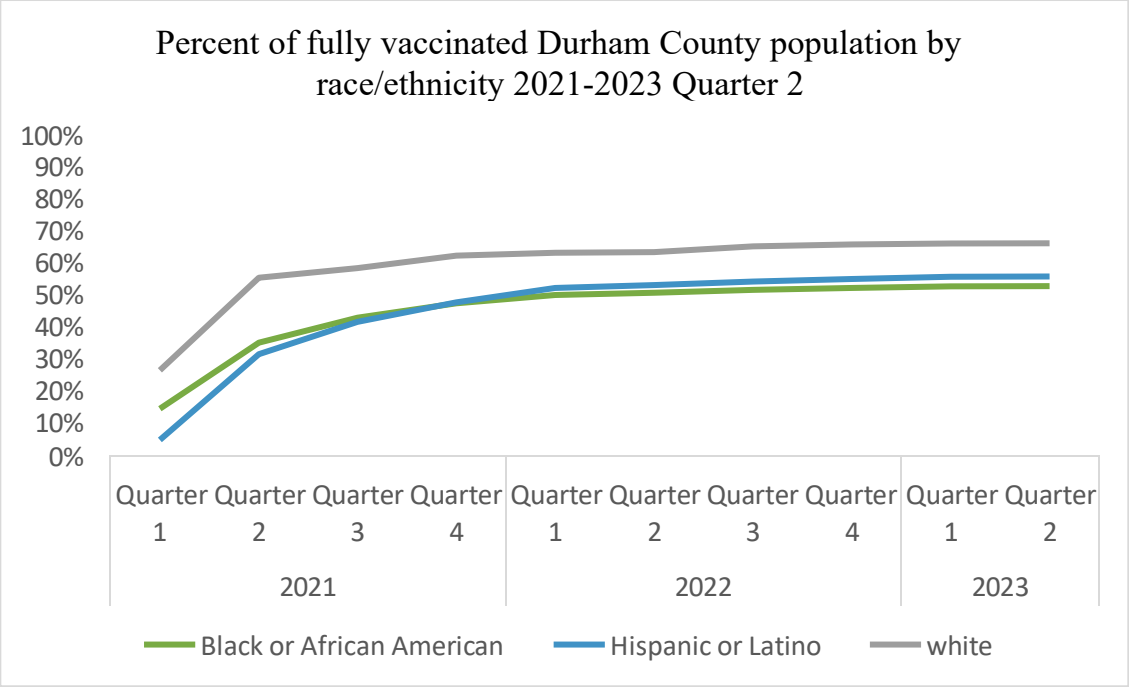


Figure16.01(a) Percentage of Durham County population that is fully vaccinated by race/ethnicity 2021-2023 Q2.

Secondary Data

Vaccine efficacy

Vaccine efficacy equates to how effective the vaccine is against poor health outcomes such as infection, symptomatic illness, hospitalization, and death.[7] Many factors contribute to a vaccine's effectiveness.[7] These factors include host-related factors (age, underlying medical conditions, history of prior infection), pathogen-related factors (virus variants), and vaccine-related factors (type of vaccine and time since last vaccine).[7] The original monovalent mRNA COVID-19 vaccine was 76% effective in preventing COVID-19 associated invasive medical ventilation and death up to six months after the last dose.[7] The bivalent vaccine which covered the ancestral strain and BA.4/BA.5 strains was 62% effective within seven to 59 days postvaccination and up to 24% effective 120 to 179 days postvaccination.[7] Vaccine efficacy in children is unknown but is successful in preventing emergency room visits, hospitalizations, and deaths.[7]

Impact on hospitalizations and deaths

Estimates show that COVID-19 vaccines prevented eight million confirmed cases, 120,000 deaths, and 700,000 fewer hospitalizations in the United States during the first six months of the vaccine roll out.[8] A cross-sectional study found that COVID-19-associated hospitalization rates were 10.5 times higher among unvaccinated persons and two-and-a-half times higher in vaccinated individuals with no booster dose compared to those with a booster.[9] Vaccinated hospitalizations were more likely to occur among those that were older with underlying medical conditions.[9]

Interpretations: Disparities, Gaps, Emerging Issues

Vaccine barriers

Early in the vaccine rollout, massive inequities were identified in Durham County.[10] Initially, vaccine appointments could only be requested by phone or online, and only in English, which led to long wait times and barriers.[10] Vaccine clinic hours were only during normal business hours, and vaccine clinics were not located in areas where the most impacted lived.[10] Some vaccine sites were inaccessible to people with disabilities.[10] Between January and March 2021, Black or African American vaccine uptake was at 32% followed by Hispanic and Latino vaccine uptake at 21%.[10] In contrast, non-Hispanic whites had a vaccine uptake of 54.8%.[10] These discrepancies are the natural consequence of systemic racism.[10] DCoDPH utilized many resources and creative ideas to minimize the inequities including working with partners on tailored outreach to populations most impacted, holding virtual vaccine education events, partnering with community health workers, strengthening existing partnerships with community organizations and healthcare providers, providing Spanish language communications online and using data to focus on geographic areas with lower vaccine uptake.[10] To minimize confusion, DCoDPH published an interactive data dashboard that communicated vaccine data to the community and provided educational messaging on the pandemic.[10]

Vaccines and BIPOC populations

A mass vaccination effort must battle five key barriers: (1) the legacy of structural racism; (2) media misinformation; (3) listening and adapting to community needs; (4) evolving attitudes towards vaccination; and (5) understanding alternative health belief systems.[11] During the COVID-19 vaccination rollout, Black, Indigenous, and People of Color (BIPOC) populations were less likely to receive the vaccine than whites.[11] A common descriptor for this group is 'vaccine hesitant'.[11] This term is often misinterpreted as it puts the onus on the individual while shifting the blame away from the effects of systemic racism and social determinants of health inequities.[11] The goal is to improve the healthcare system in an equitable way by eliminating racism.[11]

Future vaccines

Duke Surgery's Division of Surgical Sciences and Duke Human Vaccine Institute joined together to develop a pan-coronavirus vaccine.[12] The purpose of this vaccine is to use previous research to develop a vaccine against multiple coronaviruses including SARS-CoV-1, MERS-CoV, and SARS-CoV-2 (causing COVID-19).[12] The NIH granted $21.5 million dollars to the pan-coronavirus vaccine to be tested in a phase one clinical trial.[12]

Future SARS-CoV-2 vaccines are under development using multiple techniques.[13] Intranasally or orally absorbed vaccine is being researched as an alternative to the injectable vaccine.[12] This is beneficial because the antibodies from the initial vaccine will wane over time in the upper respiratory tract.[13] Mucosal vaccination can best combat this and supply that tissue with antibodies again.[13] Regulatory agencies are likely to recommend an annual updated COVID-19 vaccine similar to the annual influenza vaccine.[13]

With the novelty of the pandemic wearing off, vaccine development faces new challenges, including funding, prioritization of COVID-19 research, and difficulty recruiting volunteers for clinical trials.[13]

Recommended Strategies

Anti-racist approach

Recommendations to adopt an explicitly anti-racist lens to improve vaccine uptake include listening and acknowledging community concerns, addressing misinformation through a culturally informed, consistent messaging delivered by local leaders, mobile vaccination clinics to meet community members where they are at, and to establish vaccine equity task forces to develop sustainable policies, structures, programs, and practices to address structural issues driving vaccine and health inequities among BIPOC communities.[11]

Data transparency

Being transparent about data is essential to building and maintaining trust from the public, and especially from historically marginalized communities. From April 2020 – May 2023, DCoDPH maintained an interactive, multi-level data dashboard which aligned with NC Department of Health and Human Services' dashboard. This dashboard was updated weekly from the most recent data available. Data tracked included case numbers, hospitalizations, deaths, vaccines and more by race and ethnicity. The visibility of this data was important for engaging historically marginalized communities and increasing vaccination across communities in Durham.

Current Initiatives & Activities

ACCORD **–** North Carolina Central University is home to the Advanced Center for COVID-19 Related Disparities (ACCORD). This academic hub aims to facilitate COVID-19 testing in the Durham community and conduct multidisciplinary research to study the public health and economic impact of COVID-19 on underserved communities in North Carolina. ACCORD partners include public health departments and community and faith-based organizations, as well as many dedicated members of our community. https://www.nccu.edu/accord

Bull City Strong – A community-based partnership to reduce the increased risk of contracting, being hospitalized, and dying from COVID-19 among Black, Hispanic, and other historically marginalized populations in Durham County. The project operates with backbone support from the Durham County Department of Public Health and aims to improve health literacy in Durham to further an equitable community response to COVID-19. https://www.dcopublichealth.org/services/health-education/bull-city-strong

Vaccine Equity Advisory Coalition: From July – December 2021, nine community-based organizations (CBO), joined by representation from the City of Durham and Durham County Department of Public Health (DCoDPH) to improve equitable COVID-19 vaccination rates across Durham County, with a focus on Black and Latinx communities. Through the VEAC, over 50 Community Health Workers increased vaccination rates through the engagement of local champions, educating residents about the COVID-19 vaccine and vaccination sites, reducing barriers to COVID-19 vaccination, hosting and supporting vaccination and testing events, and working with clients to meet essential needs. https://projectaccessdurham.org/projects/community-health-worker-initiative/

References

[1] National Institutes of Health. (2023). *Decades in the Making: mRNA COVID-19 vaccines*. United States Department of Health and Human Services. https://covid19.nih.gov/nih-strategic-response-covid-19/decades-making-mrna-covid-19-vaccines

[2] Centers for Disease Control and Prevention. (September 22, 2023). *Understanding How COVID-19 Vaccines Work*. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/different-vaccines/how-they-work.html

[3] Beyrer, C. (2021). *The Long History of mRNA Vaccines*. Johns Hopkins Bloomberg School of Public Health. https://publichealth.jhu.edu/2021/the-long-history-of-mrna-vaccines

[4] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. *Durham County Community Health Assessment Comunidad Latina Dashboard: Data Trends from 2016 – 2023*. https://app.powerbigov.us/view?r=eyJrIjoiYzI5YTIwMWUtZjA2ZS00MmI1LWI0N2EtYWE4OTQwMjNiMmJlIiwidCI6ImMxNmEwMGEzLTU2MDktNDdjMC1iMmMyLTcyZDg2MzVlMzQyMyJ9

[5] Durham County Department of Public Health, Duke Health, & Partnership for a Health Durham. (2023). *2022 Durham County County-Wide Community Health Assessment Survey Report*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf

[6] North Carolina Department of Health and Human Services. (2023). *(Archive) COVID-19 Vaccinations Dashboard*. https://covid19.ncdhhs.gov/dashboard/vaccinations

[7] National Center for Immunization and Respiratory Diseases (NCIRD), D. o. V. D. (2023). *Vaccine Effectiveness Studies*. Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/vaccines/effectiveness/how-they-work.html

[8] Yamana, T. K., Galanti, M., Pei, S., Di Fusco, M., Angulo, F. J., Moran, M. M., Khan, F., Swerdlow, D. L., & Shaman, J. (2023). The impact of COVID-19 vaccination in the US: Averted burden of SARS-COV-2-related cases, hospitalizations and deaths. *PloS one*, *18*(4). https://doi.org/10.1371/journal.pone.0275699

[9] Havers FP, P. H., Taylor CA, et al. (2022). COVID-19-Associated Hospitalizations Among Vaccinated and Unvaccinated Adults 18 Years or Older in 13 US States, January 2021 to April 2022. *JAMA Intern Medicine*, *182*(10), 1071-1081. https://doi.org/10.1001/jamainternmed.2022.4299

[10] Mortiboy, M., Zitta, J.-P., Carrico, S., Stevens, E., Smith, A., Morris, C., Jenkins, R., & Jenks, J. D. (2023). Combating COVID-19 Vaccine Inequity During the Early Stages of the COVID-19 Pandemic. *J. Racial and Ethnic Health Disparities*. https://doi.org/10.1007/s40615-023-01546-0

[11] Martinez Leal, I., Njoh, J., Chen, T. A., Foreman-Hays, F., Reed, B. C., Haley, S. A., Chavez, K., Reitzel, L. R., & Obasi, E. M. (2023). Exploring COVID-19 Vaccine Attitudes among Racially and Ethnically Minoritized Communities: Community Partners' and Residents' Perspectives. *International Journal of Environmental Research and Public Health*, *20*(4). https://doi.org/10.3390%2Fijerph20043372

[12] Macalino, M. A. (2023). Protection Against Future Variants: Developing the Pan-Coronavirus Vaccine. https://surgery.duke.edu/stories/protection-against-future-variants-developing-pan-coronavirus-vaccine

[13] Krammer, F. (2023). The Future Of COVID-19 Vaccine Development. *HealthAffairs*. https://www.healthaffairs.org/do/10.1377/forefront.20230920.339267

Section 15.03 *COVID-19 Barriers to Health Care*

Overview

In 2018, Access to Care was identified as the second most important health priority for Durham County according to the 2017 Community Health Assessment.[1] Prior to the COVID-19 pandemic, barriers to health care access were well documented public health concerns. Barriers to getting health care can be intrapersonal, interpersonal, institutional, social, political, and cultural. Political and/or social determinants, including education, income, race, and ethnicity, heavily impact the community's ability to get access to health care. In this section, barriers are defined as factors that limit Durham County residents' access to information, vaccinations, preventions, treatments, and health care related to COVID-19. Health-care barriers are often more present in underserved, marginalized, and less affluent neighborhoods- primarily populated by persons of color- due to a history of systemic racism and discrimination.[1]

Intrapersonal and interpersonal barriers

Knowledge, attitudes, and beliefs related to medical distrust and systemic racism are intrapersonal barriers. Interpersonal factors, such as interactions with other people, can also create barriers to healthy behaviors.[2] One example is discrimination in health-care settings– one person discriminating against another- is interpersonal. There are examples of discrimination in structural settings written in the following paragraphs. The interpersonal barrier of racism can deter people of color from seeking health care.[3] Poor communication, lack of respect, and health literacy are also barriers that lead to poor health outcomes.

Community factors play a significant role in shaping individuals' health behaviors and can either prevent or create barriers to developing healthy behaviors. These factors include social norms, cultural values, social support networks, and the availability of resources and opportunities for healthy living. Understanding these community factors is crucial for promoting and sustaining healthy behaviors within Durham County.

Social norms and cultural values

Social norms are defined by the Centers for Disease Control and Prevention (CDC) as values, beliefs, attitudes, and/or behaviors shared by a group of people.[4] They are often based on what people believe to be normal, typical, or appropriate. Social norms can function as unspoken rules or guidelines for how people behave, and for how people are expected to behave.

Cultural values also influence individuals' behaviors within a community. Cultural values are deeply ingrained beliefs and attitudes that shape how people perceive and interact with the world around them. Understanding cultural values and social support is essential for designing effective interventions and policies that promote healthier lifestyles within a community.

Institutional barriers

Institutional barriers are policies, programs, and practices that pollute systems and organizations, such as banks, churches, or health-care agencies, in their efforts to prioritize and promote the health and wellbeing of populations. The institutional and organizational barriers discussed in this section

refer to the advantages whites have compared to Black or African American, Indigenous, and People of Color (BIPOC) populations. COVID-19 exacerbated many preexisting institutional barriers.

Vaccine mandates were discussed early on during the rollout process which led to debates on the effectiveness of such a public health intervention. While vaccine mandates are effective in reducing severe disease, they did increase inequities among marginalized communities. Vaccine policies such as mandates increase gaps in equity for historically marginalized populations due to a variety of reasons including medical mistrust and lack of culturally competent providers, which already isolate BIPOC, marginalized, or oppressed populations from health care.[5] Vaccine mandates also contribute to inequities by creating coercive work environments that perpetuate social stigmatization and structural disadvantages among BIPOC communities.[6] Social exclusion can also have long-term mental health consequences.[6] In Durham County, there was not a broad vaccine mandate. However, many non-health-care organizations discussed a mandate for employees, but ultimately decided to use messaging that COVID-19 vaccines were highly encouraged, but not required.[7]

Primary Data

The 2022 Durham Community Health Assessment County-wide and 2023 Durham County Community Health Assessment Comunidad Latina survey participants were asked what issues related to COVID-19 added stresses to their lives.[8, 9] Guidance around isolation, quarantine, and mask mandates were common causes of stress. Participants also responded with other reasons, including the prevalence of misinformation, people not taking it seriously, and interruptions to daily life.[9] When participants were asked why they did not get a COVID-19 vaccine, common responses were distrusting or not believing in vaccines.[9]

Secondary Data

Masking is one example of a COVID-related social norm that changed throughout the pandemic. A two-year study identified two main observations about the emergence and stability of social norms around wearing face masks to decrease the transmission of the SARS-CoV-2 virus.[6] First, social norms and behavior were tightly coupled over time. Perceived social norms changed as mask wearing declined, when the CDC rescinded their mask recommendation, following widespread vaccine availability in March 2021; but increased after the CDC updated their guidelines for indoor mask use in high-risk areas in August 2021. Subsequently, the steep rise in COVID-19 case numbers in the fall of 2021 led to increases in both mask wearing and changes to social norms. Finally, perceived social norms changed and mask wearing declined again after the CDC eased mask wearing guidelines in March 2022.[6] The changing guidance on masking often led to confusion and was particularly difficult for communities of color that often relied on social networks to receive COVID-19 updates.[10]

As an example of cultural barriers, a study done by Pew Research Center showed that roughly a quarter of Asians, Black or African Americans, and Hispanic or Latina/o/x residents live in multigenerational households, which is double that of white households.[11] Immigrant status is also linked to the likelihood of multigenerational living.[11] A higher percentage of foreign-born Americans (26%) live in a multigenerational family home than US-born Americans (17%). While multigenerational households provide many benefits like social support, they also present a

challenge related to COVID-19 isolation and distancing guidelines. Individuals residing in overcrowded and multigenerational households have increased risk of developing more severe forms of COVID-19, since these settings reduce personal space and increase the risk of multiple exposures to SARS-CoV-2 infection.[12; 13]

A study of interpersonal barriers by the North Carolina Central University (NCCU) ACCORD team, in late 2020- prior to the Food and Drug Administration (FDA) authorization of emergency use of COVID-19 vaccines, showed that Black or African Americans were less likely than Hispanic or Latina/o/x and white residents to say that they would get the COVID-19 vaccine as soon as it was available .[14] When asked about reasons for not getting or delaying the vaccination, safety concerns were identified by a similar percentage of Black or African American and white participants. However, more Black or African American participants included distrust of the government (28.6%) and the medical system than whites.[12]

Government regulations and requirements surrounding COVID-19 testing, vaccination, mask mandates, and travel restrictions are all examples of institutional barriers set in place during the pandemic. While these actions were taken for public health and safety, people were impacted by them differently. For example, from the onset of the pandemic until late 2021, public health guidance was that anyone who tested positive for COVID-19 should isolate, and therefore miss work, for fourteen days.[13] During this time, a top concern among Hispanic or Latina/o/x residents was missing or losing work due to a positive test which would result in less income.[15] Additional barriers to testing were transportation and language accessibility.[5] A lengthy history of medical mistrust due to systemic racism in health care, impacted both COVID-19 testing and vaccination.[5]

Interpretations: Disparities, Gaps, Emerging Issues

The COVID-19 pandemic required innovative strategies to move local, national, and global public health programs online and provide equitable services to residents. Durham County Department of Public Health (DCoDPH) implemented new programs to alleviate social and structural barriers in the Durham community regarding COVID-19. DCoDPH utilized social media by consistently providing video updates from the Durham County Public Health Director, which were shared on YouTube to improve the public's understanding about COVID-19 prevention, vaccination, testing, and treatment. These updates also included information on local resources focused on COVID-19 and other related social determinants of health. DCoDPH sought to broaden its audience base and increase trust in the local public health agency. This included partnering with Pillar Consulting to engage youth ambassadors to educate peers and developing a Community Health Promoter program to reach historically marginalized communities. Socially, DCoDPH partnered with BeConnected Durham to leverage the creative skills and social network of local artists, journalists, and social influencers to create and disseminate health information. Structurally, DCoDPH dismantled barriers by providing information in multiple languages, having pop up vaccination events throughout the county, and partnering with local leaders to pass on credible information.

Recommended Strategies

As COVID-19 evolves into an endemic health issue, dedicated efforts to reduce COVID-19 related disparities, including long COVID-19, are essential. Key strategies that reduced barriers to health care and diminished the impact of misinformation included:

- Bridging the gap between the County and local organizations by working together.
- Utilizing social media to promote factual and credible information.
- Providing information in multiple languages.
- Meeting people where they are by providing education and vaccinations in a variety of venues and events across the county.
- Providing real-time, accurate, and valid data surrounding disease transmission and preventive behaviors like vaccination through an interactive data dashboard.

Current Initiatives & Activities

ACCORD **–** North Carolina Central University is home to the Advanced Center for COVID-19 Related Disparities (ACCORD). This academic hub aims to facilitate COVID-19 testing in the Durham community and conduct multidisciplinary research to study the public health and economic impact of COVID-19 on underserved communities in North Carolina. ACCORD partners include public health departments and community and faith-based organizations, as well as many dedicated members of our community. https://www.nccu.edu/accord

AACT+ – The African American COVID-19 Task Force emerged in summer of 2020 to invite individuals and organizations to share stories about their firsthand experiences with the pandemic and to draw on their collective knowledge, energy, and influence to create change in how Black or African American community members receive information about COVID-19. Now known as the African American Community Taskforce, the group seeks to address racism in health care and the need for patient advocacy through a focus on information dissemination, COVID-19 testing, community resources, advocacy, research funding, physical and mental health, and information about and access to the COVID-19 vaccine in traditionally underserved communities.

Bull City Strong – A community-based partnership working to reduce the increased risk of contracting, being hospitalized with, and dying from COVID-19 among Black or African American, Hispanic or Latina/o/x, and other historically marginalized populations in Durham County. In collaboration with Pillar Consulting, LATIN-19, NCCU and Project Access of Durham County, the project operates with support from the Durham County Department of Public Health and aims to improve health literacy in Durham to further an equitable community response to COVID-19. https://www.dcopublichealth.org/services/health-education/bull-city-strong

Communities in Partnership – As a resident-led organization in Old East Durham, Communities in Partnership (CIP) focuses on community building, collective action, and capacity building. A primarily Black woman-led organization, CIP provided affordable housing, food sovereignty, entrepreneurships programs, and other supports during the pandemic; their work is now expanding to address growing economic disparities among residents and the rising cost of living in their community and Durham at large. https://communitiesinpartnership.org/

Durham Recovery and Renewal Task Force – A joint effort of the City of Durham and Durham County, the Recovery and Renewal Task Force gathered business leaders, elected officials, local government, and the public together to keep the community safe while working to reopen the economy following stay-at-home orders. Industry roundtables provided opportunities for

community partners and experts to provide actionable guidance and direction on how to revise emergency declarations. The task force concluded operations in May 2021.

LATIN-19 **–** Born out of a collective passion for supporting and amplifying voices of the Latina/o/x community, LATIN-19 (the Latinx Advocacy Team & Interdisciplinary Network for COVID-19) was founded in March 2020 to reduce the negative impact of COVID-19 on the physical, mental, and social health of Latina communities in the Triangle area. The organization's mission has since expanded to all issues concerning the health and wellness among the Latina/o/x community to reduce health disparities and inequities. https://latin19.org/

References

[1] Partnership for a Healthy Durham. (2018). *2017 Durham County Community Health Assessment Executive Summary & Key Findings*. https://healthydurham.org/cms/wp-content/uploads/2018/07/CHA-Summary_2018-English.pdf

[2] Mayo Clinic. (2023). *Debunking COVID-19 myths* Retrieved November 7 from https://www.mayoclinic.org/diseases-conditions/coronavirus/in-depth/coronavirus-myths/art-20485720

[3] Hausmann, L. R. M., Hannon, M. J., Kresevic, D. M., Hanusa, B. H., Kwoh, C. K., Ibrahim, S. A. . (2011). Impact of perceived discrimination in health care on patient-provider communication. *Med Care*, *49*(7), 626-633. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3117903/

[4] The Centers for Disease Control and Prevention. (2014). Promoting Positive Community Norms, A Supplement to CDC's Essentials for Childhood: Steps to Create Safe, Stable, Nurturing Relationships and Environments. *Essentials for Childhood*. https://www.cdc.gov/violenceprevention/pdf/efc-promoting-positive-community-norms.pdf.pdf#:~:text=Norms%20are%20defined%20as%20those%20values%2C%20beliefs%2C%20attitudes%2C,are%20what%20most%20people%20value%2C%20believe%2C%20and%20do.

[5] Bardosh, K., de Figueiredo, A., Gur-Arie, R., Jamrozik, E., Doidge, J., Lemmens, T., Keshavjee, S., Graham, J. E., Baral, S. (2022). The Unintended Consequences of COVID-19 vaccine policy: why mandates, passports and restrictions may cause more harm than good. *BMJ Global Health*. https://gh.bmj.com/content/7/5/e008684.info

[6] Heiman, S. L., Claessens, S., Ayers, J. D., Guevara Beltrán, D., Van Horn, A., Hirt, E. R., Aktipis, A., & Todd, P. M. (2023). Descriptive norms caused increases in mask wearing during the COVID-19 pandemic. *Scientific reports*, *13*(1), 11856.

[7] Durham Public Schools. *COVID-19 DISTRICT GUIDELINES*. https://www.dpsnc.net/Page/5975

[8] Partnership for a Healthy Durham. (2023). *2023 DURHAM COUNTY COMUNIDAD LATINA COMMUNITY HEALTH ASSESSMENT SURVEY REPORT*. https://healthydurham.org/cms/wp-content/uploads/2023/12/Comunidad-Latina-Data-Report-Final.pdf

[9] Partnership for a Healthy Durham. (2022). *Survey Purpose, Methods, Data Collection, and Results of the 2023 Durham County County-wide Community Health Assessment*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-executive-report.pdf

[10] Emeruwa, U. N., Ona, S., Shaman, J. L., Turitz, A., Wright, J. D., Gyamfi-Bannerman, C., & Melamed, A. (2020). Associations between built environment, neighborhood socioeconomic status, and SARS-CoV-2 infection among pregnant women in New York City. *Jama*, *324*(4), 390-392.

[11] Cohn, D., Horowitz, J., Minkin, R., Fry, R., & Hurst, K. (2022). The demographics of multigenerational households. *Pew Research Center's Social & Demographic Trends Project*.

[12] Westblade, L. F., Brar, G., Pinheiro, L. C., Paidoussis, D., Rajan, M., Martin, P., Goyal, P., Sepulveda, J. L., Zhang, L., & George, G. (2020). SARS-CoV-2 viral load predicts mortality in patients with and without cancer who are hospitalized with COVID-19. *Cancer cell*, *38*(5), 661-671. e662.

[13] Walensky, R. P. (2021). CDC updates and shortens recommended isolation and quarantine period for general population: media statement for immediate release: Monday, December 27, 2021.

[14] Doherty, I. A., Pilkington, W., Brown, L., Billings, V., Hoffler, U., Paulin, L., Kimbro, K. S., Baker, B., Zhang, T., & Locklear, T. (2021). COVID-19 vaccine hesitancy in underserved communities of North Carolina. *PLoS One*, *16*(11), e0248542.

[15] Collie-Akers, V. L., Ablah, E., Landry, S., Honn, A., Mussulman, L., Ricketts, M., Carter, T., Wright, U., Watson, C., & Liu, B. (2022). Understanding Barriers to COVID-19 Testing Among Rural and Urban Populations in Kansas. *American Journal of Public Health*, *112*(S9), S874-S877.

Section 15.04 *COVID-19 Community Resilience*

Overview

The Federal Emergency Management Agency defines resilience as "the capacity of individuals, communities, businesses, institutions, and governments to adapt to changing conditions and to prepare for, withstand, and rapidly recover from disruptions to everyday life."[1] Specifically, community resilience results from the capacity of the community to resist or adapt to stressors, maintain and restore critical functions, and an overall return to a sense of normalcy.[2] The factors that contribute to community resilience and their interactions are complex. Factors include:

- Physical and psychological health of the population
- Individual, family, and community knowledge and attitudes regarding self-reliance and self-help
- Social and economic well-being
- Effective risk communication
- Level of social integration of government and non-governmental organizations in planning, response, and recovery; and
- Social connectedness of community members [3]

These factors were critical to Durham County's resilience in the face of the COVID-19 pandemic.

Primary Data

Social Well-Being

When asked "How often do you get the social and/or emotional support you need," 79.9% of respondents to the 2022 County-Wide CHA Survey reported that they usually or always received this support.[4] This number is much lower in Durham's Hispanic or Latina/o/x community with just under 50% of 2023 Comunidad Latina CHA Survey sample respondents reporting they get the social and/or emotional support they need. Additionally, 77% of City of Durham residents reported that they were satisfied with the quality of life in their neighborhood.[5]

Secondary Data

Healthcare Systems in Durham County

Durham is known as the city of medicine because of its strong healthcare network. Duke University Hospital, located in Durham County, is one of the largest hospitals in North Carolina with 1,048 beds.[6] Duke Regional Hospital has an additional 388 beds. Furthermore, Durham County has one primary care physician (PCP) for every 812 Durham residents compared to North Carolina with one PCP for every 1,412 residents. Durham also has a ratio of one mental healthcare provider per 140 residents, 140% higher than the average rate for the state of NC (one to 336). Not all Durham residents have equal access to medical and mental health care due to lack of resources or insurance. However, Lincoln Community Health Center is a federally qualified health center (FQHC) located in Durham. FQHCs increase access to health care and to produce improved health outcomes for vulnerable communities.[6]

Effective Risk Communication

Effective communication played a critical role in protecting Durham's residents and providing timely updates throughout the pandemic. Durham County Department of Public Health (DCoDPH) utilized many communication channels including news releases, media interviews, videos from the health director, e-newsletters in English and Spanish, website and social media. Additionally, DCoDPH collaborated with many agencies in Durham including schools, stores, and other businesses to develop print and digital messaging for distribution. These efforts included radio and television commercials, flyers, and more. Communication included time-sensitive updates such as changes in vaccine operations, COVID-19 Stay-At-Home Orders, and ongoing health and safety guidance including explaining COVID-19 symptoms and dispelling vaccine myths. Across digital channels, these messages were seen or heard more than 2 million times**,** with thousands more community members reached with print materials distributed**.** Durham was a local leader in its communications efforts, sharing resources not only within Durham County but also with neighboring counties upon request.

DCoDPH also developed and in-house dashboard to communicate and monitor the community spread and vaccine distribution rates. The dashboard transformed raw data into an easy-to-read, interactive format. The National Association of Counties recognized Durham in The Best in Category for COVID-19 Vaccine Dashboard under Health.

Finally, two coalitions were born out of the pandemic with goals of communicating accurate information. LATIN-19 was founded to reduce the negative impact of COVID-19 on the Hispanic or Latina/o/x community. The African American COVID Task Force (ACCT+) focused on information dissemination, testing and advocacy in Black or African American community. See the resources section below for more information.

Community Knowledge and Attitudes

Durham County ranks above average educational attainment, which is linked to increased resiliency, a reduced risk of severe COVID-19, and higher COVID-19 vaccine acceptance.[7,8] Compared to North Carolina, Durham County has a higher percentage of people (age 25 and over) with a bachelor's degree (30% vs. 22.8%) and with a graduate or professional degree (24.6% vs. 13.2%). Durham and NC rank have similar rates of high school graduation (89.9% vs. 89.0%). [9]

Communities with higher percentages of Democratic voters often have lower rates of COVID-19 cases, deaths, and vaccination rates.[10] Durham County has long favored Democratic candidates.[11]

Economic Well-Being

Studies also show that COVID-19 vaccination rates are positively correlated with county-level per capita income.[12] Compared to the average for North Carolina, Durham County has lower unemployment, 4.1% vs 4.8%.[13] Likewise, the per capita and median household incomes for Durham County exceed state averages ($39,602 vs $34,209; $67,000 vs $60,516).[14] Increasing household income is also correlated with decreasing COVID-19 mortality in states that do no operate an expanded version of Medicaid, which began in North Carolina December of 2023.[15] However 11.5% of Durham residents live in poverty.[14]

People living in neighborhoods characterized by lower socioeconomic status, greater ethnic and racial diversity, more apartment buildings had higher COVID-19 mortality rates.

Furthermore, people working in essential services that were unable to work remotely had higher risks of COVID-19 exposure and higher rates of sickness. These jobs often are low wage. [7]

Integration of government and non-governmental organizations

Strong multi-agency leadership at the city and county level bolstered Durham's COVID-19 response through policy decisions from the start of the pandemic and ensured strong public health capacity before the pandemic began. Durham County allocates more than $34 million annually to funding DCoDPH and local public health efforts.[16] Durham County allocates about $103 per resident per year for public health services compared to an average of $91 per person in DCoDPH's peer counties.[17-21] DCoDPH employs approximately 243 full-time equivalent (FTE) positions, yielding one public health FTE for every 1,369 residents, while DCoDPH's peer counties average 1,613 residents per public health FTE. [16-21]This level of funding helped ensure DCoDPH was equipped with the staffing and internal resources to effectively meet pandemic response needs, including adequate space for the coordination of emergency operations and the necessary information technology infrastructure for an effective COVID-19 response. Staffing levels allowed DCoDPH to implement temporary operations such as assigning regular staff and material resources to establish a COVID-19 hotline to answer community questions specific to Durham instead of relying on state-level call centers. Leaders at the city and county level also aided Durham's COVID-19 response by establishing evidence-based COVID-19 safety protocols ahead of state mandates, better meeting the needs of the community. Durham was the first county in the state to establish indoor mask mandates. Safety ordinances were developed and modified throughout the pandemic thanks to the partnership between the health director and leaders at the city and county level.

Social Connectedness

A wealth of agency, academic, and community-based collaborations and partnerships worked together to mitigate the impact of COVID-19 and increase awareness of prevention measures. The ability of communities to be resilient to pandemics and local emergencies aligns with a community's ability to maximize social cohesion, collaboration, empowerment, engagement, participation, and dialogue with the affected communities. Durham County mobilized many community-based agencies to play an intricate role by attempting to contain the spread of COVID-19 and to extend testing, vaccinations, access to food, and distribution of personal protective equipment, while educating community members and addressing other social determinants of health. Many community-based organizations were faced with challenges associated with the pandemic that allowed them to pivot from their regular missions and begin addressing the needs of the community amid the pandemic. For example, many Durham County non-profits and faith organizations hosted COVID-19 testing and vaccination events, throughout the COVID-19 pandemic. Organizations leveraged their mitigation efforts based on social vulnerability index data, local census tract data on COVID-19 infection, and vaccination data to develop strategic public health awareness, preventive outreach, and engagement services.

Interpretations: Disparities, Gaps, Emerging Issues

The COVID-19 pandemic impacted racial and ethnic groups inequitably. Black or African American and Hispanic or Latina/o/x individuals are about twice as likely to be hospitalized and over 50% more likely to die due to COVID-19 than white individuals[22]. In part, these disparities may exist because African American and Hispanic or Latina/o/x individuals are overrepresented

in low wage jobs. These jobs often do not have paid sick leave, are often considered essential and require workers to be onsite, limiting social distancing and increasing risk to COVID-19[23].

When surveyed about stress, fear, and resilience during the COVID-19 pandemic, Black or African American and Hispanic or Latina/o/x individuals expressed higher rates of COVID fear than white individuals. However, Black or African American individuals maintained higher level of optimism, better mental health, and better resilience than their white counterparts.

Durham County had a higher percentage of people completing a primary series of COVID-19 vaccines than the state and national averages (74.2%, 59.7%, and 69.5%, respectively).[24; 25,] Durham County also had a much higher rate of booster dose administration compared to state and national figures (25.8%, 13.1% and 17.0%, respectively).

Durham County had a lower COVID-19 mortality rate than the state average or national average (186.3 per 100,000, and 210.0 and 242.1, respectively).[26] From January 1, 2020 to June 24, 2023, Durham County recorded 958 deaths involving COVID-19, accounting for 9.8% of all deaths. Statewide and nationally, COVID-19 was involved in 8.7% and 9.8% of all deaths, respectively. While case counts and mortality figures cannot describe the full impact of COVID-19 pandemic on the residents, institutions, and economy of Durham County, they do show that Durham County had better outcomes than some other jurisdictions. Durham County displayed resilience in the face of the COVID-19 pandemic.

Current Initiatives & Activities

African American COVID Task Force (ACCT+)
ACCT+ began in response to the COVID-19 pandemic and expanded to address racism in healthcare and the need for patient advocacy. ACCT+ focuses on information dissemination, COVID testing, resources, advocacy, research funding, physical and mental health, and information about and access to the COVID vaccine in Black or African American communities. https://www.facebook.com/groups/889394368571137/

AME Zion HEAL
AME Zion HEAL is a partnership between African Methodist Episcopal Zion clergy and Duke Health that works to reduce health disparities, foster health equity, build trust and increase engagement in clinical research. https://www.facebook.com/AMEZIONHEAL/

American Rescue Plan Act of 2021 (ARPA)
ARPA provided money to states and local jurisdictions to address the continued impact of COVID-19 on the economy, public health, state and local governments, individuals, and businesses. ARPA funds are intended to help offset revenue losses resulting from the pandemic, as well as fund other community needs. Durham County was allocated more than $62 million. https://www.dconc.gov/county-departments/departments-a-e/american-rescue-plan-act

DCo Thrives
Durham County's guaranteed income pilot program that provides no-strings attached financial support to 125 families. https://www.dconc.gov/county-departments/departments-a-e/county-manager/dcothrives

Durham County Department of Public Health (DCoDPH)
DCoDPH provides clinic services for targeted public health issues, offers outreach and case management particularly to reduce risk in children, pregnant women, and people with specific communicable diseases, and provides community education to promote health.
https://www.dcopublichealth.org/

End Poverty Durham
End Poverty Durham works to mobilize area congregations from a variety of faith traditions, local non-profit organizations, and individuals to work together and eliminate poverty in Durham.
http://endpovertydurham.org/

LATIN-19 (Latinx Advocacy Team & Interdisciplinary Network for COVID-19)
LATIN-19 was a collaboration founded to reduce the negative impact of COVID-19 on the Hispanic or Latina/o/x community. It has since expanded to all issues concerning the health and wellness among the Latina community in an effort to reduce health disparities and inequities.
https://latin19.org/

Lincoln Community Health Center (LCHC)
A federally qualified health center that provides accessible, affordable, high quality outpatient health care services to the medically underserved. The central clinic and nine satellite clinics offer services such as pediatrics, adolescent health, adult medicine, family medicine, dental and behavioral health. http://www.lincolnchc.org

Partnership for a Healthy Durham Access to Care Committee
The Partnership for a Healthy Durham is a coalition of local organizations and community members with the goal of collaboratively improving the physical, mental, and social health and well-being of Durham's residents. The Access to Care Committee brings together partners to make measurable improvements in access to care for uninsured and underinsured residents.
https://healthydurham.org/committees/access-to-care

StepUp Durham
The City of Durham's pilot universal basic income program served 109 individuals who had previously been incarcerated. Each participant received a no-strings-attached monthly cash transfer of $600. https://www.stepupdurham.org/excel

References

[1] U.S. Department of Homeland Security, F. E. M. A. (2017). Planning For a Resilient Community: A 4-Hour Workshop For Planners. https://www.fema.gov/sites/default/files/documents/fema_planning-resilient-communities_fact-sheet.pdf
[2] Seville, E. (2008). Resilience: great concept but what does it mean?
[3] Chandra, A., Acosta, J., Howard, S., Uscher-Pines, L., Williams, M., Yeung, D., Garnett, J., & Meredith, L. S. (2011). Building community resilience to disasters: A way forward to enhance national health security. *Rand health quarterly*, *1*(1).
[4] Partnership for a Healthy Durham. (2022). *2022 DURHAM COUNTY COUNTY-WIDE COMMUNITY HEALTH ASSESSMENT SURVEY REPORT*. https://healthydurham.org/cms/wp-content/uploads/2023/05/CHA-report_FINAL.pdf
[5] ETC Institute. (2022). *2022 City of Durham Resident Survey Findings Report*. https://www.durhamnc.gov/ArchiveCenter/ViewFile/Item/6248
[6] The Community Guide. (2019). CPSTF Findings for Increasing Vaccination. https://www.thecommunityguide.org/pages/task-force-findings-increasing-vaccination.html
[7] Wang, L., Calzavara, A., Baral, S., Smylie, J., Chan, A. K., Sander, B., Austin, P. C., Kwong, J. C., & Mishra, S. (2023). Differential Patterns by Area-Level Social Determinants of Health in Coronavirus Disease 2019 (COVID-19)–Related Mortality and Non–COVID-19 Mortality: A Population-Based Study of 11.8 Million People in Ontario, Canada. *Clinical Infectious Diseases*, *76*(6), 1110-1120.
[8] Terry, E., Cartledge, S., Damery, S., & Greenfield, S. (2022). Factors associated with COVID-19 vaccine intentions during the COVID-19 pandemic; a systematic review and meta-analysis of cross-sectional studies. *BMC Public Health*, *22*(1), 1-16.
[9] University of Wisconsin Population Health Institute, S. o. M. a. P. H. (2023). *County Health Rankings and Roadmaps* https://www.countyhealthrankings.org/explore-health-rankings/north-carolina/durham?year=2023
[10] Albrecht, D. (2022). Vaccination, politics and COVID-19 impacts. *BMC Public Health*, *22*(1), 1-12.
[11] Wright, W., & Guinassi, L. P. U. (2022). Tour shows key counties in NC politics ahead of election. *Charlotte Observer*. https://www.charlotteobserver.com/news/politics-government/election/article267776257.html
[12] Guo, Y., Kaniuka, A. R., Gao, J., & Sims, O. T. (2022). An epidemiologic analysis of associations between county-level per capita income, unemployment rate, and COVID-19 vaccination rates in the United States. *International Journal of Environmental Research and Public Health*, *19*(3), 1755.
[13] DukeHealth. (N.D.). (2023). *About Duke Regional Hospital* Retrieved September 28 from https://www.dukehealth.org/hospitals/duke-regional-hospital/about
[14] U.S. Census Bureau. (2017). *Population Estimates, July 1, 2022 (V2022) [data table]* (Quick Facts, Issue. https://www.census.gov/quickfacts/
[15] Apenyo, T., Vera-Urbina, A. E., Ahmad, K., Taveira, T. H., & Wu, W.-C. (2022). Association between median household income, state Medicaid expansion status, and COVID-19 outcomes across US counties. *PLoS One*, *17*(8), e0272497.
[16] Durham County, N. (2023). *Approved Budget FY 2023-24.* . https://www.dconc.gov/home/showdocument?id=39422&t=638295949821735528
[17] Guilford County (NC). (2023). *Fiscal Year 2024 Adopted Budget*. https://www.guilfordcountync.gov/home/showpublisheddocument/14261/638269946825530000
[18] Mecklenburg County (NC). (2023). *Fiscal Year 2024 Adopted Budget*. https://mecknc.widen.net/s/qjqnwkxsww/fy24-adopted-budget-book
[19] Cumberland County (NC). (2023). *Fiscal Year 2024 Adopted Annual Budget*. https://www.cumberlandcountync.gov/docs/default-source/county-manager-documents/budget/adopted-budget/cumberland-county-fy2024-adopted-budget.pdf?sfvrsn=6043577c_2
[20] Wake County (NC). (2023). *Adopted Operating Budget and Capital Improvement Program for the Fiscal Year July 1, 2023 through June 30, 2024.*

[21] Forsyth County (NC). (2023). *2023 – 2024 Annual Budget, Forsyth County, North Carolina*. https://forsyth.cc/Budget/assets/documents/FY24AdoptedBudget.pdf

[22] Control, C. f. D., & Prevention. (2021). Risk for COVID-19 infection, hospitalization, and death by race/ethnicity. In: Atlanta, GA.

[23] Mongey, S., Pilossoph, L., & Weinberg, A. (2021). Which workers bear the burden of social distancing? *The Journal of Economic Inequality*, *19*, 509-526.

[24] NC Department of Health and Human Services (NCDHHS). (2023). Data Behind the Dashboards [NC COVID-19 Dashboard Data]. Retrieved 2023, April 25, from https://covid19.ncdhhs.gov/dashboard/data-behind-dashboards

[25] Centers for Disease Control and Prevention. COVID Data Tracker. Retrieved 2023, October 10, from https://covid.cdc.gov/covid-data-tracker

[26] National Center for Health Statistics. *Provisional COVID-19 Death Counts in the United States by County*. https://data.cdc.gov/NCHS/Provisional-COVID-19-Death-Counts-in-the-United-St/kn79-hsxy

Survey Data

2022 Durham County Community Health Assessment Survey County-Wide Results

Community Health Assessment demographics summary	American Community Survey Durham County Estimate 2021, Census Bureau	Door-to-door Community Health Assessment survey measurement [95% confidence interval	Online Community Health Assessment Survey measurement [95% confidence interval]
Median Age	35	47	44.5
Gender			
Man	49.50%	46.1% [37.1, 55.1]	30.9% [10.9, 50.8]
Woman	50.50%	52.5% [43.5, 61.5]	69.1% [49.2, 89.1]
Nonbinary	-	1.1% [0, 2.5]	0
Self-identify	-	0.3% [0, 0.91]	0
Race			
Black or African American	36.60%	31.4% [23.1, 39.8]	21.8% [0.43, 43.1]
Other	13.30%	19.1% [11.8, 26.4]	3.2% [0, 8]
Unknown	-	8.4% [3.2, 13.6]	5.1% [0, 15.7]
White	51.80%	41.0% [32.3, 49.8]	69.8% [47.7, 91.9]
Ethnicity			
Not Hispanic or Latino	-	88% [82.7, 93.3]	100%
Hispanic or Latino	13.80%	11.1% [6, 16.3]	0
Education*			
Less than 9th Grade	4.4%	2.3% [0, 5.9]	0
9-12th grade no diploma	5.1%	7.5% [2.3, 12.7]	0
High school graduate	15.6%	12.3% [6.6, 18]	0
Some college, no degree	13.5%	17.9% [10.8, 24.9]	3.7% [0, 11.2]
Associate's degree	7.5%	9.3% [4, 14.7]	3.6% [0, 9]
Bachelor's degree	29%	25.1% [17.1, 33.1]	31.7% [11.6, 51.8]
Graduate or professional degree	24.9%	24.8% [17.6, 32]	61.1% [39.8, 82.3]
Employment Status			
Disabled	-	12% [5.8, 18.3]	7.3% [0, 18.5]
Employed full time	50.8%	38.2% [29.7, 46.7]	65.4% [45.5, 85.2]
Employed part time	-	9.9% [3.8, 16]	7.3% [0, 18.5]
Homemaker	-	14.2% [6.8, 21.5]	7.3% [0, 18.5]
Military	0.24%	2.7% [0, 6.6]	0
Retired	-	20% [12.5, 27.4]	17.3% [2.9, 31.6]
Self-employed	-	6% [2.5, 9.4]	6.7% [0, 17.6]
Unemployed	-	7.3% [2.1, 12.4]	1.3% [0, 4]

*Population of 25 years or older.

Table 1: Breakdown of demographics (Age, gender, race, ethnicity, educational attainment, and employment status) for both the door-to-door and online surveys as well as the 2021 American Community Survey demographics for Durham County.

Distinct differences between the online and door-to-door participant's demographics were noticeable. The online survey was skewed more towards highly educated white women while the door-to-door survey was more representative of Durham County's population according to the 2021 American Community Survey.

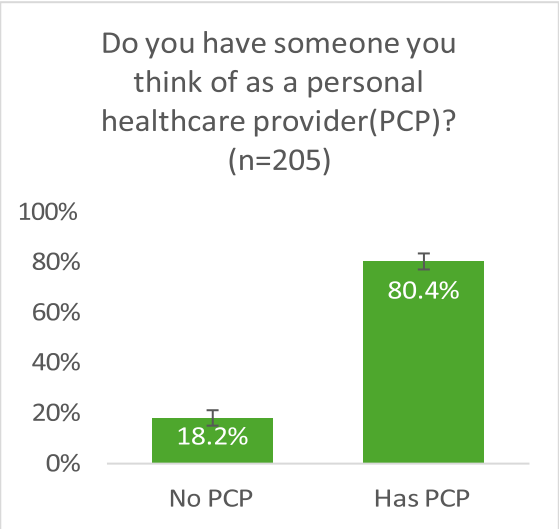
The table above provides demographic information for both Durham County and the online and door-to-door surveys. The median ages for both the door-to-door and online surveys are much higher than the county's (47, 44.5, 35 respectively). The online survey was heavily skewed towards women (69.1%) while women in the door-to-door survey represented 52.2% of participants. The races in the door-to-door survey were more representative (31.4% Black or African American, 41% white) than in the online survey which revealed 69.8% of the respondents were white. Data for other races could not be disaggregated as there were not enough data but are included in the 'Other' race category. This includes American Indian or Alaskan Natives, Asians, Other, and 2 or more races). The door-to-door survey was more representative of the Hispanic and Latino population (13.3% in Durham County and 11.1% of the county-wide door-to-door survey). The online survey participants all identified as not Hispanic or Latino.

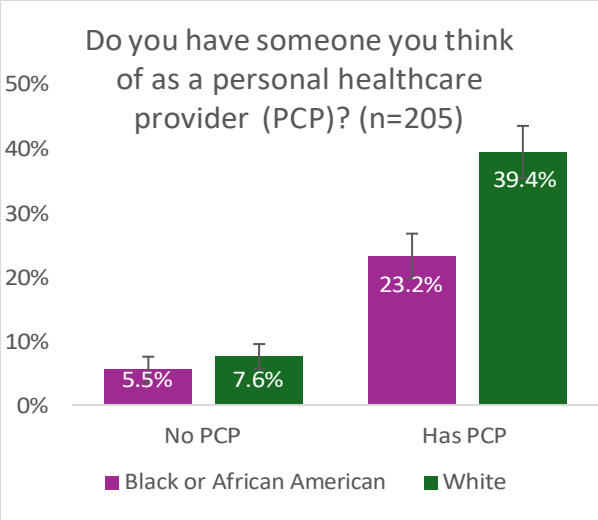
Educational attainment differs widely between the door-to-door and online surveys. In both the door-to-door and online surveys, it was clear that the level of education achieved by respondents was shifted towards those that completed a college degree (bachelor's or higher). This made up 49.9% of the door-to-door survey respondents and 92.8% of the online respondents. In both surveys, higher education was overrepresented. Lastly, the largest difference in employment was the full-time employees for the online survey (65.4%) and the door-to-door survey (38.2%). The online survey overrepresents full-time employment in Durham County while the door-to-door survey underrepresents full-time employment. Those that work in the military were overrepresented in the door-to-door survey.

Below, the responses from all participants are provided for each question on the survey. When sample sizes were allowed, data was broken down by race. Instances of fewer than 10 responses were removed from results due to low numbers. Additional stratification by demographic variables will be considered upon request.

Access to Care:

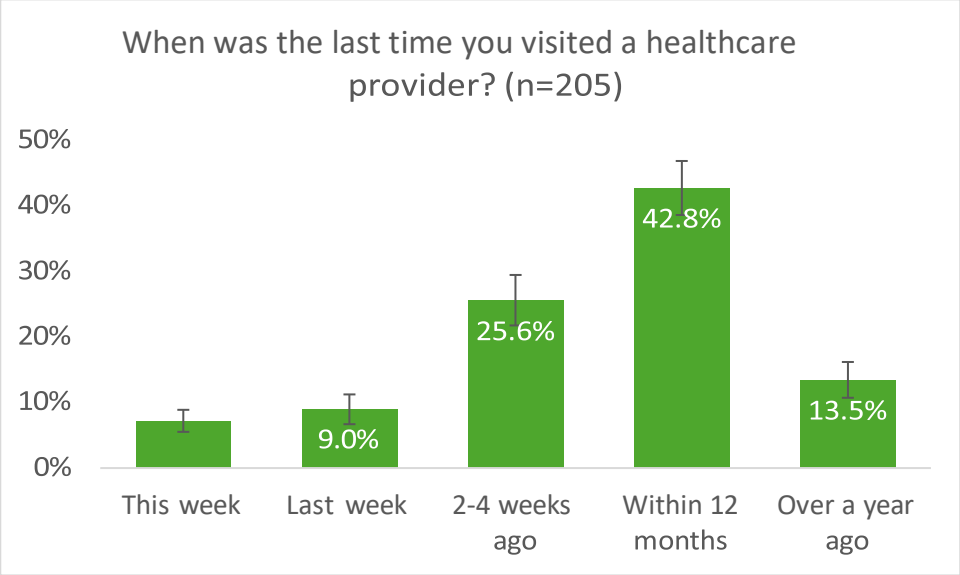
Q1: Do you have one person you think of as a personal doctor or healthcare provider?





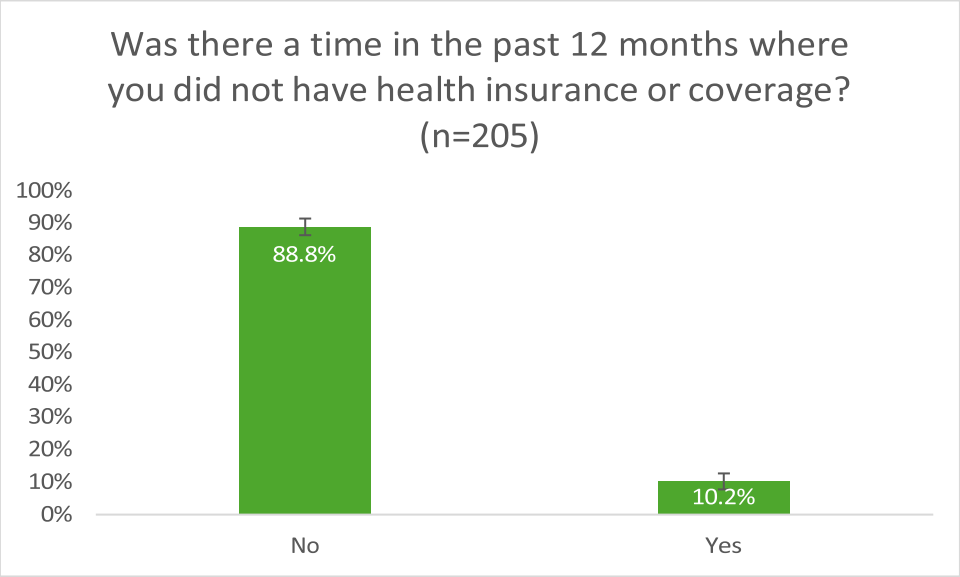
Interpretation: Most residents (80.4%) have someone they consider a personal healthcare provider (PCP). Fewer Black or African Americans have a PCP than whites (23.2%, 39.4% respectively). This difference is much smaller between those that responded they did not have a PCP.

Q2: When was the last time you visited a healthcare provider?



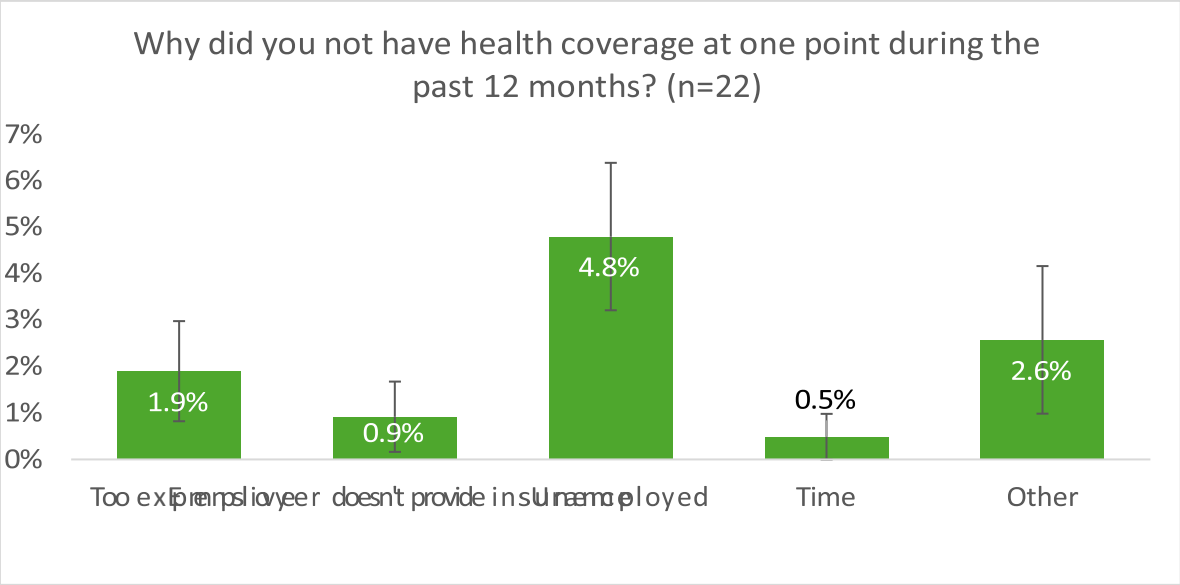
Interpretation: Most respondents (42.8%) said they visited a healthcare provider within the last 12 months followed by 2-4 weeks ago (25.6%).

Q3: During the past 12 months, was there any time you did not have any health insurance or coverage?



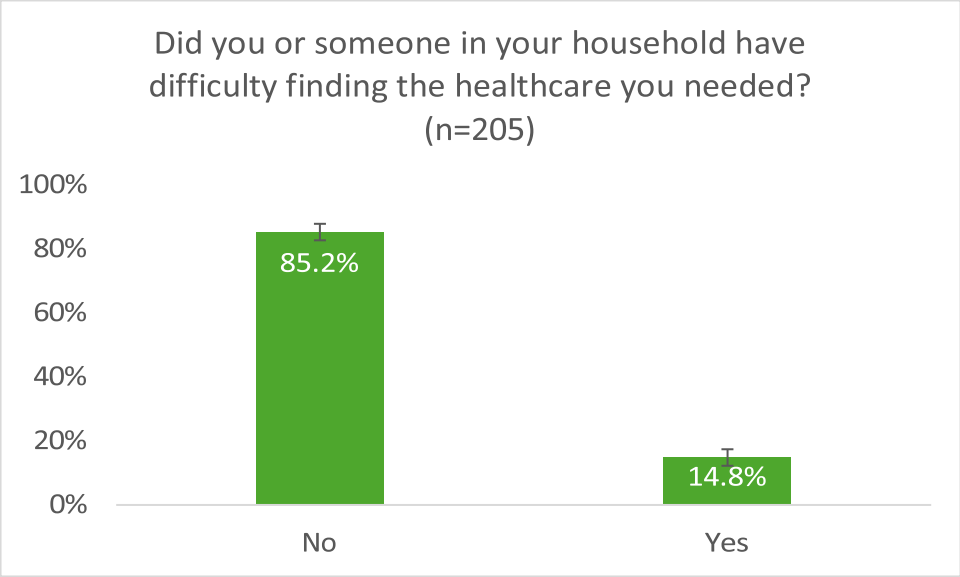
Interpretation: Most respondents (88.8%) reported not having a lapse in health insurance or coverage within the past year.

Q4: Since you said 'yes', what prevented you from having health insurance or coverage?



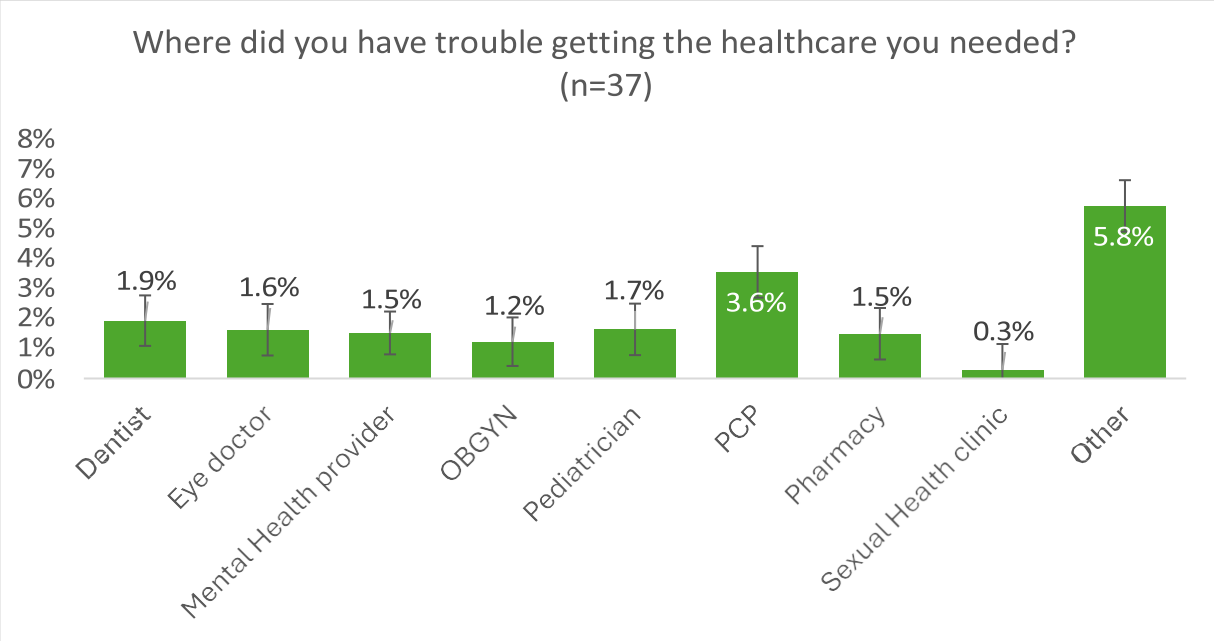
Interpretation: This question was only answered by people who responded that they did not have health insurance or coverage at some point within the past year. The most common reason was unemployment (4.8%) followed by cost barriers (1.9%).

Q5: In the past 12 months, did you have a problem getting the healthcare you needed for you or for someone in your household from any type of healthcare provider, dentist, or pharmacy?



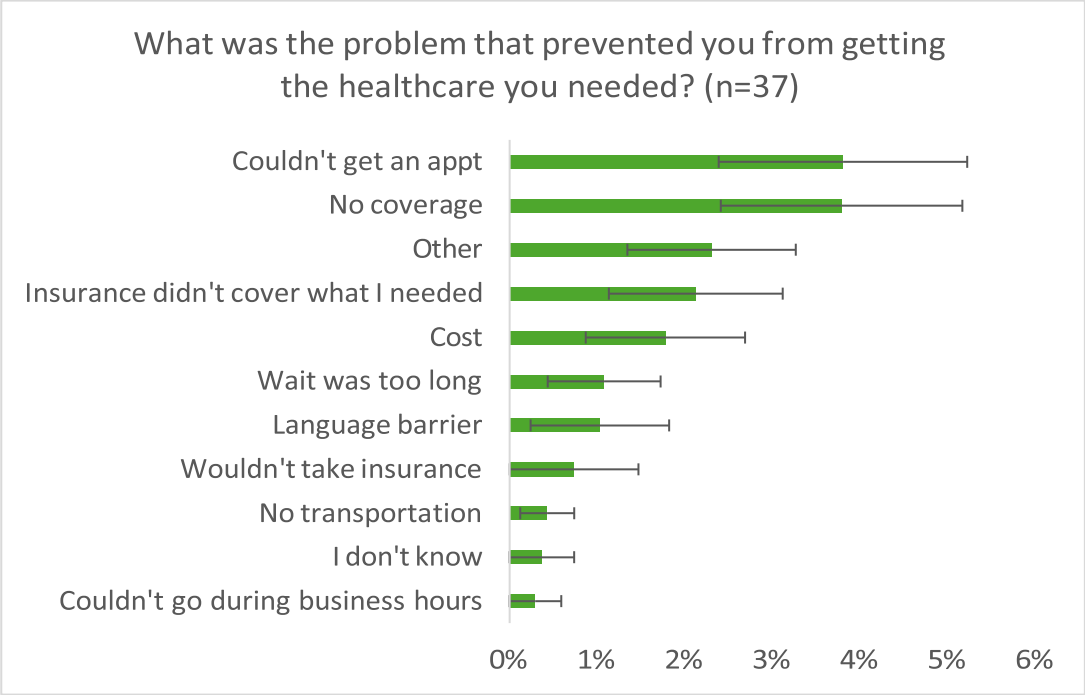
Interpretation: Most participants (85.2%) reported having no difficulty or problems obtaining the health care they or someone in their household needed.

Q6: Since you said 'yes', what type of provider did you or someone in your household have trouble getting healthcare from?



Interpretation: This question was only answered by those that reported having difficulty or problems getting the healthcare they or someone in their household needed. The most common type of provider the respondents had trouble getting care from was their primary care physician. Many respondents gave other healthcare settings including specialists.

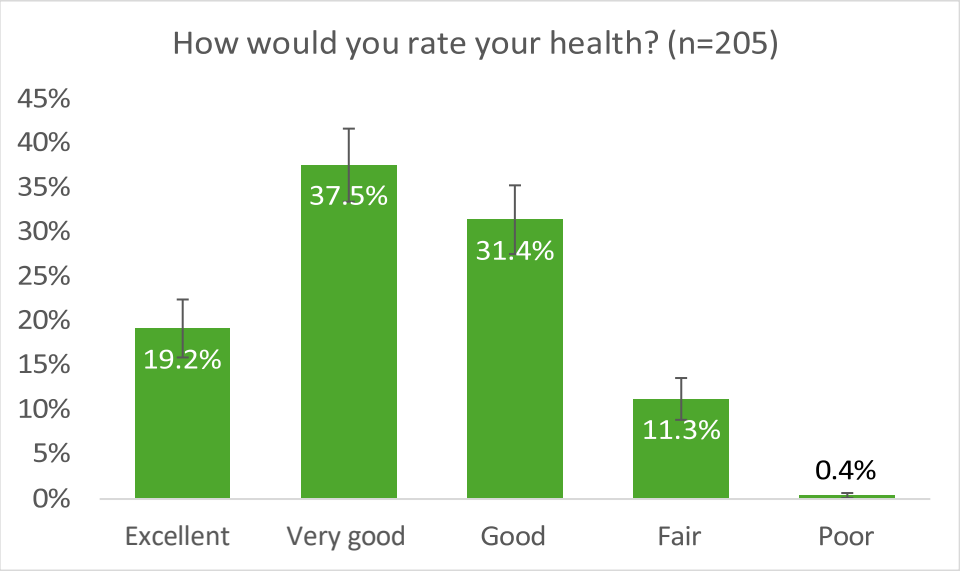
Q7: What was the problem that prevented you or someone in your household from getting the necessary healthcare?



Interpretation: This question was only answered by those that reported having difficulty or problems getting the healthcare they or someone in their household needed. The most common reason for difficulty was lack of adequate health insurance or coverage followed by not being able to get an appointment.

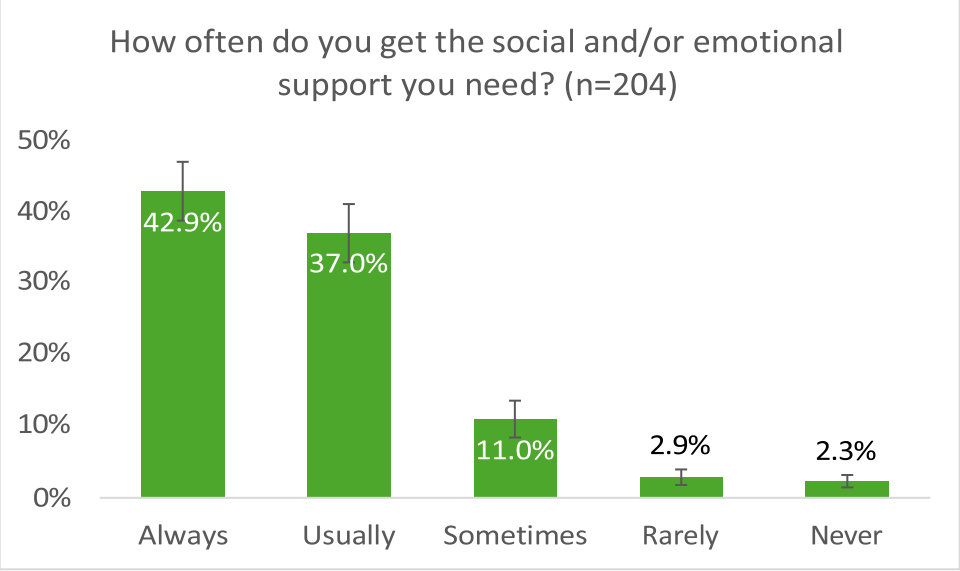
Personal Health

Q8: How would you rate your health?



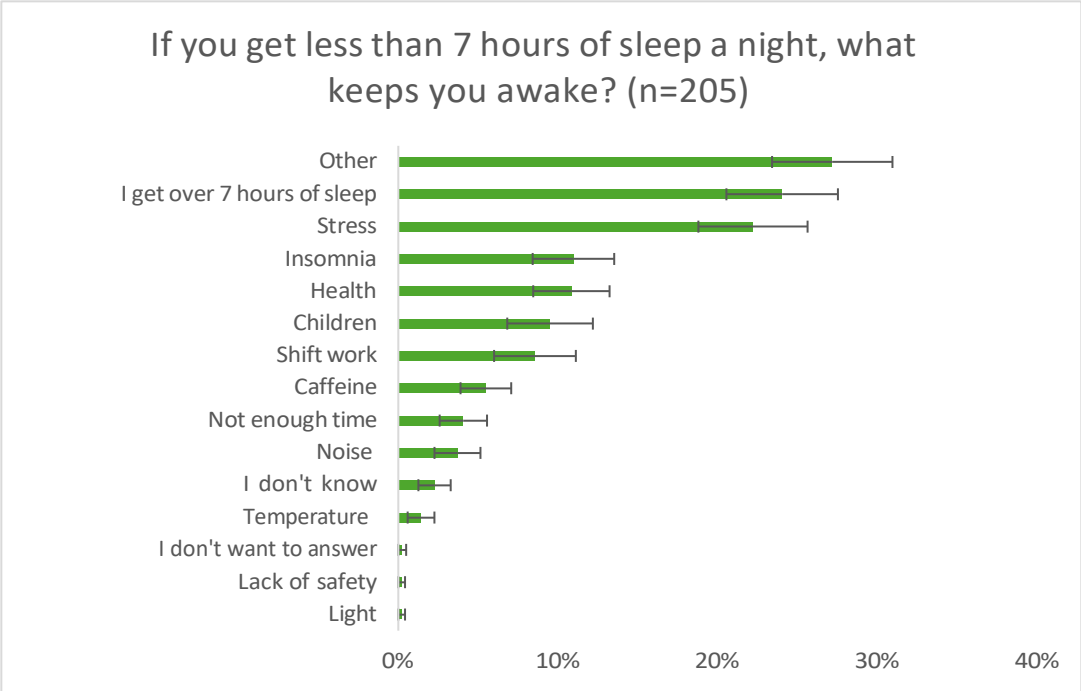
Interpretation: Most residents (88.1%) reported they thought their health was excellent, very good, or good.

Q9: How often do you get the social and/or emotional support you need?



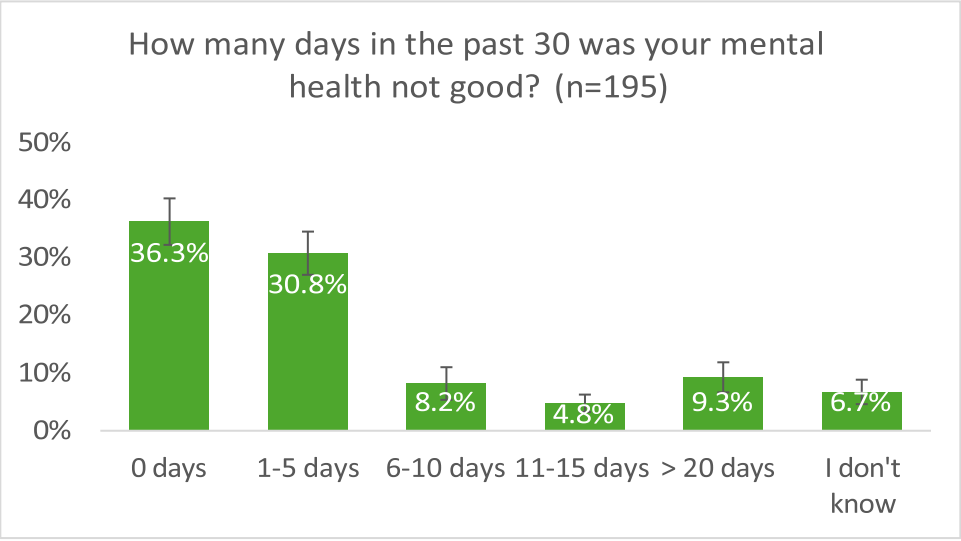
Interpretation: Most residents (79.9%) felt they either always or usually have the social and/or emotional support they need.

Q10: If you get less than 7 hours of sleep at night, what keeps you awake?



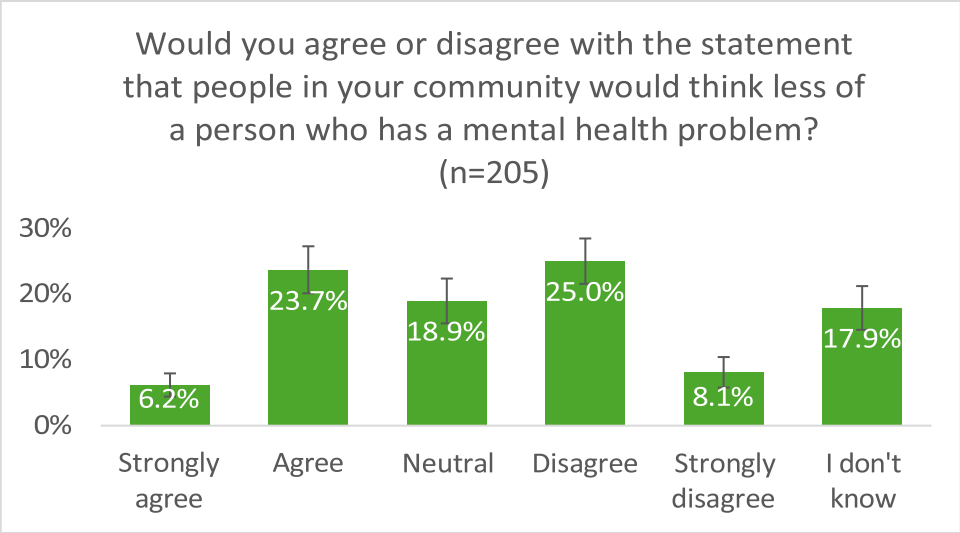
Interpretation: Most respondents (24.3%) reported they did get at least 7 hours of sleep at night. For those that did not get 7 hours of sleep a night, stress was the most common reason followed by Insomnia. Many provided other reasons they do not get 7 hours of sleep a night. Many responses were that the TV keeps them up, money, and thinking.

Q11: Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days in the past 30 days was your mental health not good?

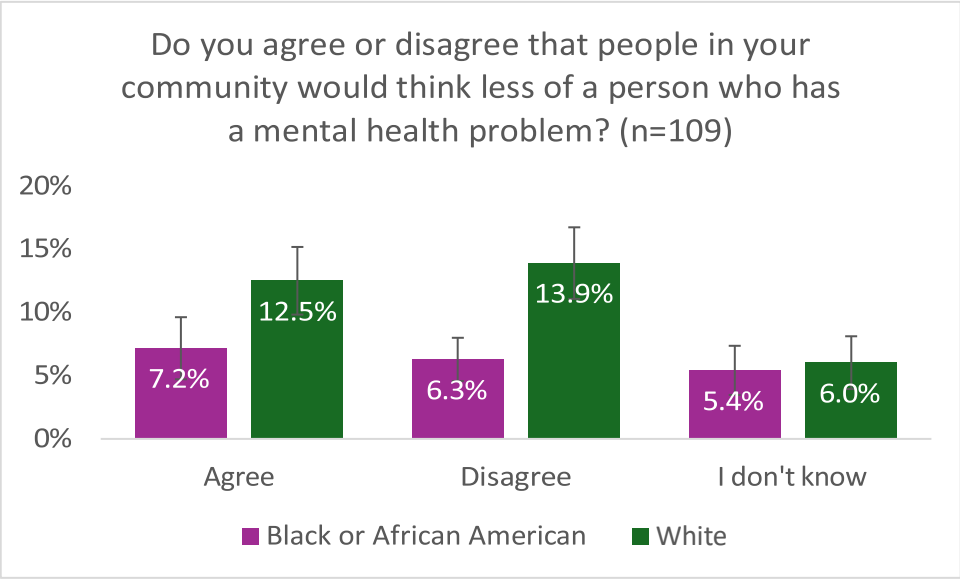


Interpretation: Most participants (67.1%) responded that they had fewer than 6 bad days in the past 30. There were too few respondents with 16-20 bad days to report. However, 9.3% reported having greater than 20 bad days in the past 30.

Q12: To what extent do you agree or disagree with the statement that people in your community would think less of a person who has a mental health problem?

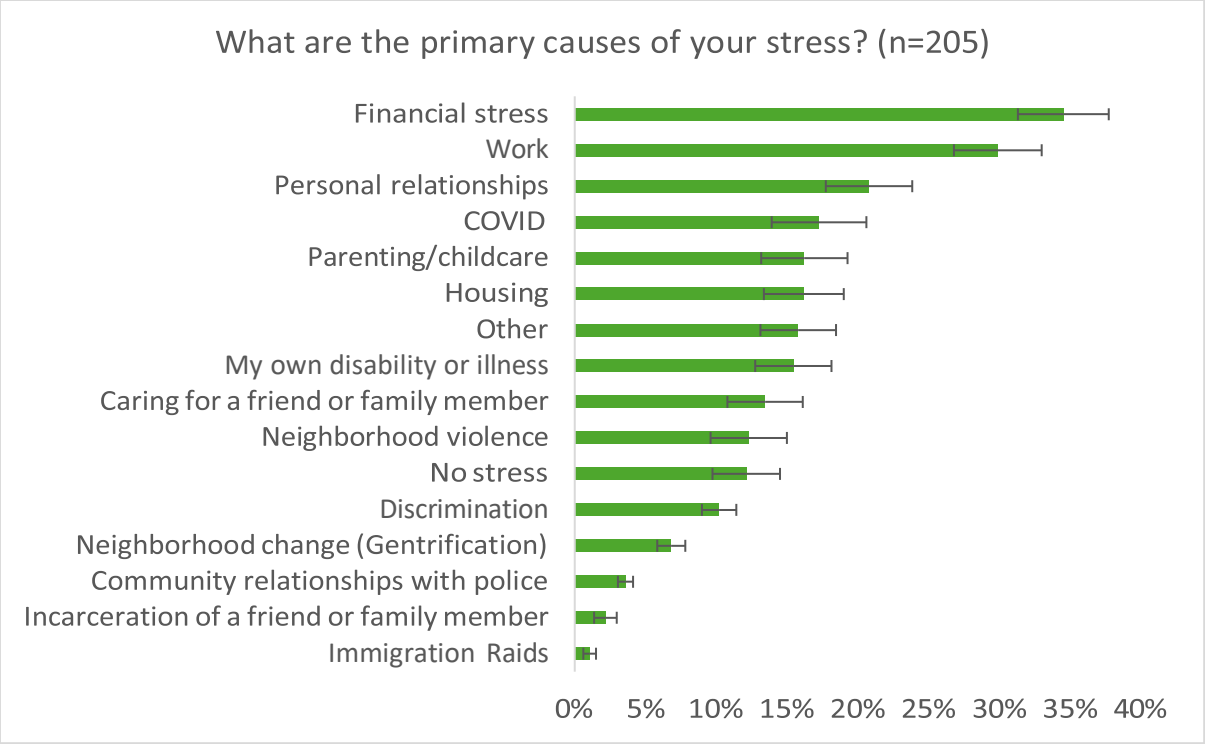


Interpretation: Most participants (33.1%) responded that they disagree or strongly disagree and think that their community would not think less of a person with a mental health problem. This is close to those that agree and strongly agree (29.9%). The remaining participants were nearly divided in two between neutral (18.9%) and I don't know (17.9%)



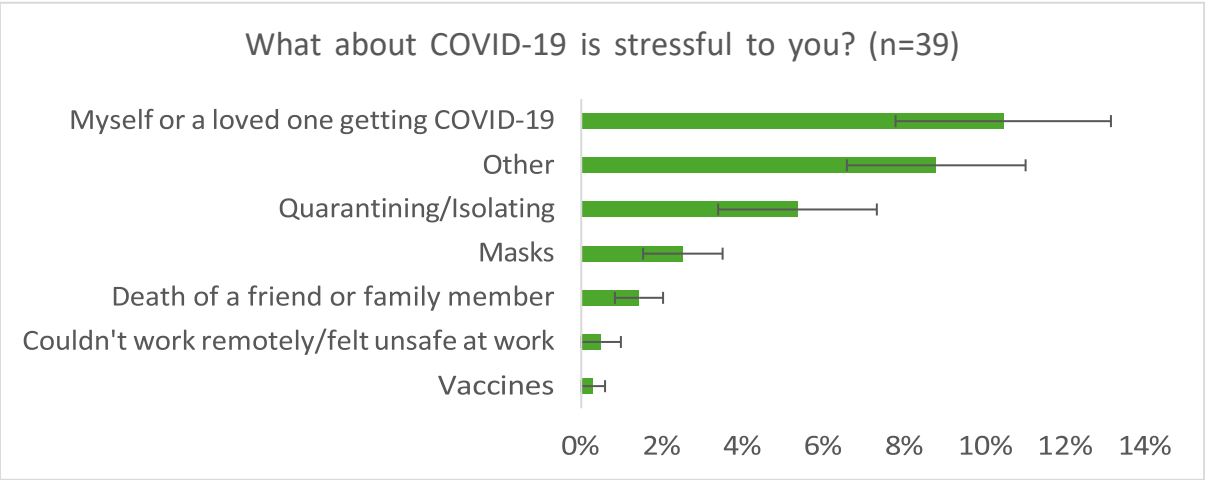
Interpretation: The largest difference between Black or African Americans (6.3%) and whites (13.9%) is seen among those that disagreed and thought that their community would not think less of a person for having a mental health problem. Another gap is seen in those that agree between Black or African Americans (7.25%) and whites (12.5%).

Q13: What are the primary causes of your stress?



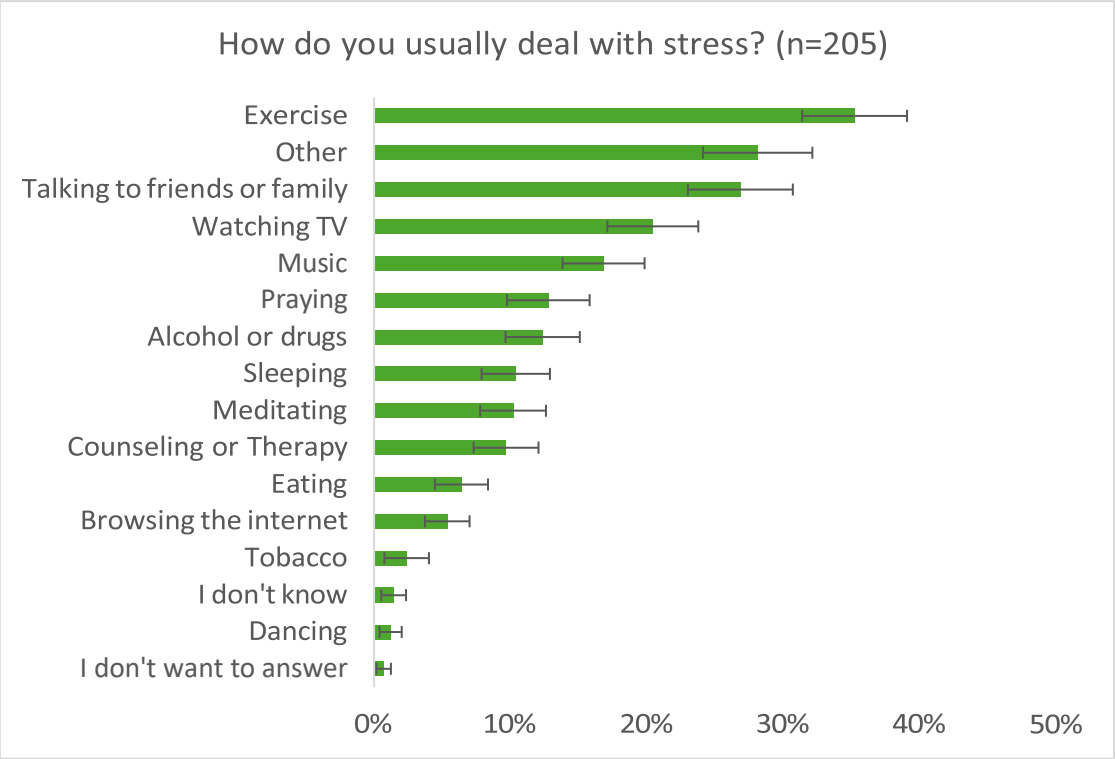
Interpretation: Financial stress was the most common reason for stress followed by work (30%) and personal relationships. Many people listed other reasons for stress including political environment and the social wellbeing of society. Interestingly, 12% of respondents reported not experiencing stress. The types of discrimination experienced included age, race, and ethnicity.

Q14: What about COVID-19 is stressful to you?



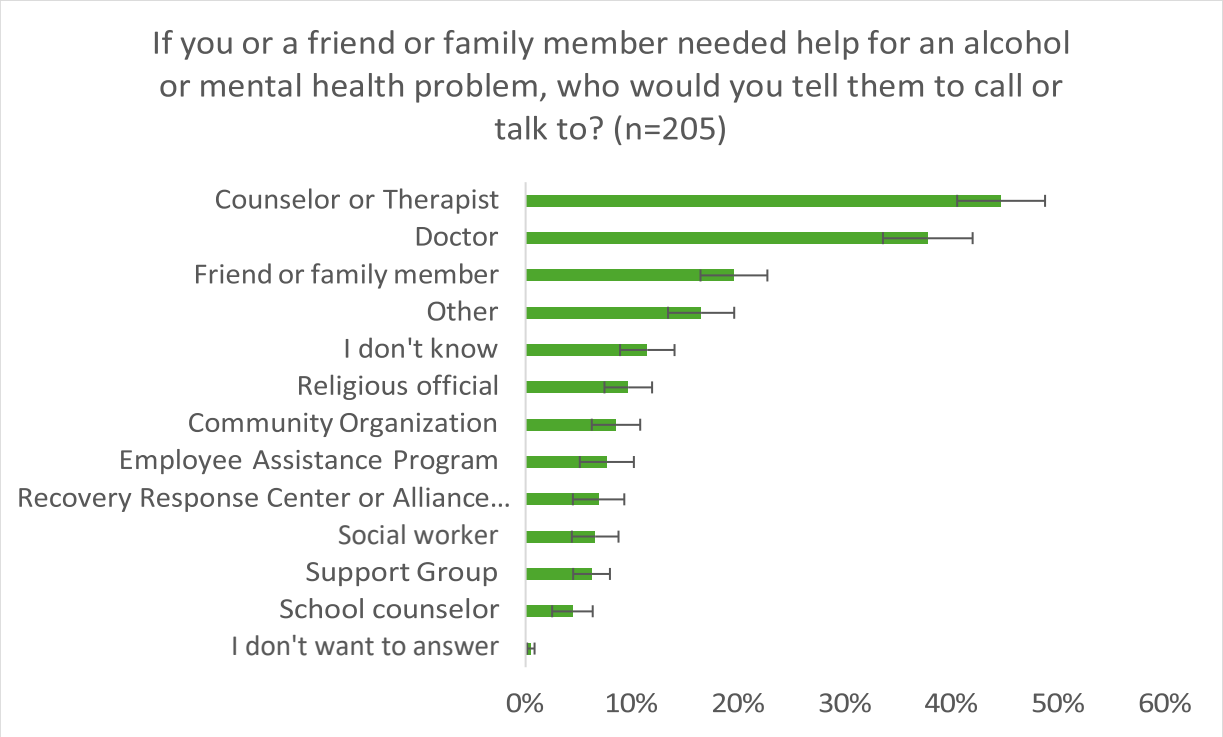
Interpretation: This question was only answered by people who selected COVID-19 as one of their primary causes of stress. The most common stressor of COVID-19 on participants was either themselves or a loved one getting COVID-19. Other reasons given included the seriousness of the pandemic, misinformation being too available, and childcare.

Q15: How do you deal with stress?



Interpretation: This question was only answered by those who selected one or more primary causes for stress. The most common way to cope with stress was exercise followed by talking with friends or family. Many respondents included other ways to deal with stress. These reasons include medications for mental health and ignoring the problem and just dealing with it.

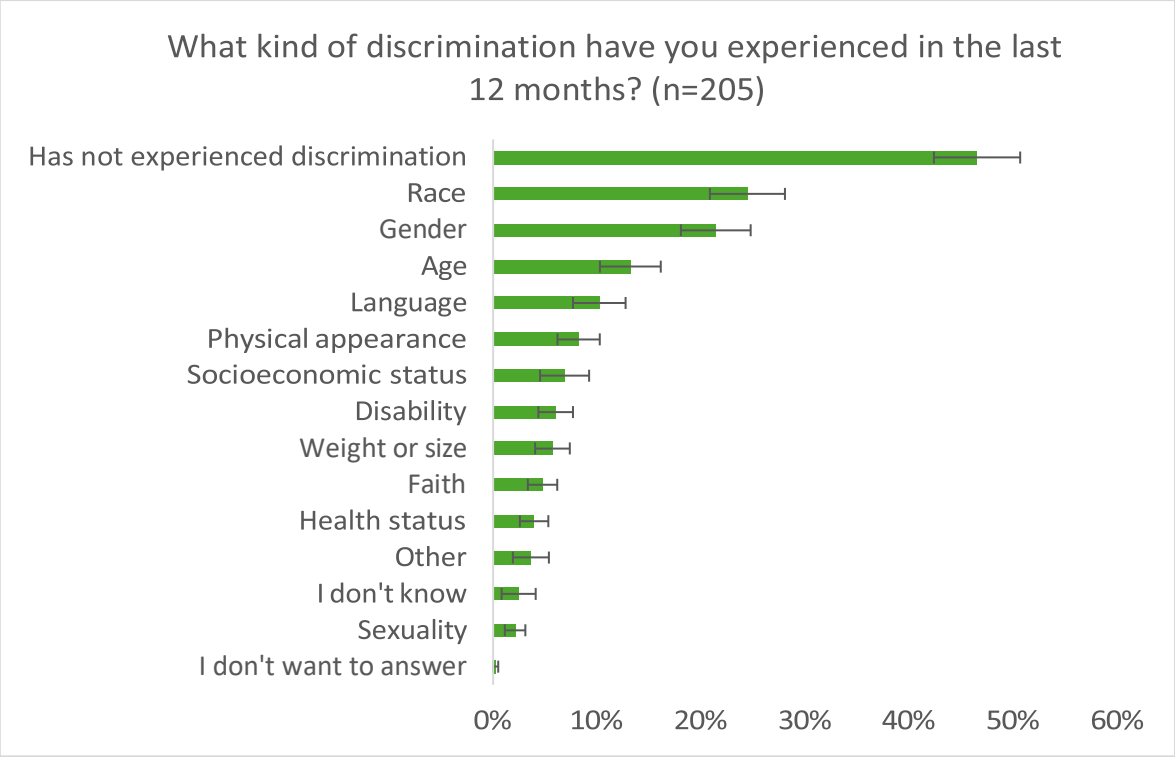
Q16: If you or a friend or family member needed counseling for a mental health or drug or alcohol use problem, who would you tell them to call or talk to?



Interpretation: Most participants suggested a counselor or therapist as someone to call or talk to followed by a doctor and friend or family member. A common suggestion for those that said 'Other' was a helpline or hotline.

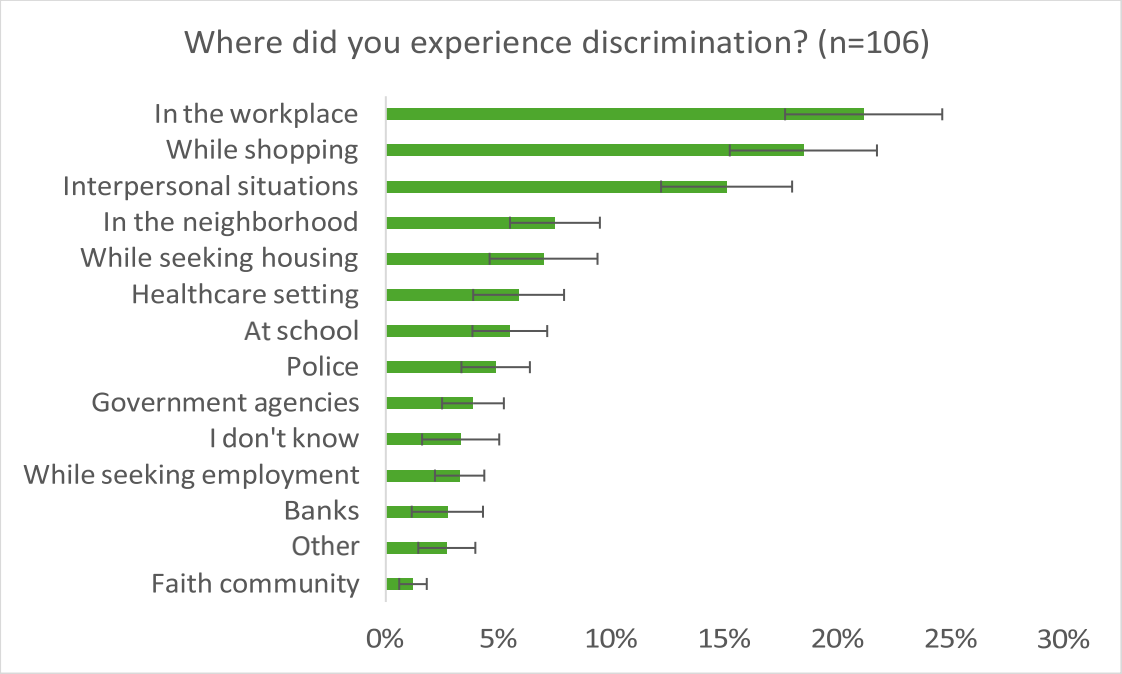
Discrimination

Q17: **Discrimination (interpersonal or structural) can happen because of many reasons. Please choose which of these reasons you think may have contributed to the discrimination you experienced in the last 12 months.**

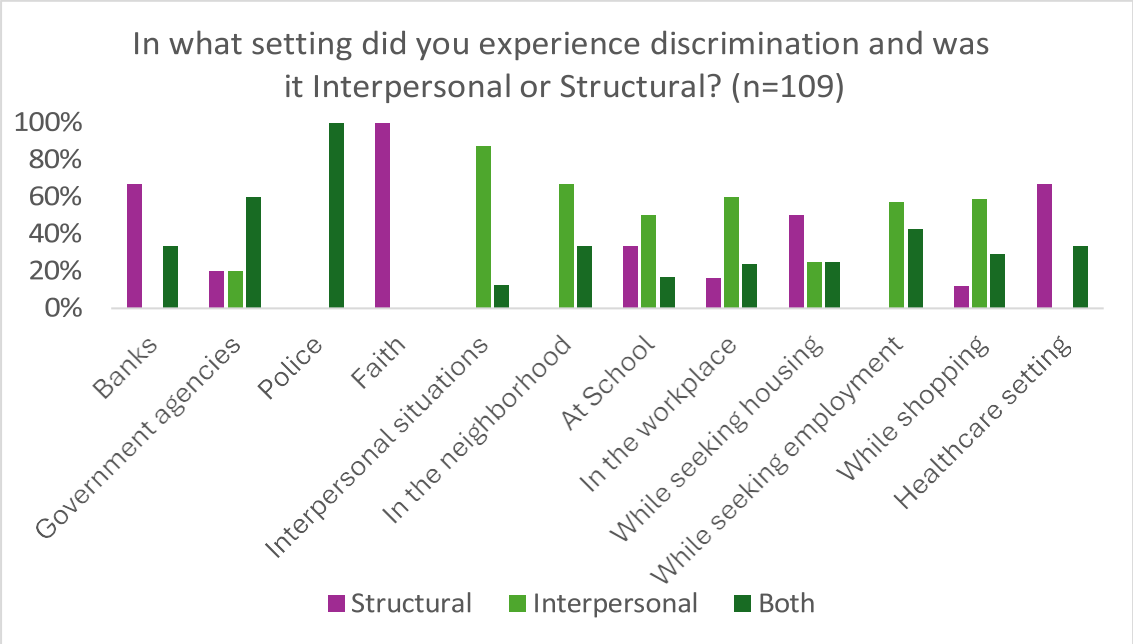


Interpretation: Nearly half of all participants (46.5%) reported not having experienced discrimination in the past 12 months. Those that did experience discrimination, racism and sexism were the top two types.

Q18: Where did you experience discrimination?



Interpretation: This question was only answered by those that responded they had experienced discrimination. The most common setting was the workplace for those that experienced discrimination within the past 12 months followed by while out shopping and in interpersonal situations.

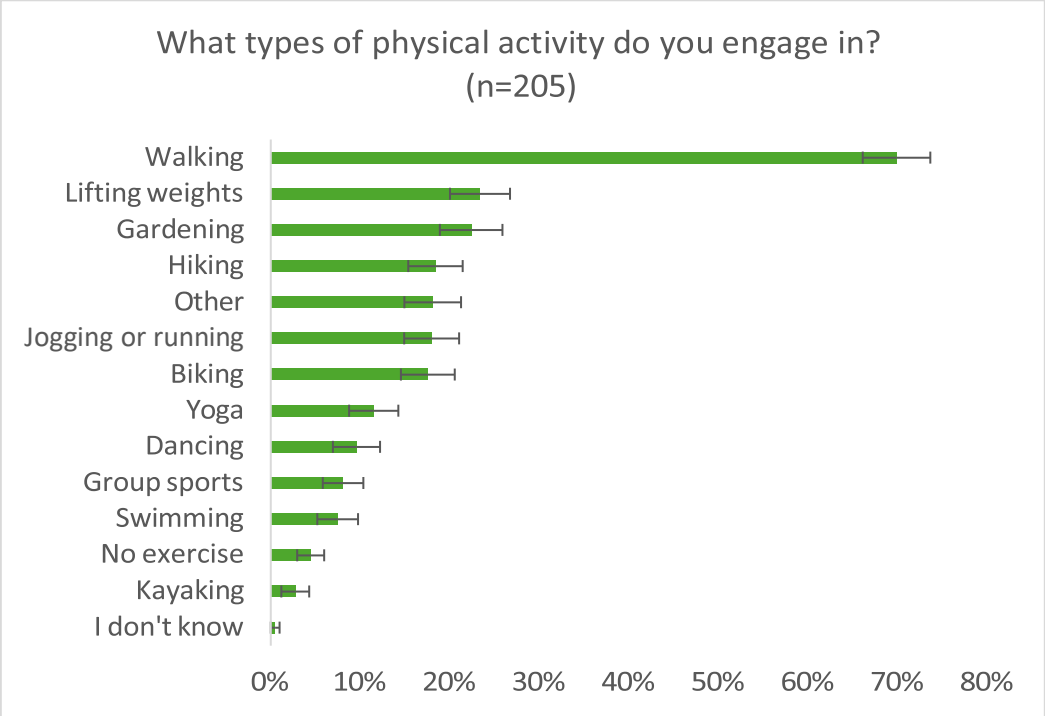


Interpretation: This question was only answered by those that responded they had experienced discrimination. In each setting, the experiences of discrimination are broken down by structural,

interpersonal, or both for each situation. For example, 100% of the discrimination experienced by police was both interpersonal and structural.

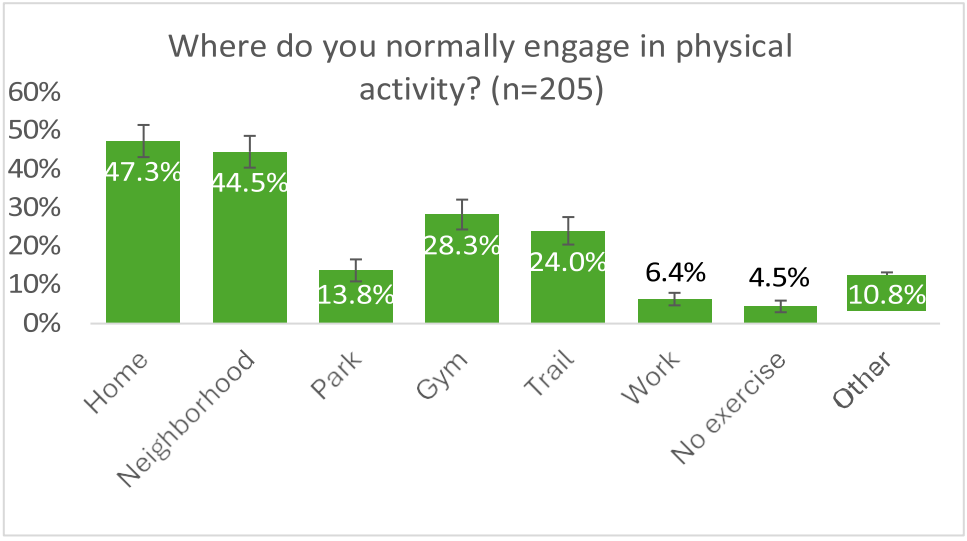
Physical Activity

Q19: What type of physical activity do you usually do?



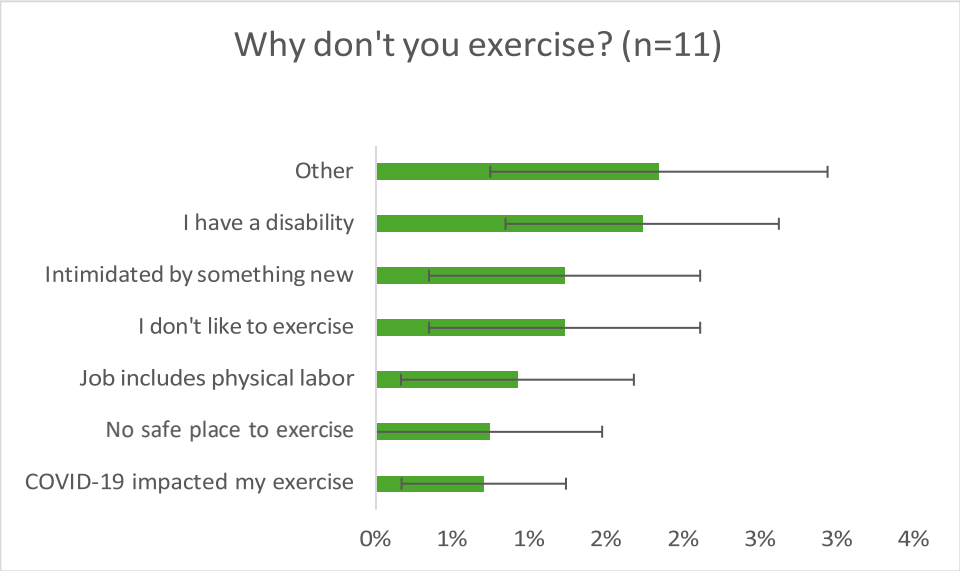
Interpretation: The most common type of exercise done by survey participants is walking followed by lifting weights and gardening. Some participants reported not exercising. Themes from those who responded 'other' include exercising at work and playing with family.

Q20: Where do you usually exercise?



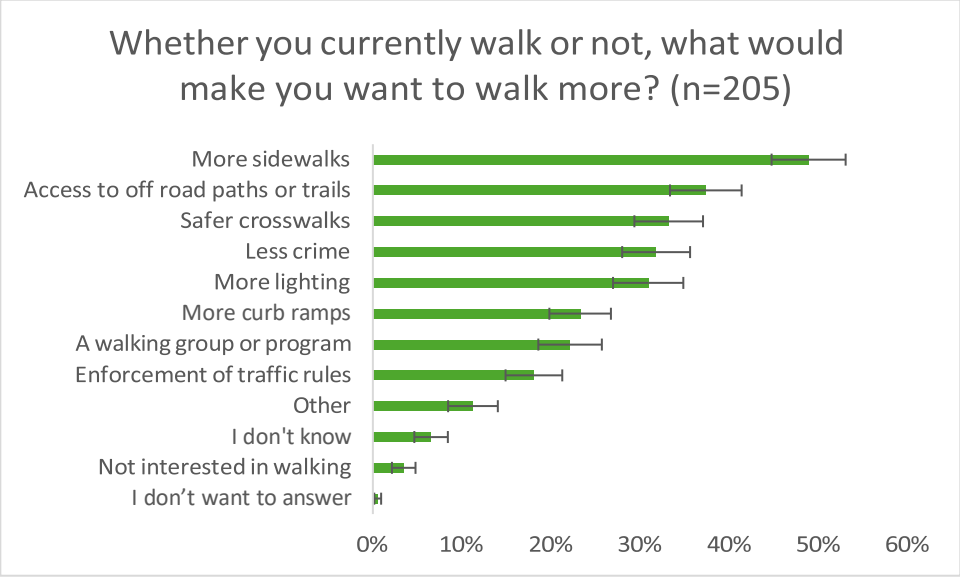
Interpretation: Most participants reported exercising at home followed by in their neighborhood. Other areas of exercise include community centers and online classes.

Q21: What are the reasons you do not exercise?



Interpretation: This question was only answered by those that responded that they did not exercise. The most common reason to not exercise was having a disability.

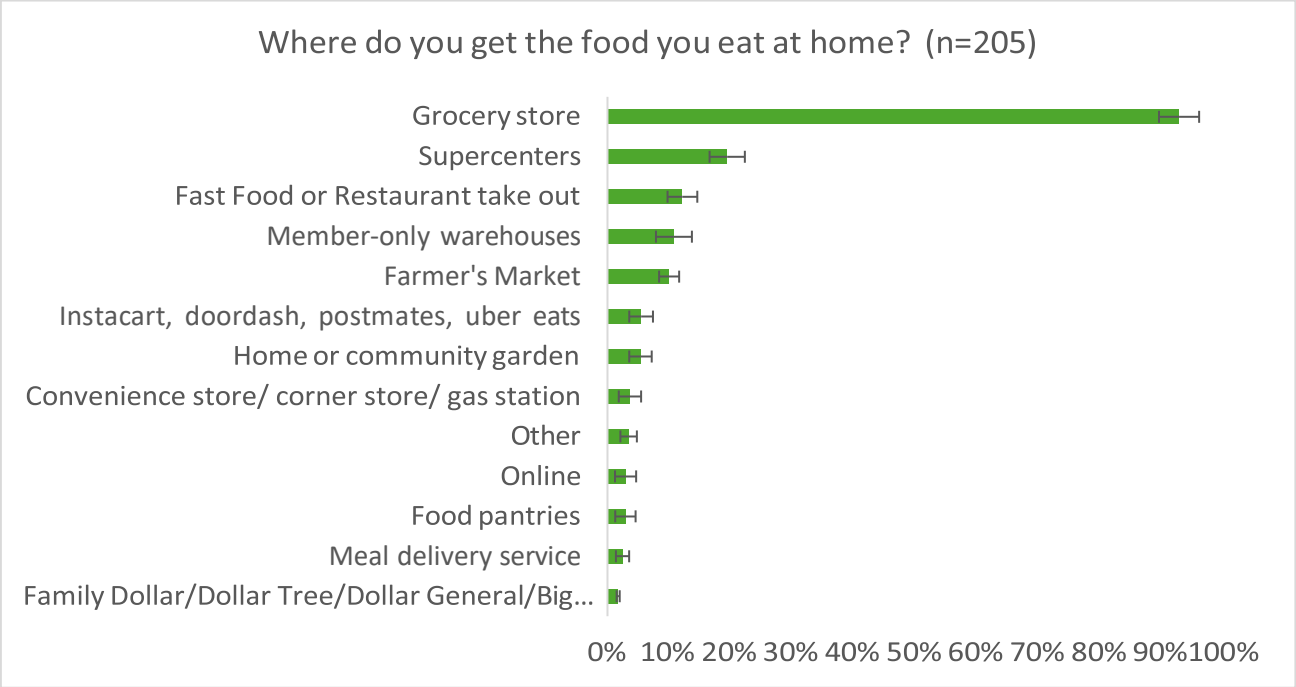
Q22: Whether you currently walk or not, what would make you want to walk more?



Interpretation: The most common reason to walk more is adding more sidewalks (48.8%) followed by access to off road paths or trails and safer crosswalks. Many respondents noted that they needed nothing to encourage them to walk.

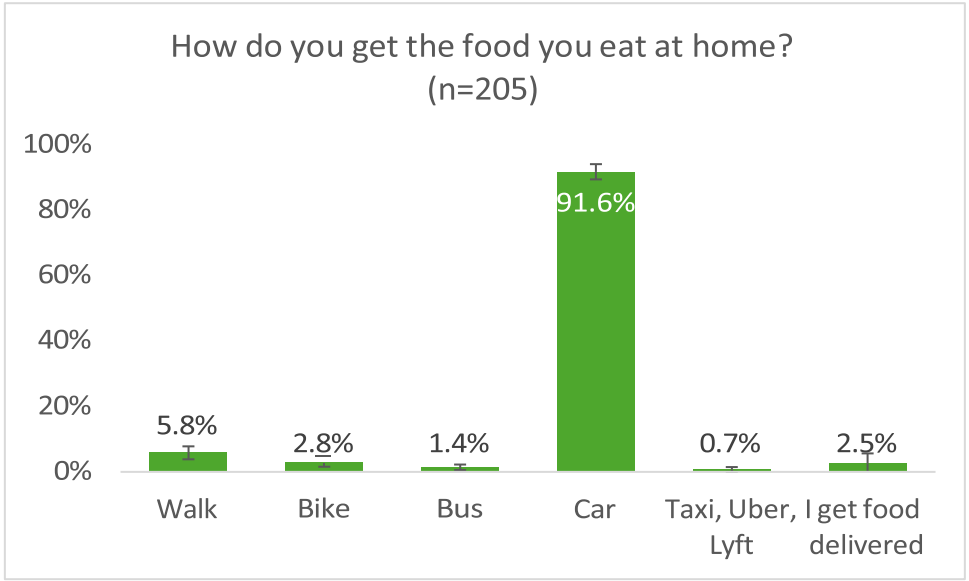
Nutrition

Q23: Where do you get the food you eat at home?



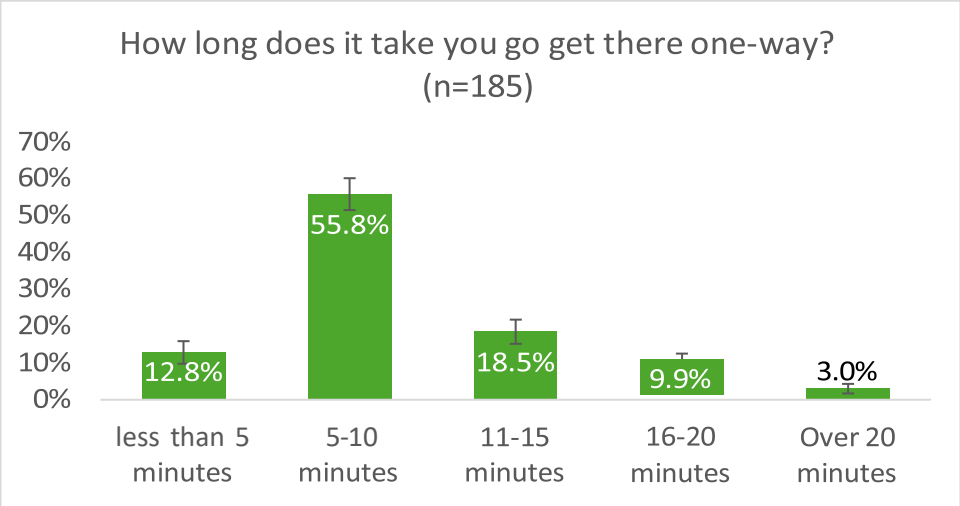
Interpretation: Most respondents (92%) reported getting the food they eat at home at the grocery store followed by supercenters such as Walmart or Target.

Q24: How do you usually get the food you eat at home?



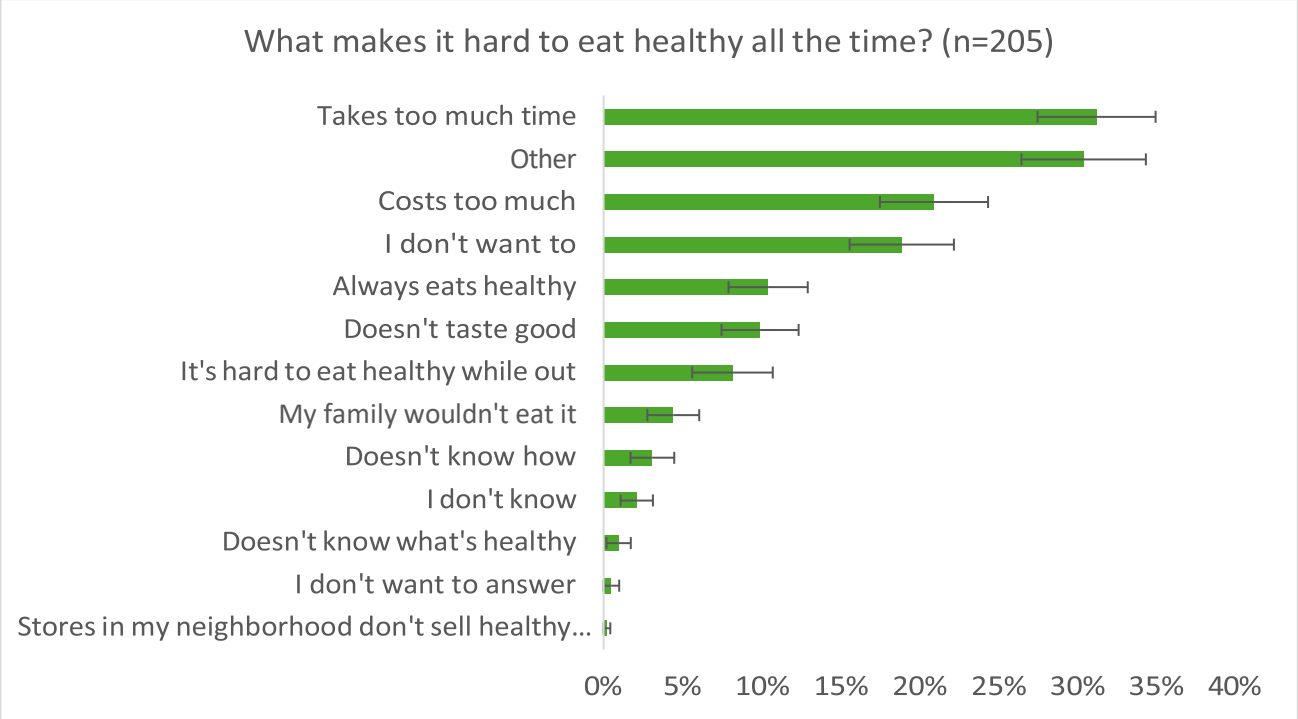
Interpretation: Most respondents reported that they get the food they eat at home by car (91.6%). The next most common form of transportation is walking to get food (5.8%).

Q25: How long does it take you to get there one way?



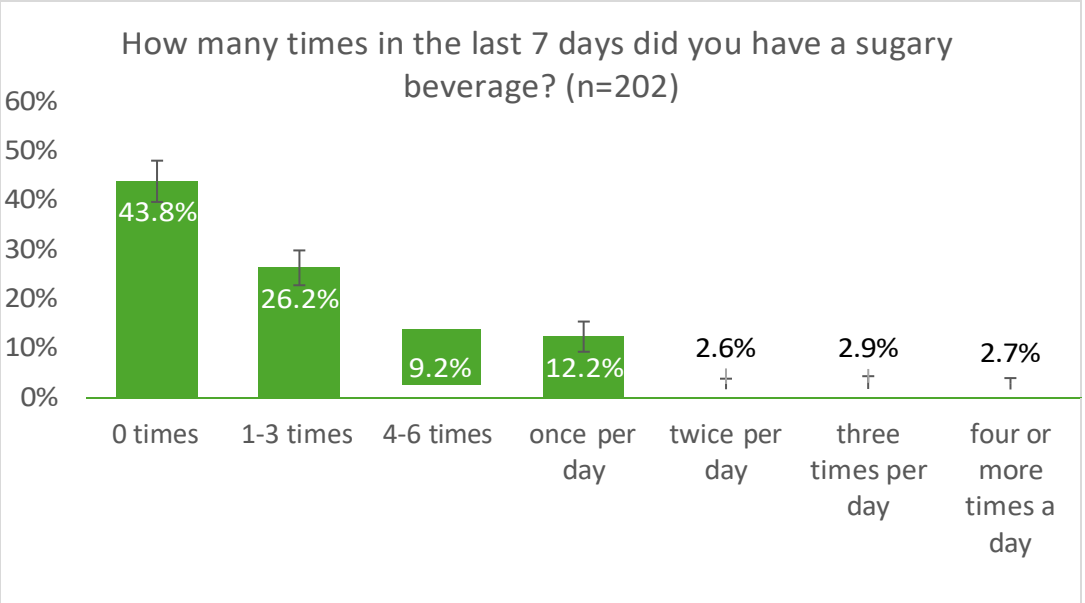
Interpretation: Over half responded that it takes them 5-10 minutes to get to food one-way (55.8%). It takes many less than 5 minutes (12.8%) but very few had to go over 20 minutes away (3%).

Q26: **Most of us don't eat healthy all the time. When you aren't eating a healthy diet, what do you think makes it hard for you to eat healthy?**



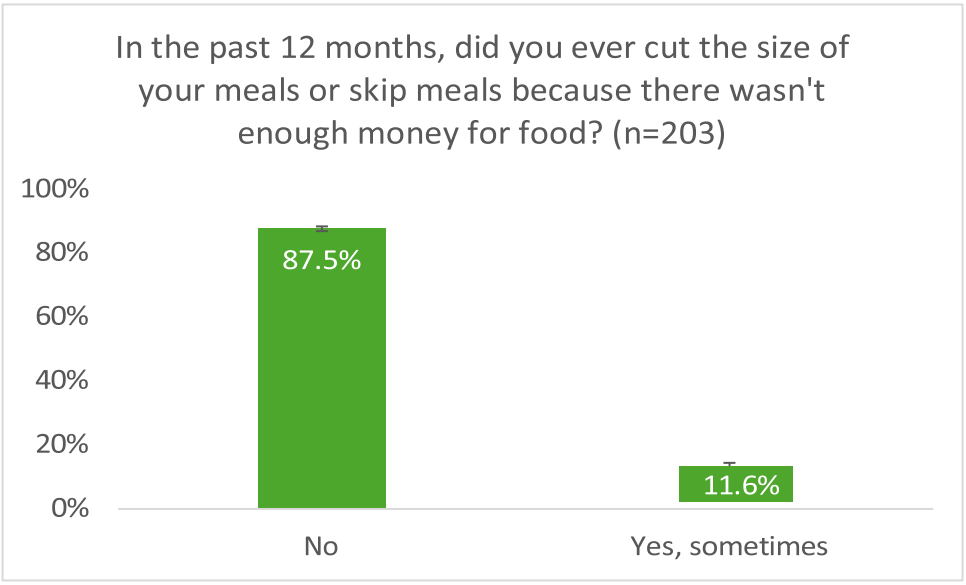
Interpretation: The most common reason for not eating healthy all the time was not enough time followed by cost. Many participants gave other reasons for not eating healthy including that junk food tastes too good and access to fast food commercials and advertising.

Q27: In the past 7 days, how many times did you drink a sugary beverage?



Interpretation: Nearly half of the respondents reported having zero sugary drinks in the past week (43.8%).

Q28: **In the past 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?**



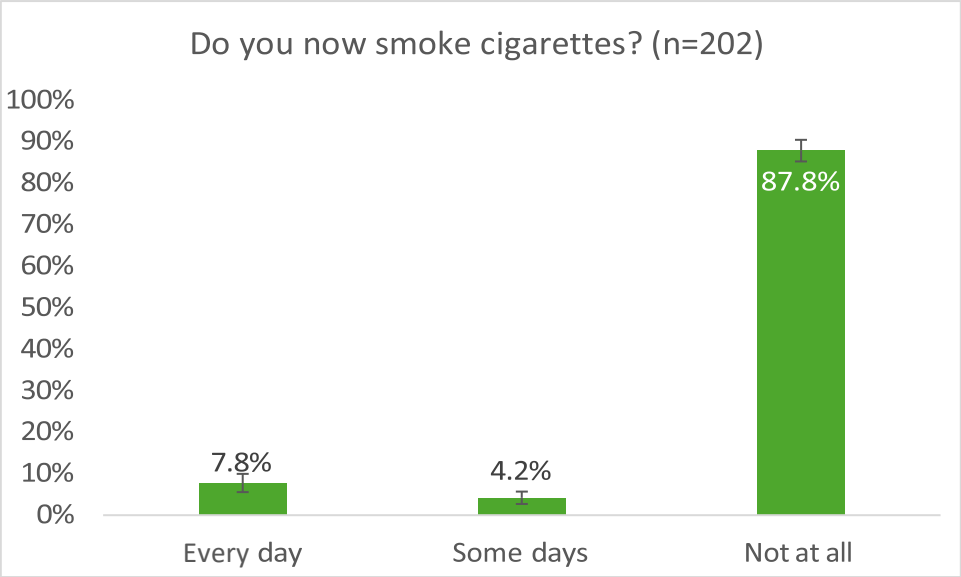
Interpretation: Most respondents reported not having cut the size or skipping meals because there wasn't enough money for food (87.5%).

Q29: **In the past 12 months, did you every worry your food would run out before you got money to buy more?**

Interpretation: Most respondents reported they have never worried that food would run out before the got money to buy more (83.1%)

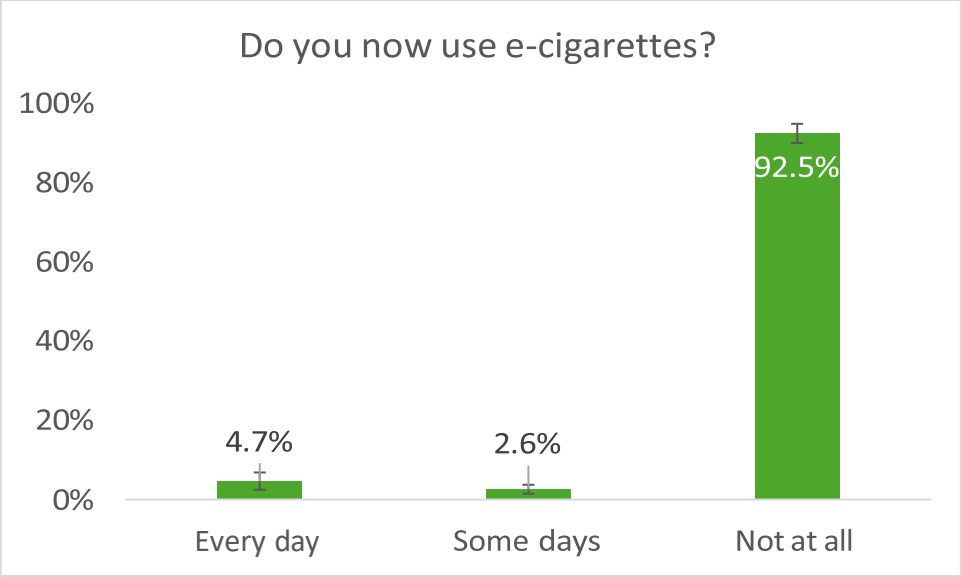
Tobacco

Q30: Do you now smoke cigarettes every day, some days, or not at all?



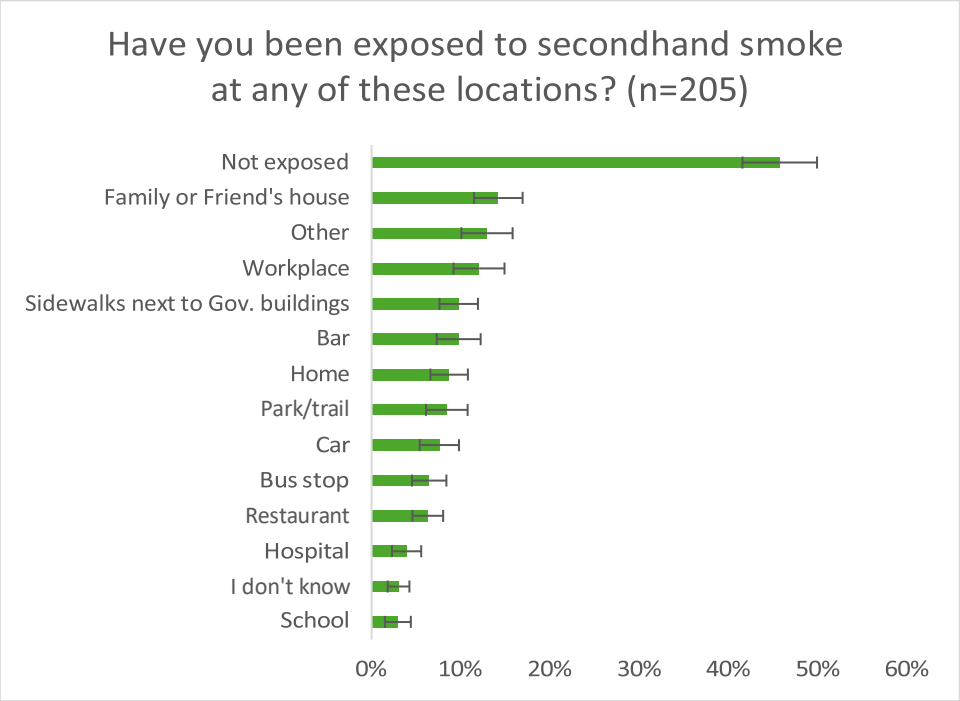
Interpretation: Most respondents reported that they do not currently smoke cigarettes (87.8%).

Q31: Do you now use e-cigarettes every day, some days, not at all?



Interpretation: Nearly all respondents reported not currently smoking e-cigarettes (92.5%).

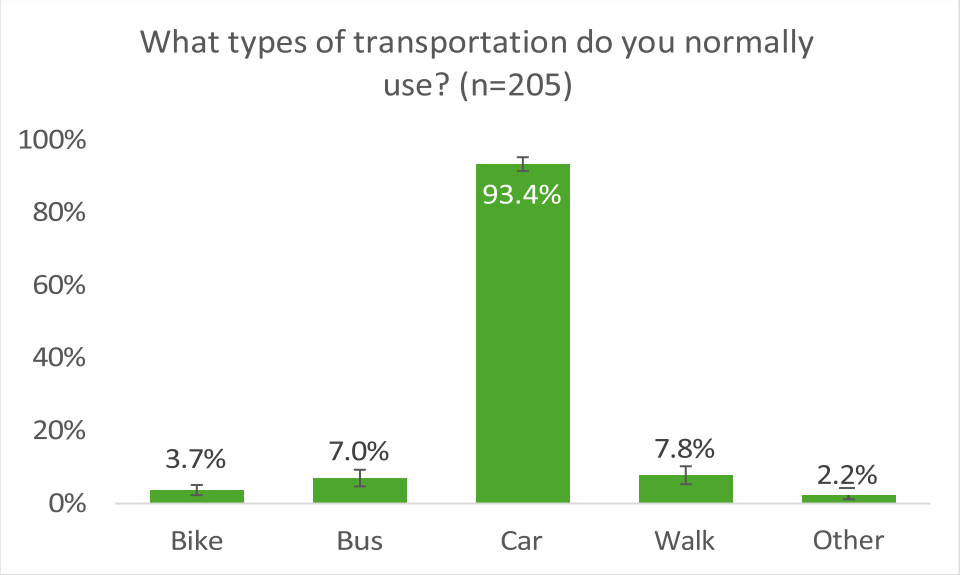
Q32: Have you been exposed to secondhand smoke at any of the following places?



Interpretation: Nearly half of respondents (45.7%) reported that they were not exposed to secondhand smoke. The most common place respondents experienced secondhand smoke were a family or friend's house and the workplace. Many respondents cited other exposures including sidewalks in general and parking lots.

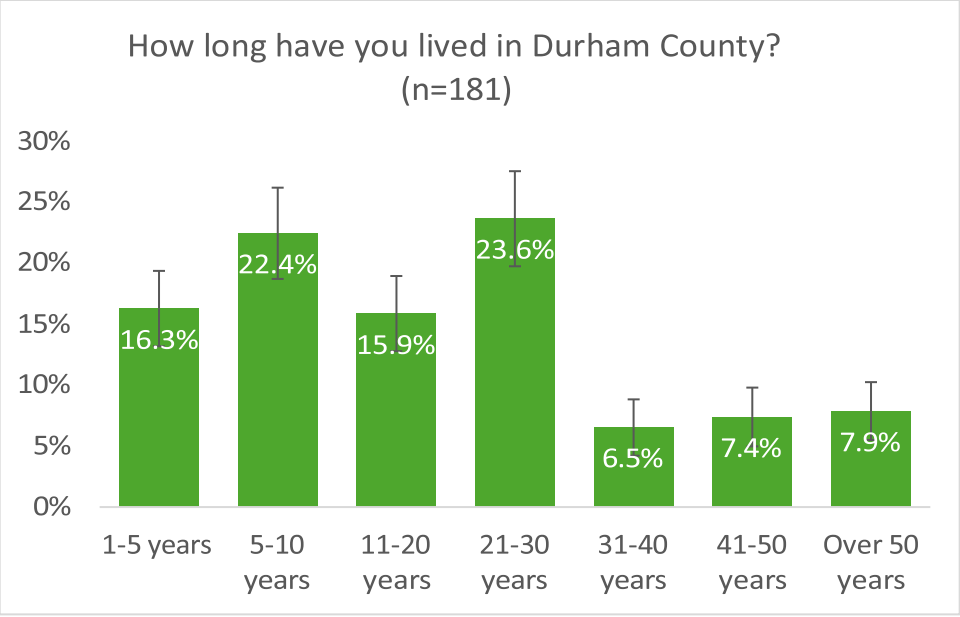
Household

Q33: In a typical week, what types of transportation do you use the most?

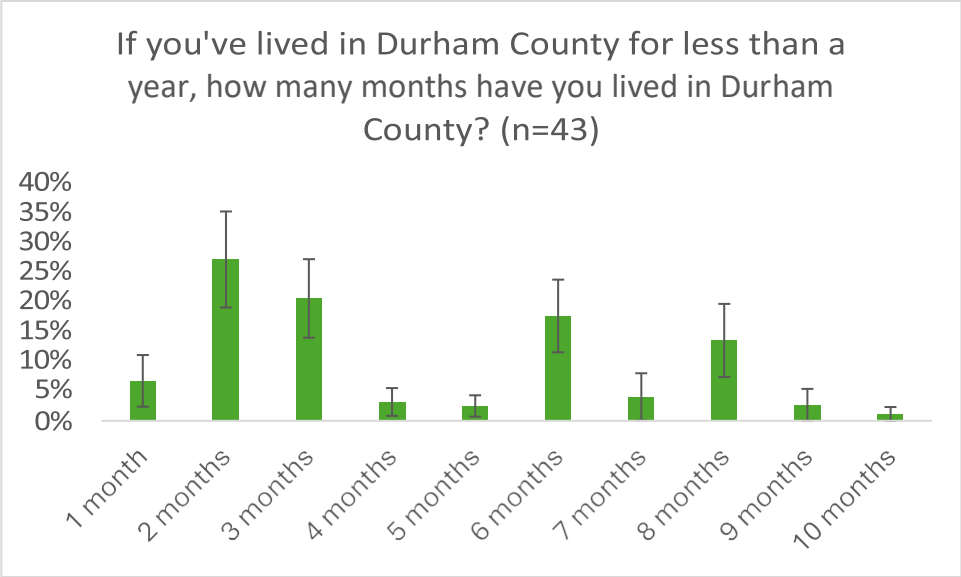


Interpretation: The most common form of transportation was a car followed by walking.

Q34: How long have you lived in Durham County?

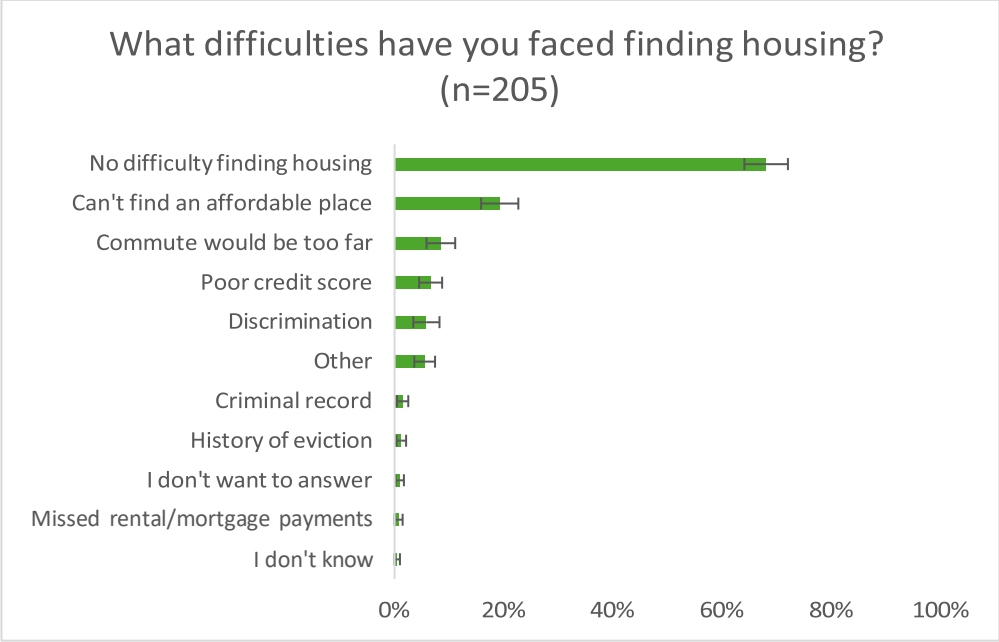


Interpretation: Most respondents reported living in Durham County for less than 21 years (54.6%).



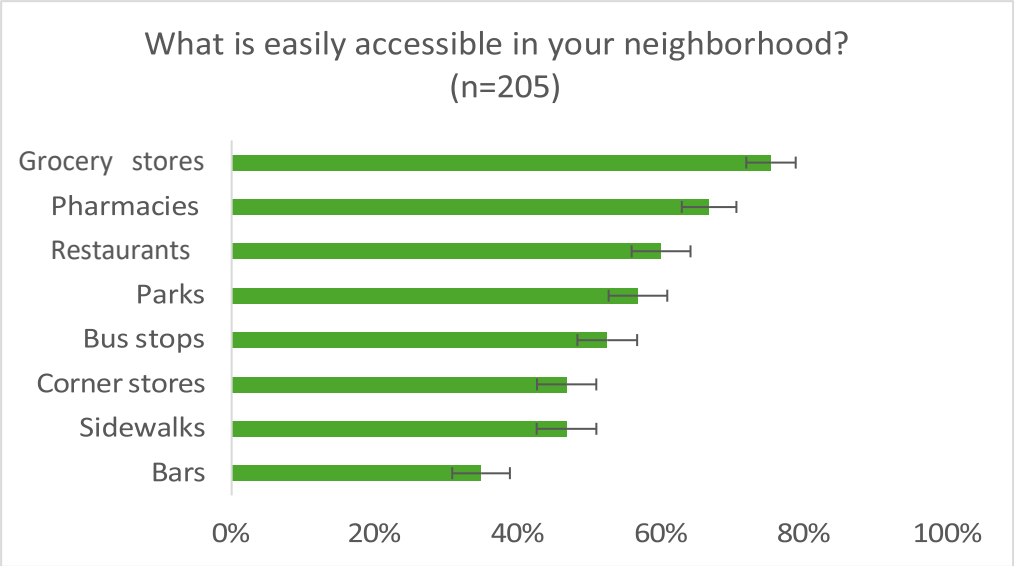
Interpretation: Many residents reported living in Durham County for less than a year, some as recent as one month ago.

Q35: Have you ever had difficulty finding housing? If so, why?



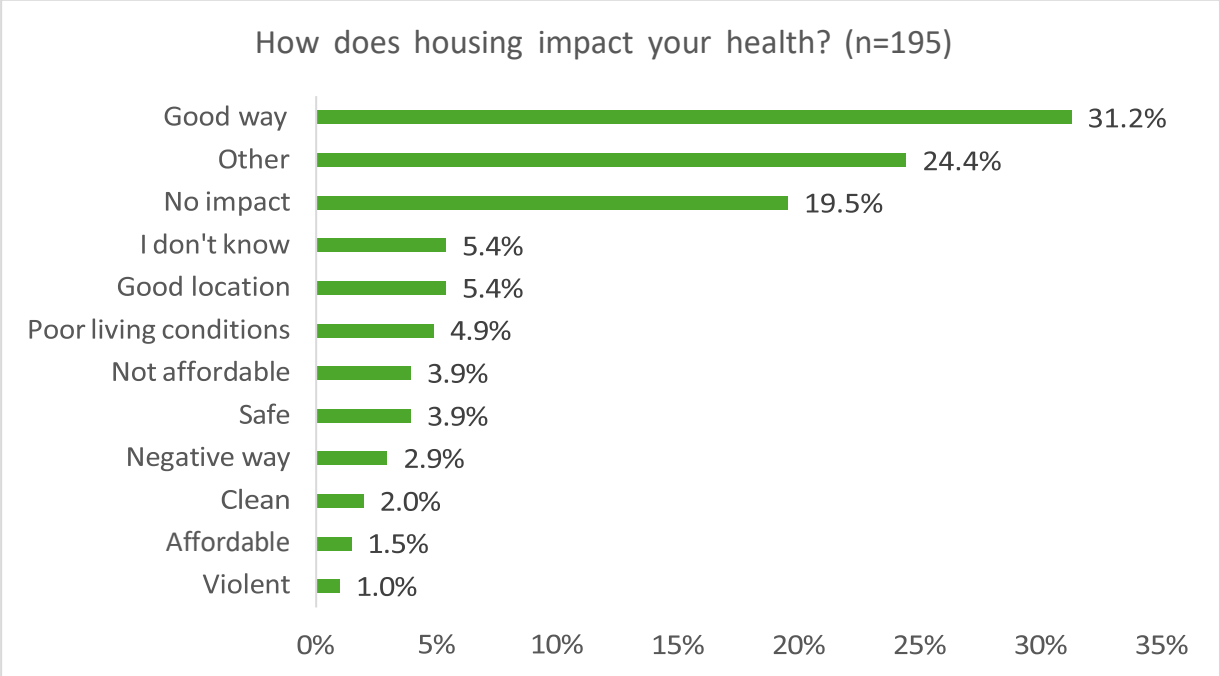
Interpretation: Over half of participants (68%) responded that they did not have difficulty finding housing. Following that, respondents reported that finding affordable housing was a barrier followed by commutes being too far.

Q36: What are easily accessible in your neighborhood?



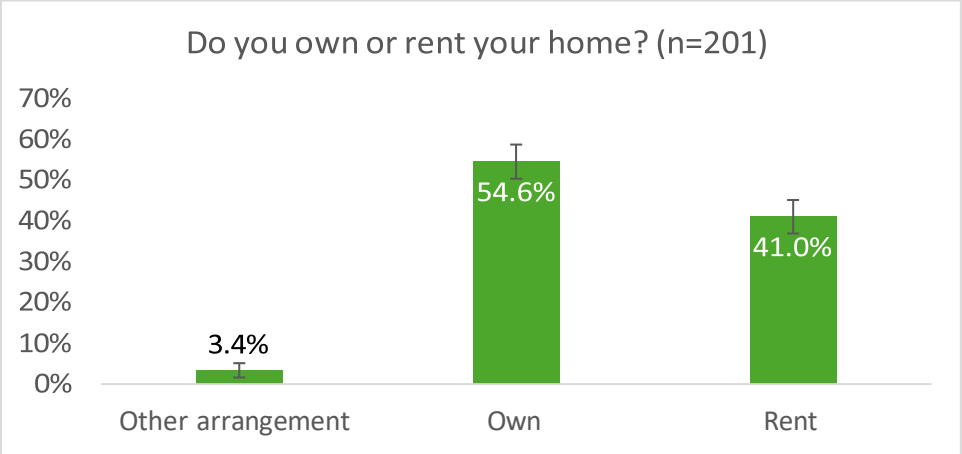
Interpretation: The most common easily accessible amenity in neighborhoods was grocery stores nearby followed by pharmacies and restaurants.

Q37: How do you think housing impacts your health?

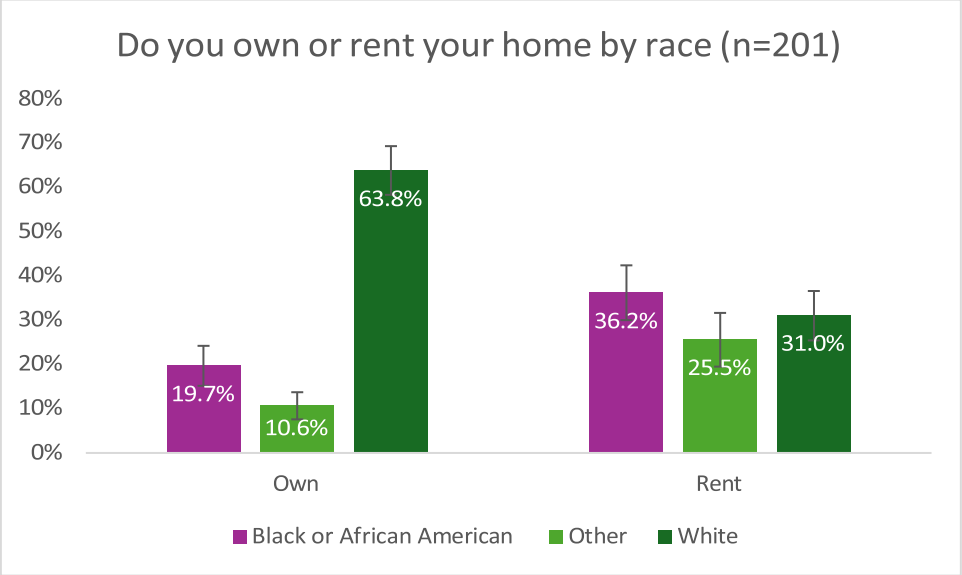


Interpretation: Most participants reported that their housing impacts their health in a good way (31.2%) followed by housing having no impact on their health (19.6%). Other responses included that their housing is in a good location while some listed they experience poor housing conditions.

Q38: Do you own or rent your home?

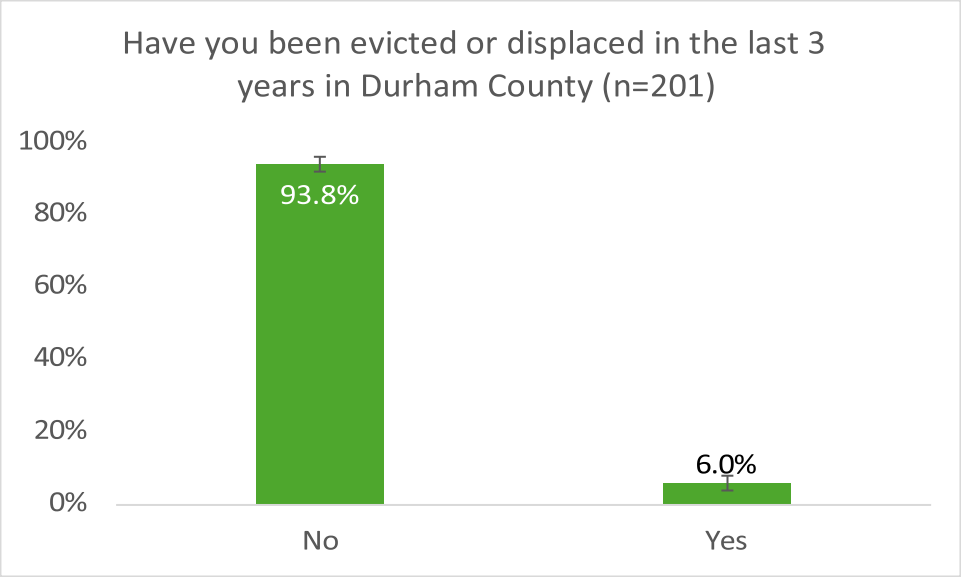


Interpretation: Most respondents reported owning their home (54.6%) while 41% reported renting.



Interpretation: The vast majority of homeowners are white (63.8%) followed by Black or African Americans (19.7%). The opposite is true in those that rent with Black or African Americans (36.2%) while whites are 31.0%. Those collated into the 'other' race rent more than own.

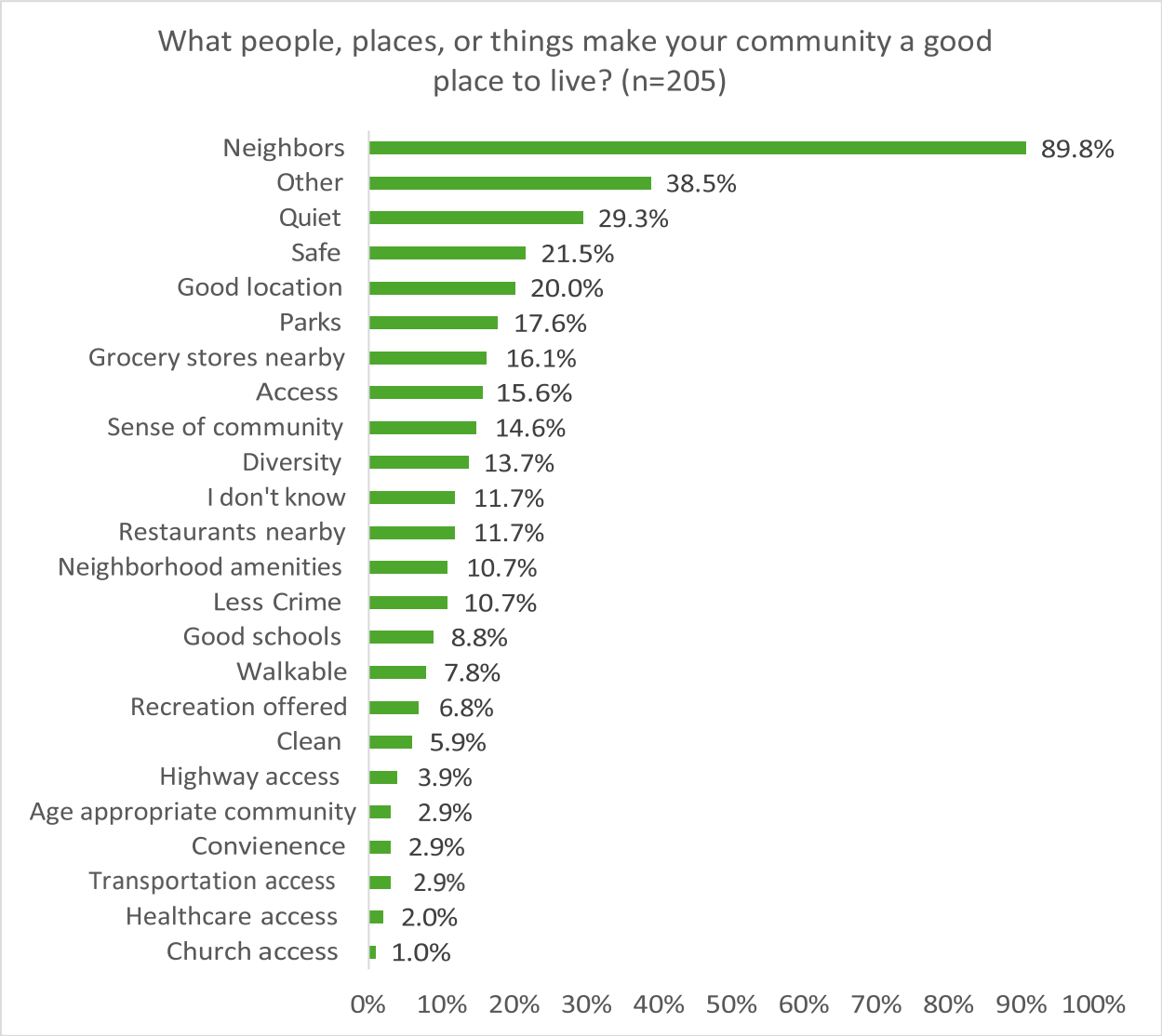
Q39: H**ave you or someone in your household been evicted, displaced, or experienced houselessness while living in Durham County in the past 3 years?**



Interpretation: Nearly all respondents (93.8%) reported not experiencing eviction or displacement in the past 3 years living in Durham County.

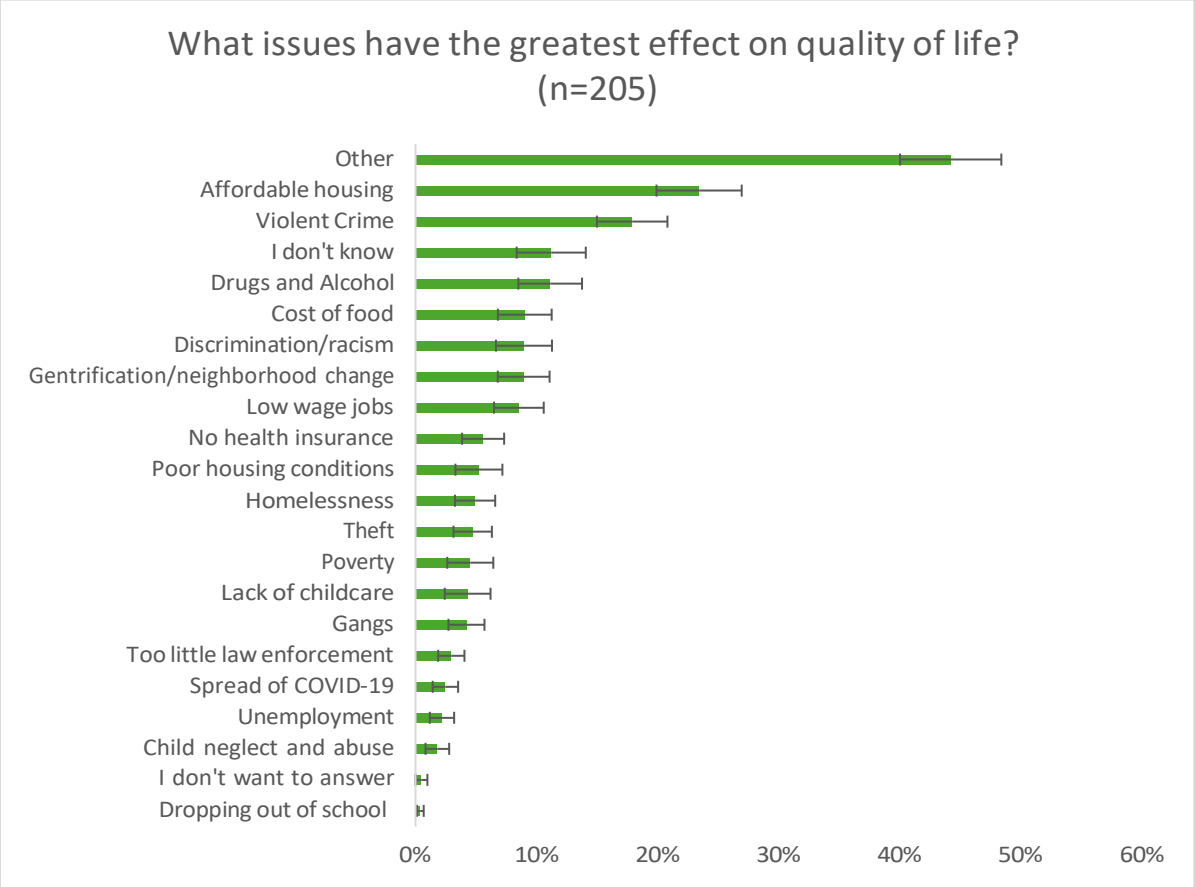
Community Improvement

Q40: What people, places or things make Durham County a good place to live?



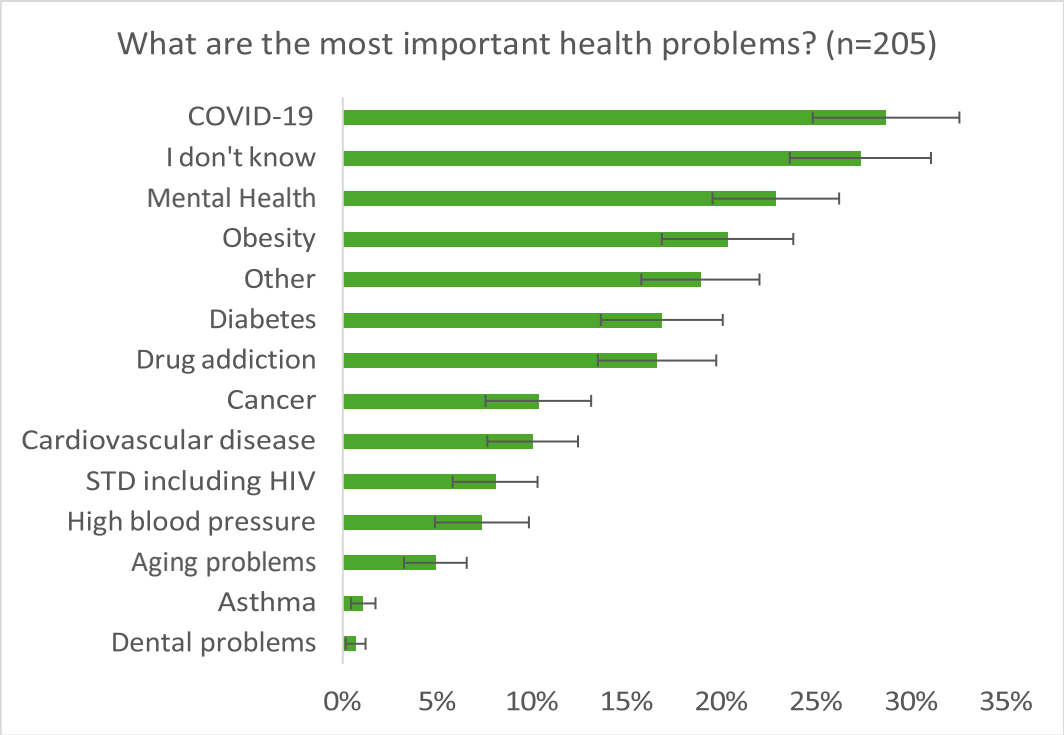
Interpretation: This question was open ended. Most respondents (89.8%) reported that their neighbors made their community a good place to live followed by their neighborhood was quiet and it was safe. Other reasons people enjoy their neighborhood include the presence of sidewalks, near family and friends, family-friendly, and presence of nature.

Q41: **What issues have the greatest effect on quality of life for you personally or your community in Durham County?**



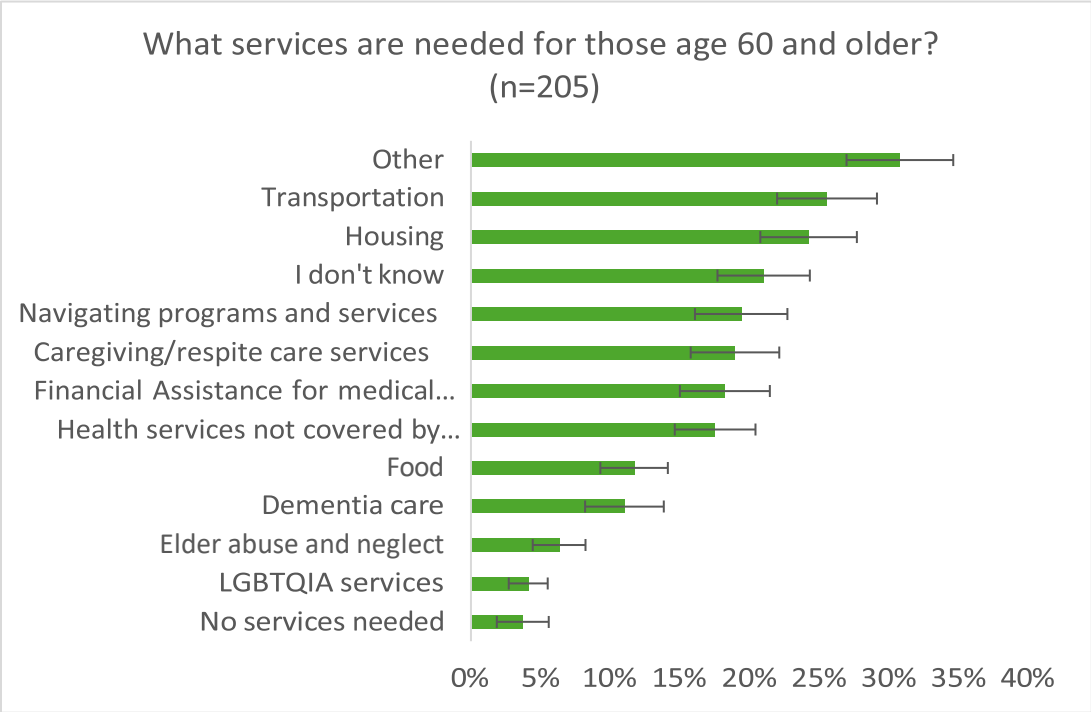
Interpretation: The vast majority of participants identified affordable housing as a top issue in Durham County followed by violent crime. Many respondents replied with 'other', and the themes were too much gun violence and inflation followed by they had no issues.

Q42 **What are the most important health problems, that is, diseases or conditions in Durham County? Choose up to 3.**



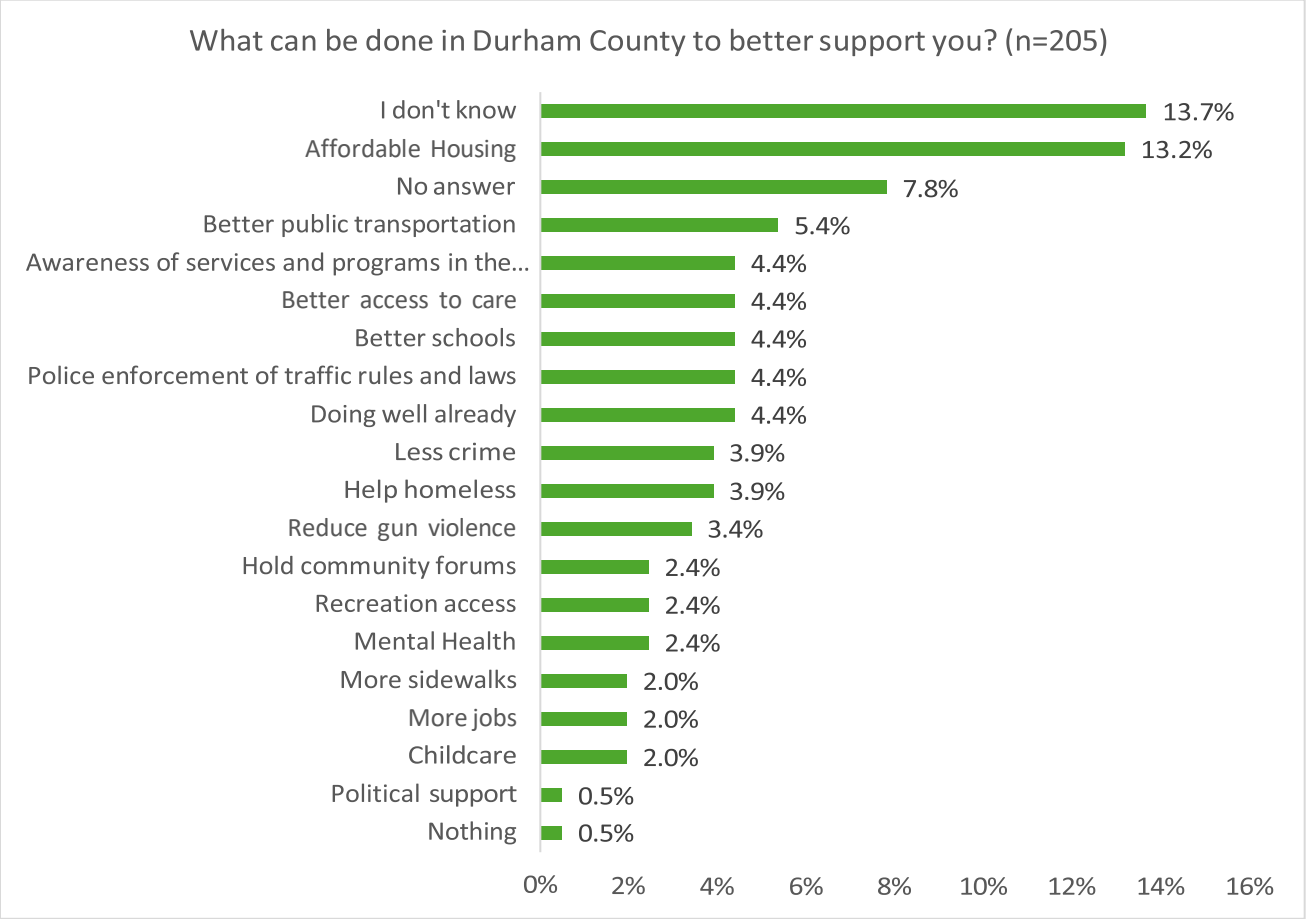
Interpretation: Many participants did not know what top conditions or diseases were in Durham County. The top issues reported were COVID-19 and mental health. Some of the 'other' responses included access to care, food insecurity, and gun violence and homicide.

Q43: What, if any, services and support are needed in Durham County to help improve the quality of life for adults ages 60 and older?



Interpretation: Most participants responded that transportation was a big issue followed by housing. Many respondents mentioned access to care, social isolation, and more activities and programs for the population.

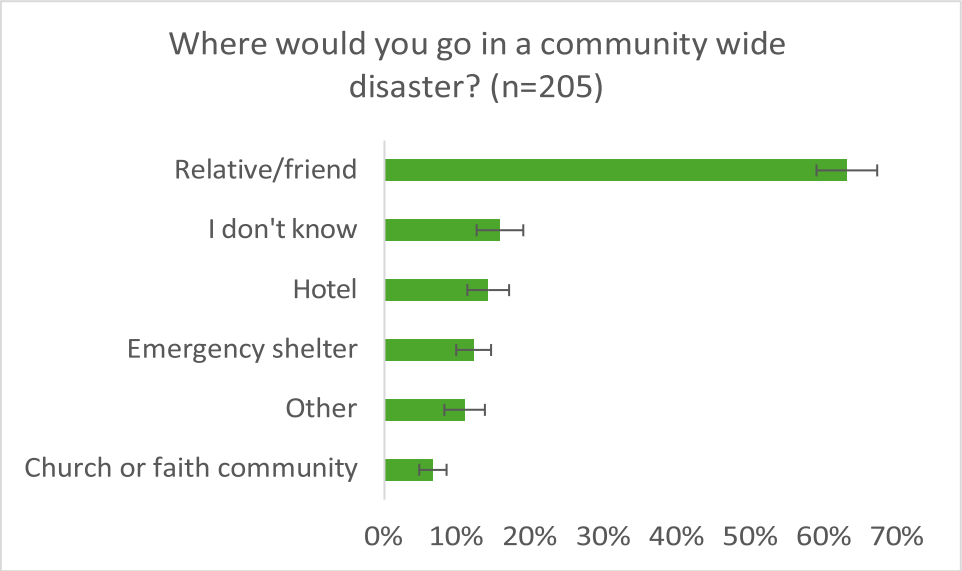
Q44: What could be done to support you?



Interpretation: The most common way to support participants was to find solutions to make housing affordable. Many participants responded that they did not know or that they had no problems at this time. Public transit came up several times as well as providing awareness for programs and services provided by the county and better access to care.

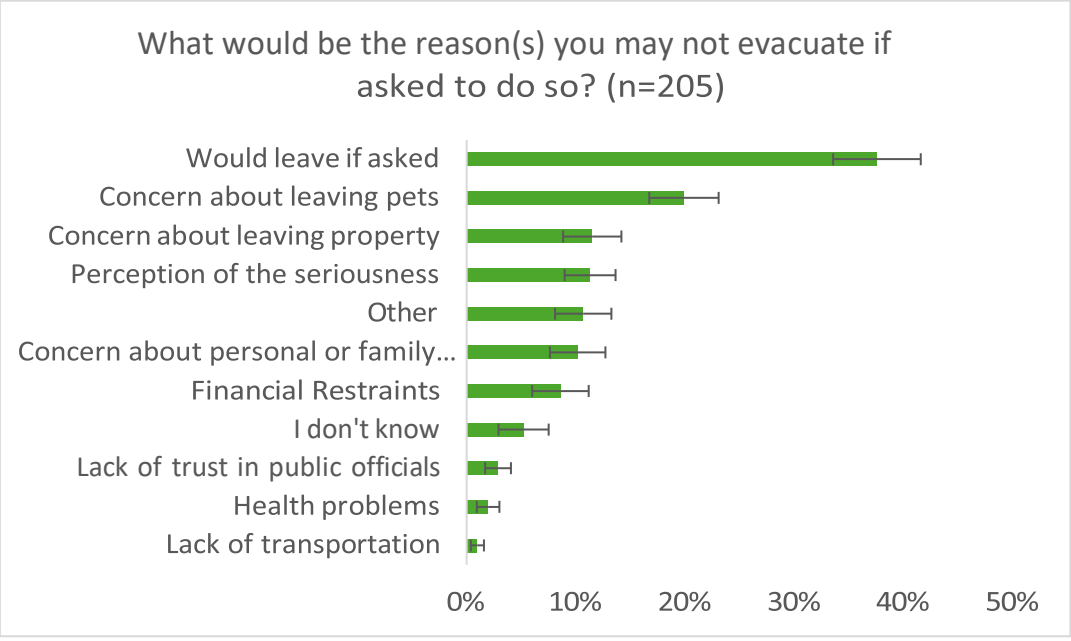
Emergency Preparedness

Q45: **If you couldn't remain in your home, where would you go in a community wide emergency?**



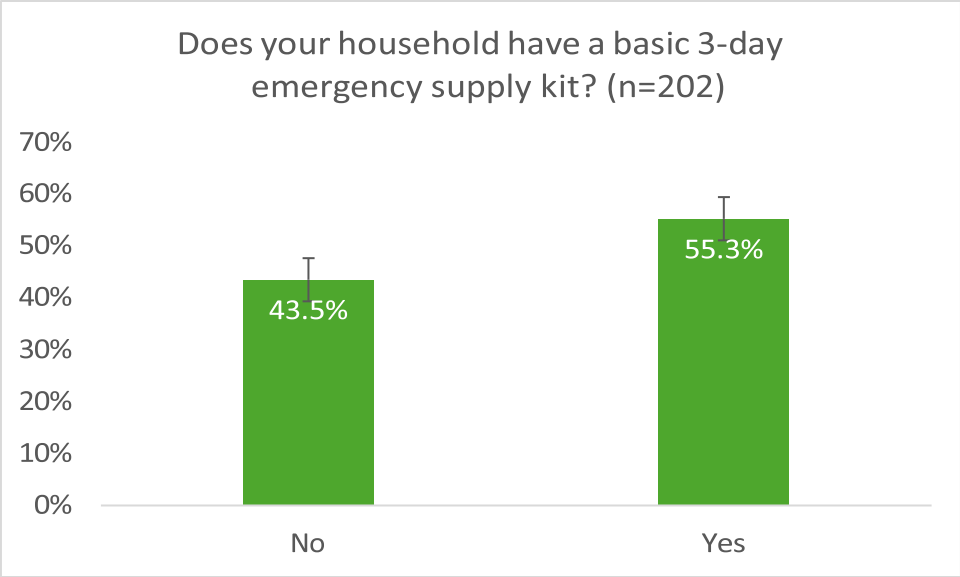
Interpretation: The vast majority of participants responded that going to a friend or relatives' home would be their choice if they had to evacuate. Those that responded 'other' common responded with 'go out of town'.

Q46: **What would be the main reasons you might not evacuate or leave your home if asked to do so?**

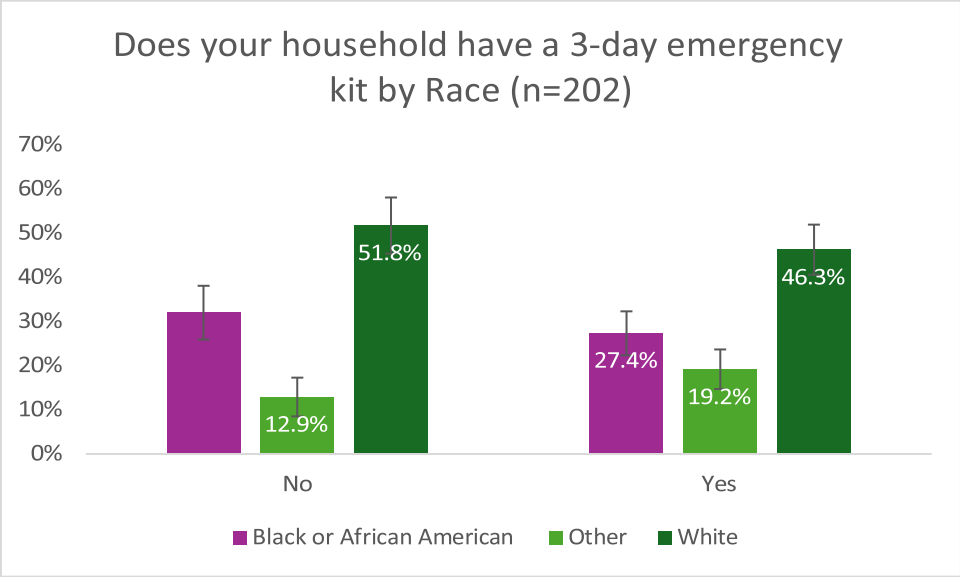


Interpretation: Most participants responded that they would leave if asked to do so. The other participants listed that they would not evacuate because of concern of leaving pets followed by concern about leaving property behind. Those that responded 'other' often mentioned not knowing where to go.

Q47: **Does your family have a basic 3-day emergency supply kit and plan?**

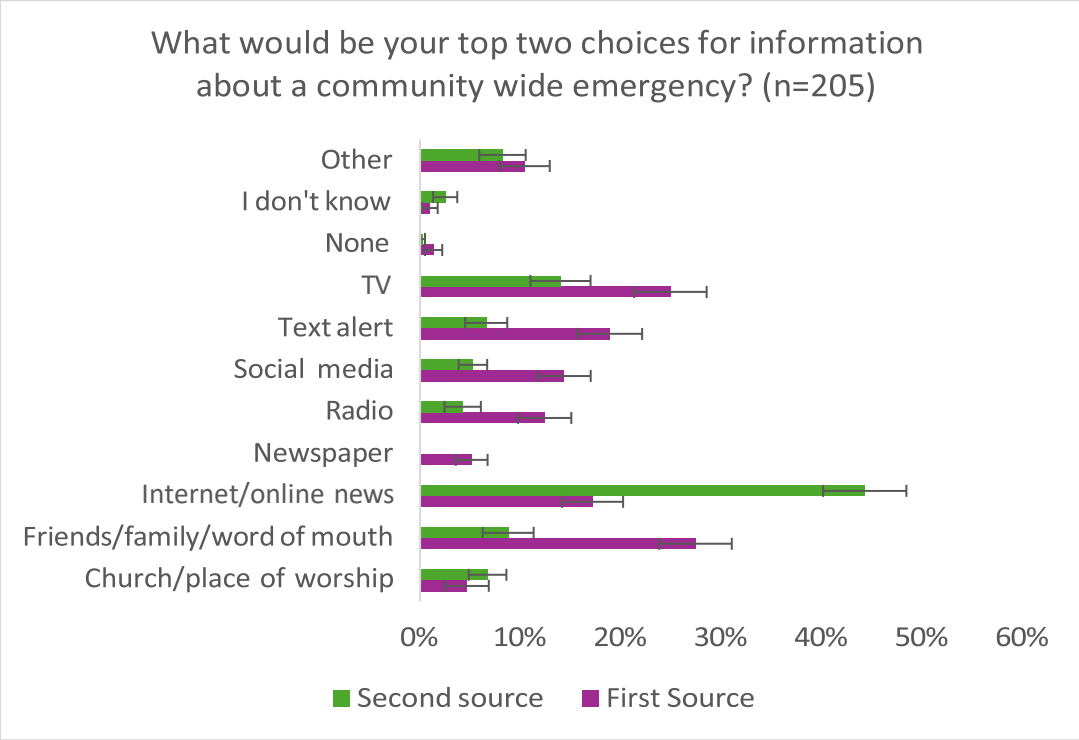


Interpretation: Most participants responded that they did have a 3-day emergency response kit (55.3%).



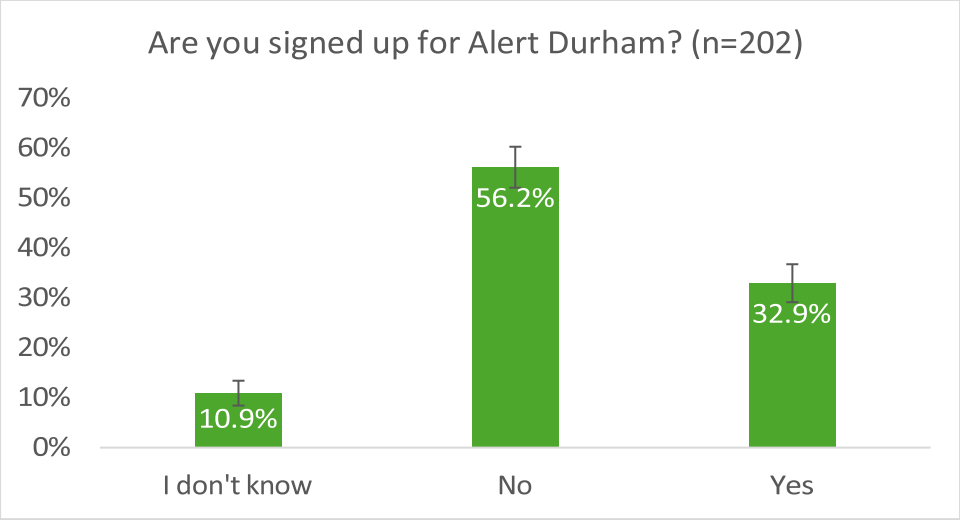
Interpretation: Among whites, those that have or do not have a 3-day emergency supply kit are nearly evenly split. The same is true with Black or African Americans. Those that identify as other races were more likely to have a 3-day emergency supply kit.

Q48: What would be your top two sources of information in a community disaster?

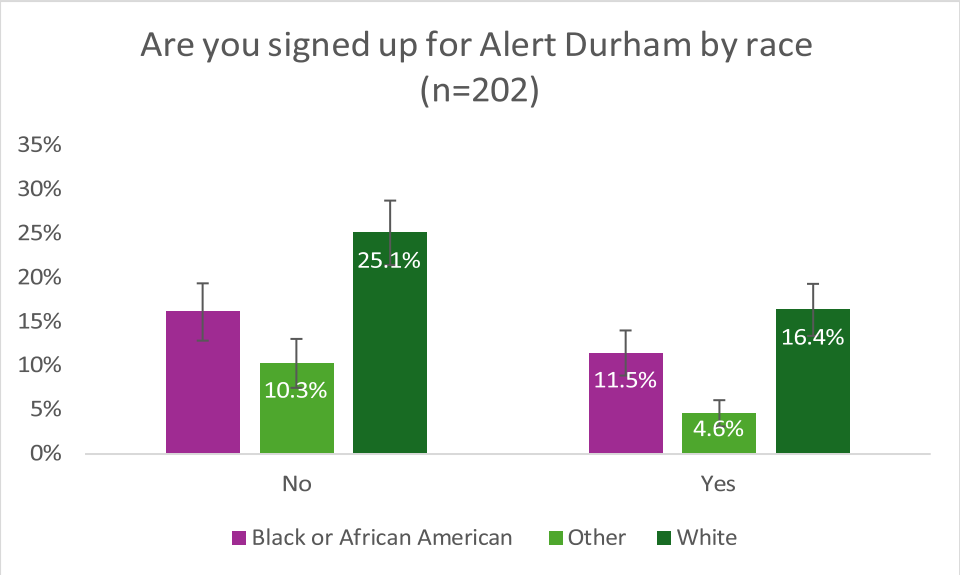


Interpretation: The most common first source of information in a community wide disaster is friends, family, or word of mouth (27.4%) followed by TV (25%). The most common second source of information during a community wide disaster was internet or online news (44.3%) followed by TV (14%). Those that said 'other' mentioned the county website.

Q49: Are you signed up for Alert Durham?



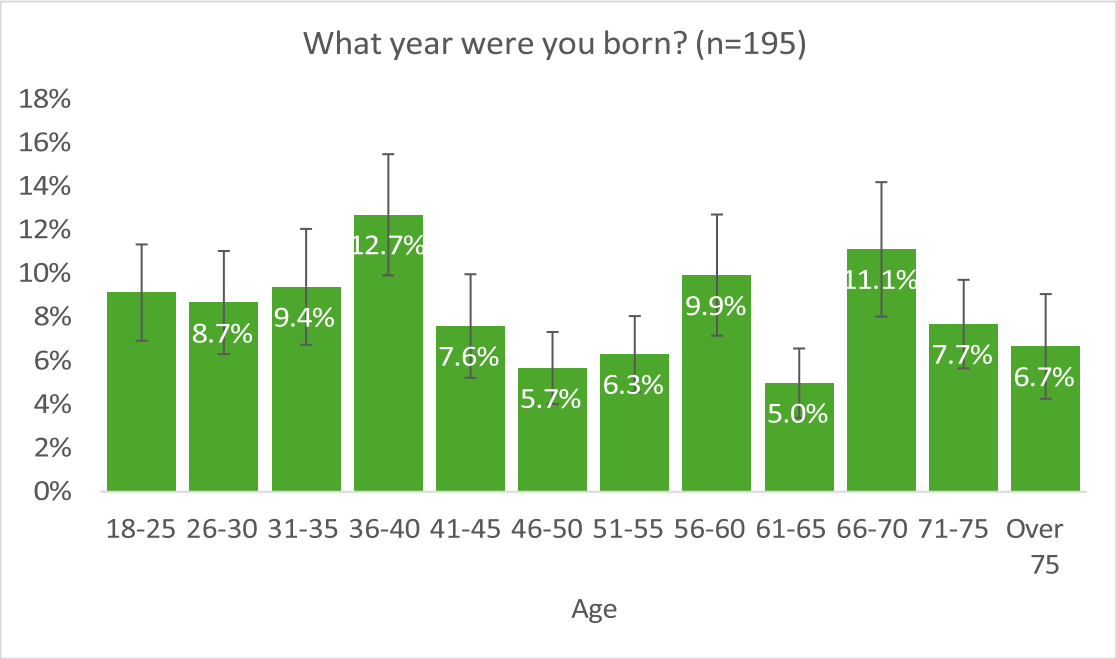
Interpretation: Most participants were not signed up for Alert Durham (56.2%).



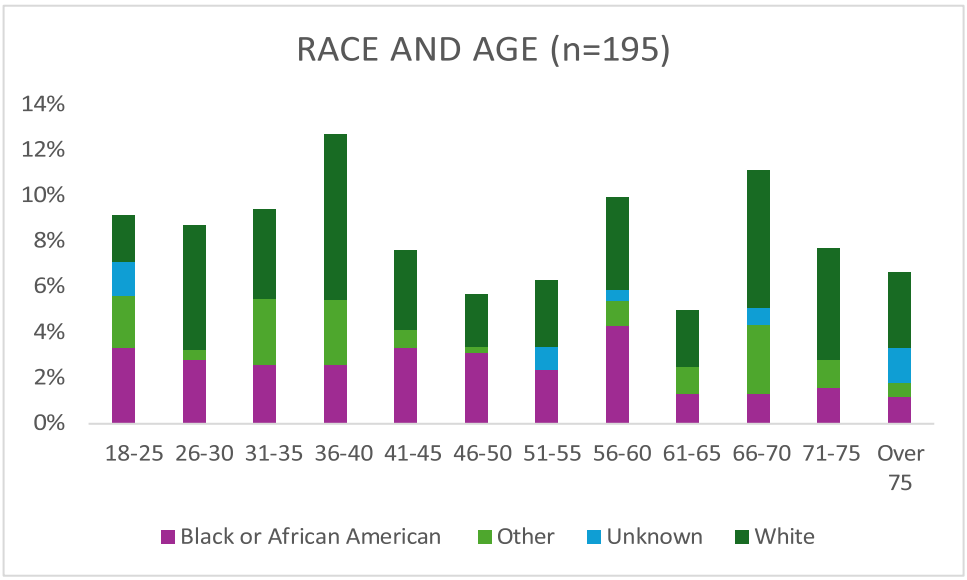
Interpretation: Whites (16.4%) are more likely to be signed up for Alert Durham than Black or African Americans (11.5%) or those of other races (4.6%).

Demographics

Q50: What year were you born?

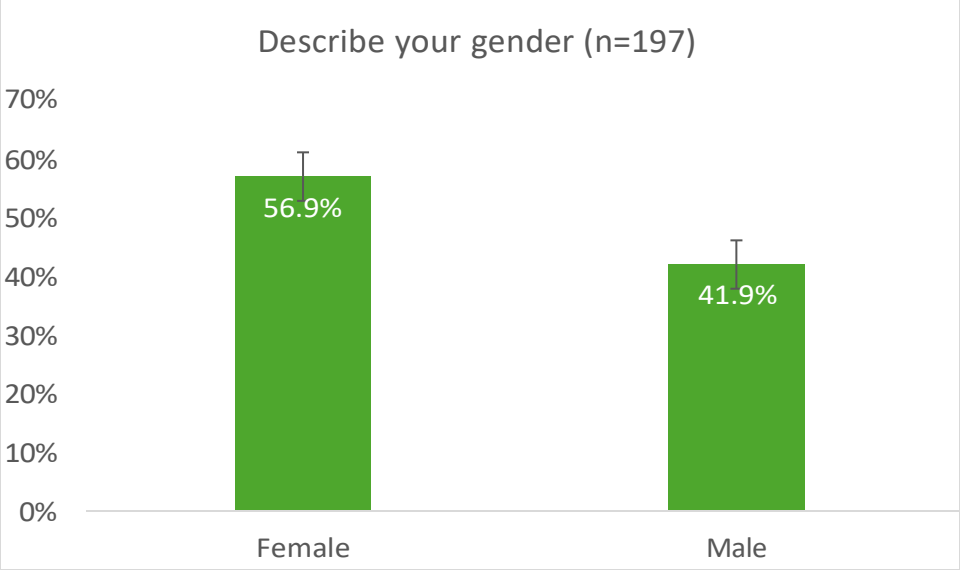


Interpretation: The county-wide sample was representative of all age groups. This is a bimodal spread of age groups with one peak seen at the younger scale (40 years and below) and another peak after 56 years old and after.

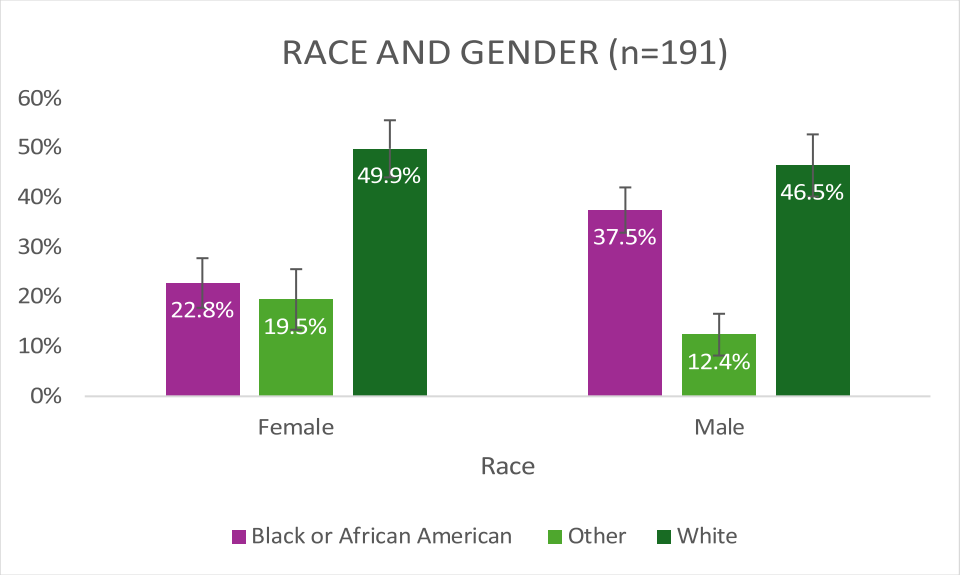


Interpretation: The racial demographics were consistent among the age groups for this survey.

Q51: Describe your gender.

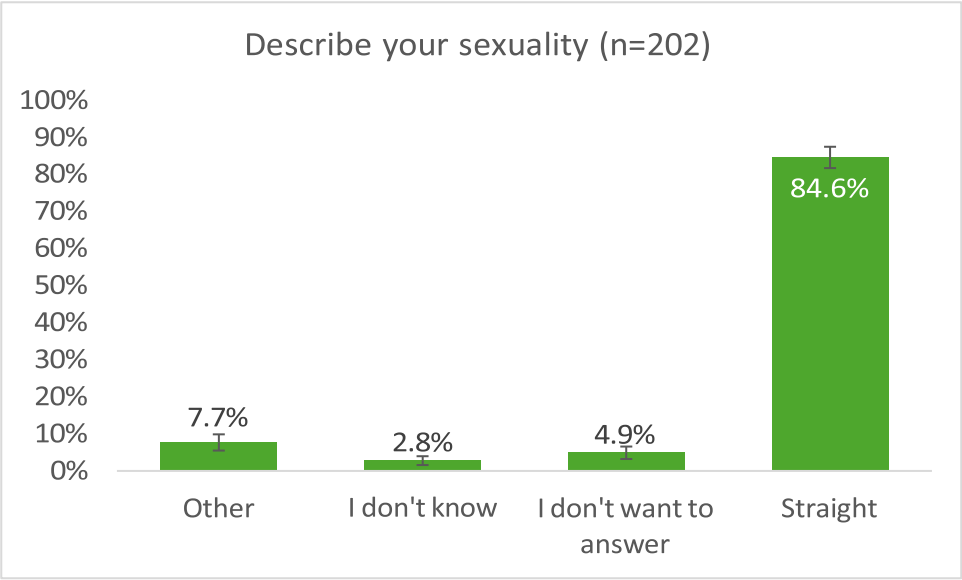


Interpretation: Overall, more females participated in this survey then males (56.9%, 41.9% respectively). Numbers of those that identify as nonbinary and self-identify were too small to report. No respondents identified as transgender.



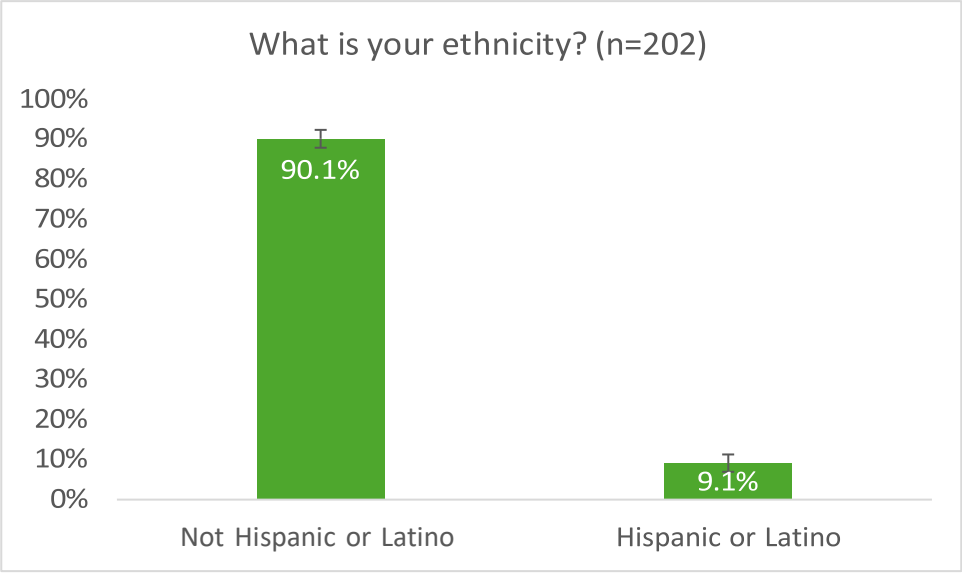
Interpretation: More white females participated in this survey (49.9%) than female Black or African Americans or females of other races.

Q52: How would you describe your sexual orientation?



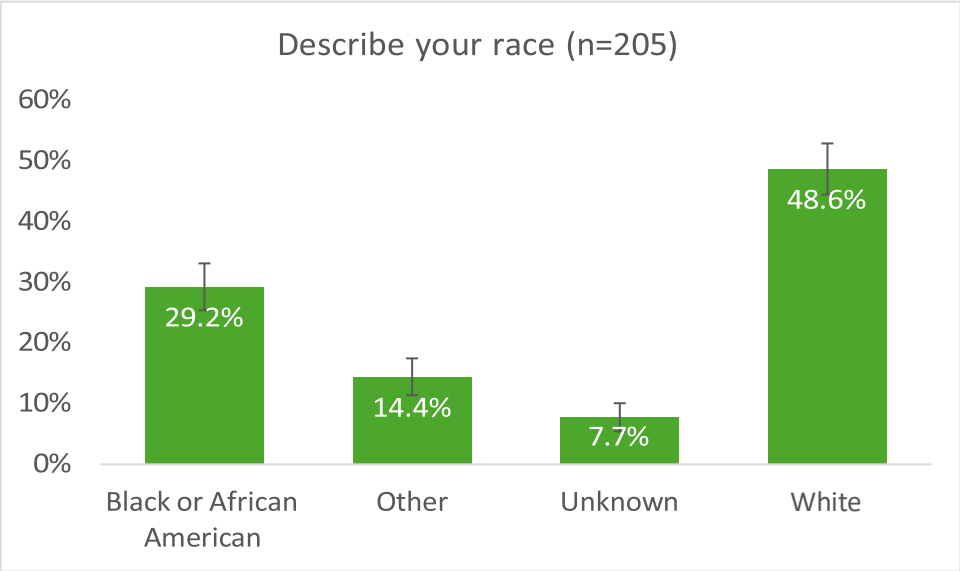
Interpretation: Most respondents identify as Heterosexual or straight (84.6%). Those included in the 'other' group include those that identify as gay, lesbian, queer, bisexual, pansexual, or another sexual orientation. The other group was put together because numbers for other sexualities were too low to report out.

Q53: Are you of Hispanic, Latin, or Spanish origin?



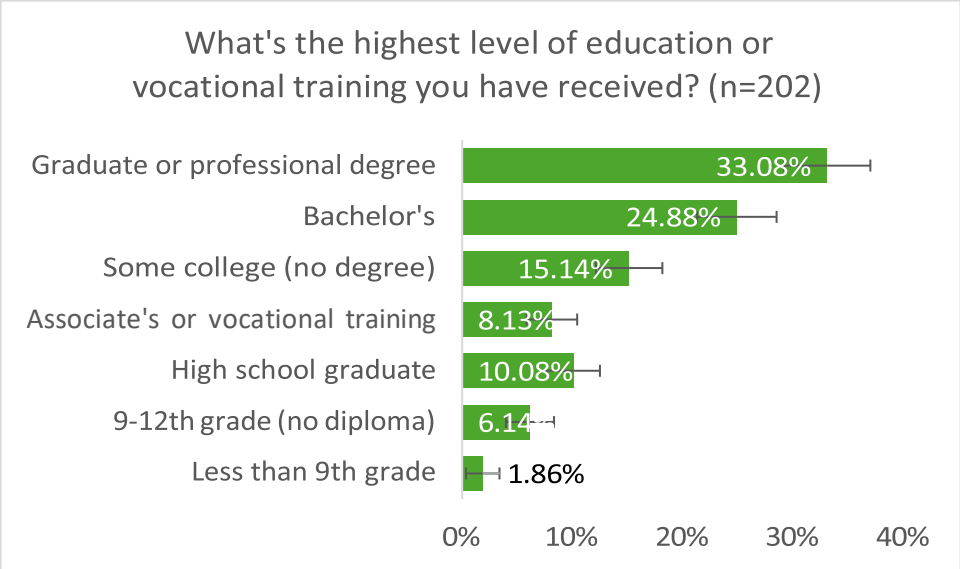
Interpretation: Most respondents (90.1%) do not identify as Hispanic or Latino.

Q54: What is your race?



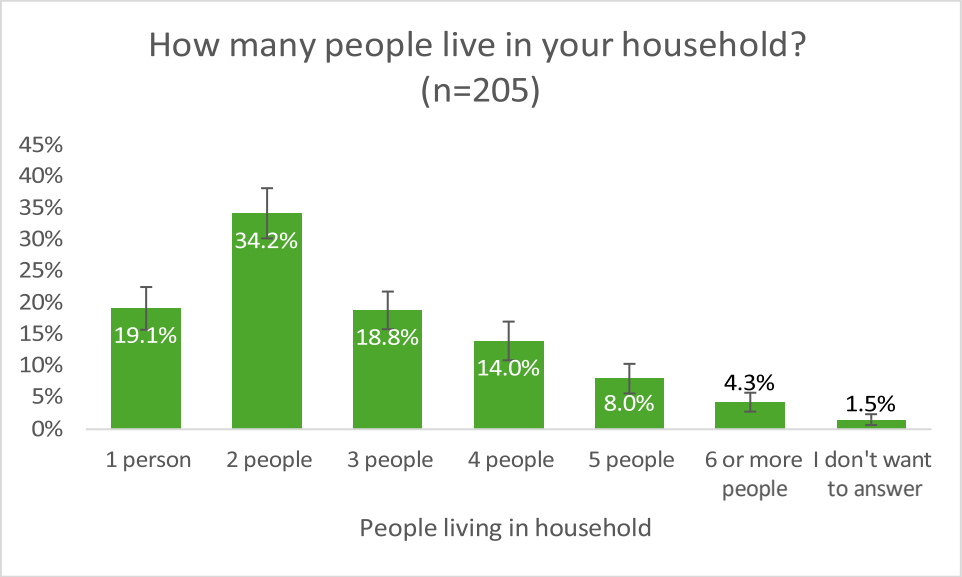
Interpretation: Most respondents identify as white (48.6%) followed by Black or African American (29.2%).

Q55: **What is the highest level of school, college, or vocational training you have finished?**



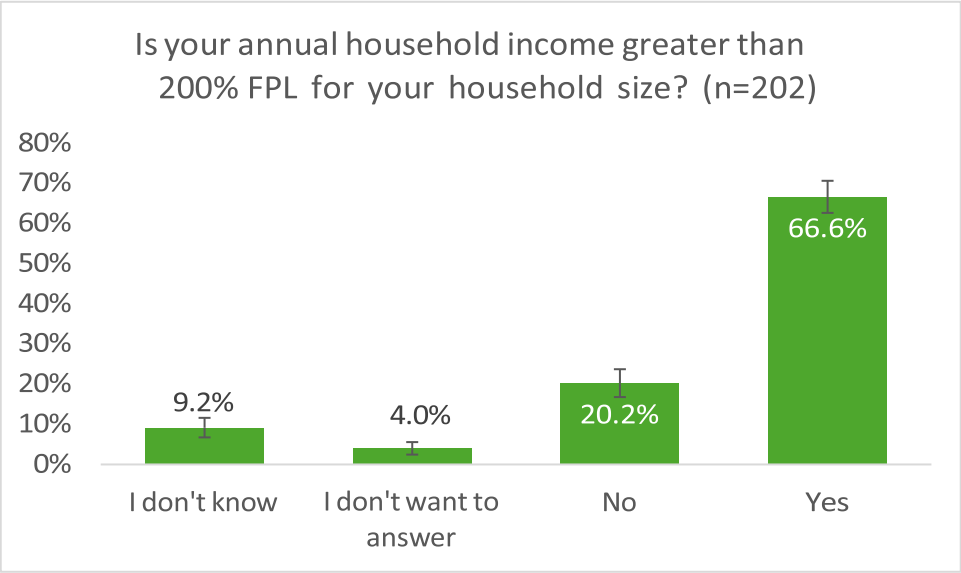
Interpretation: Most residents (58%) received a Bachelor's degree or higher.

Q56: How many people live in your household?

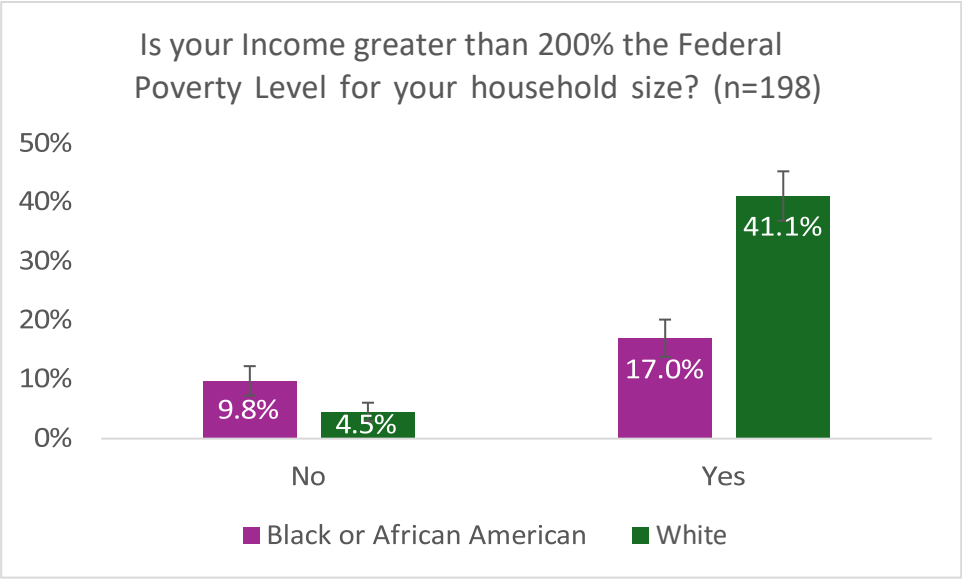


Interpretation: Most respondents lived alone or with one other person (54.1%).

Q57: **Is your annual household income GREATER than 200% FPL before taxes?**

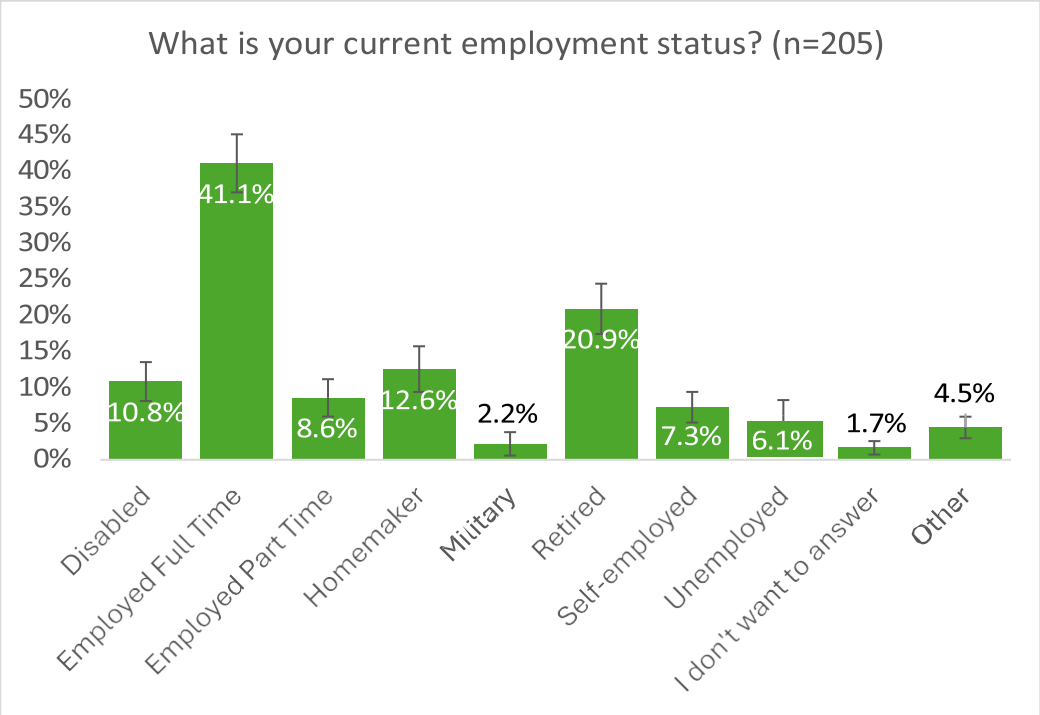


Interpretation: Most households (66.6%) reported making more than 200% the Federal Poverty Line (FPL) for their household size.



Interpretation: There is a racial gap between Black and African Americans and whites related to income. More Black or African Americans (9.8%) do not make at least 200% the Federal Poverty Line (FPL) than whites (4.5%).

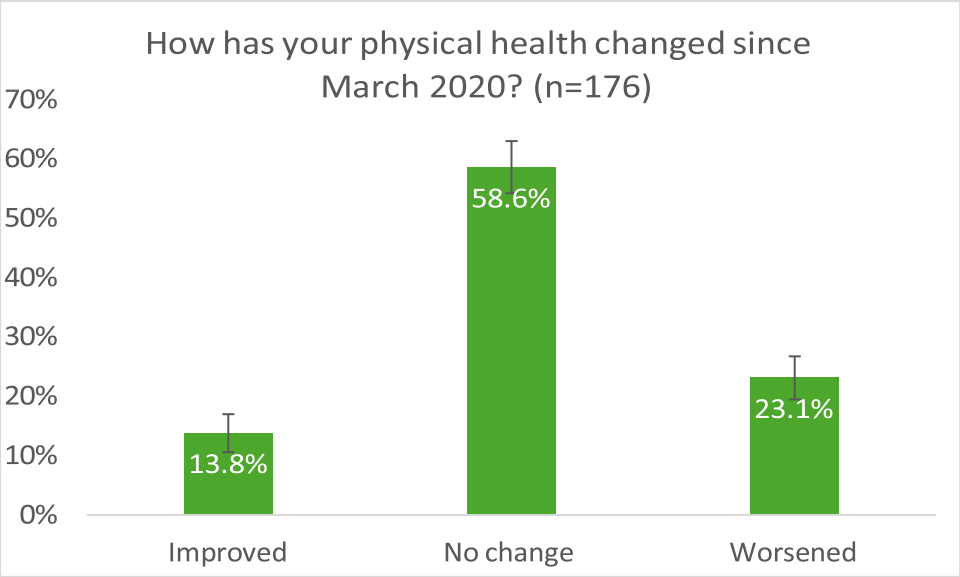
Q58: Are you currently…



Interpretation: Most respondents reported working full-time (41.1%) followed by those that are retired (20.9%).

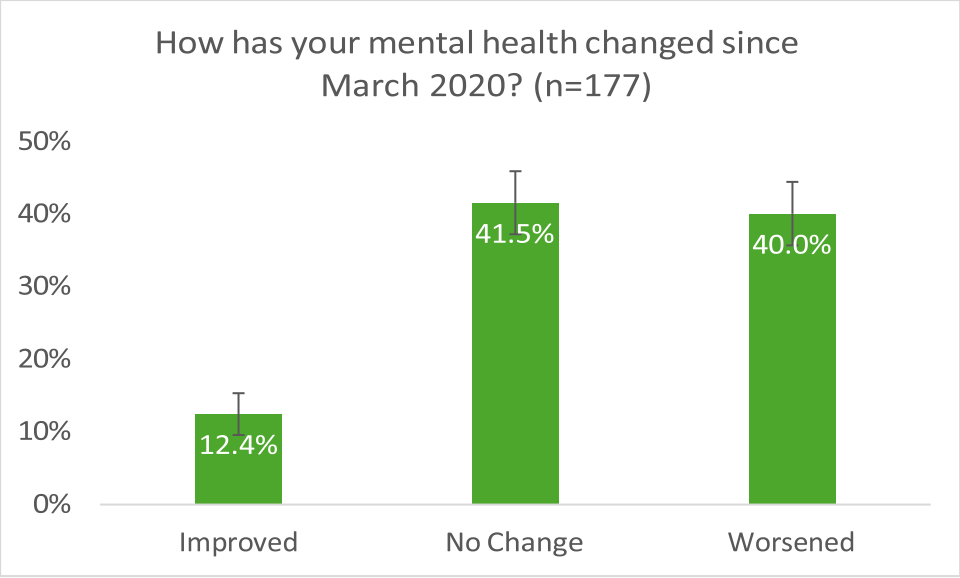
COVID-19

Q1: How has your physical health changed since March 2020?



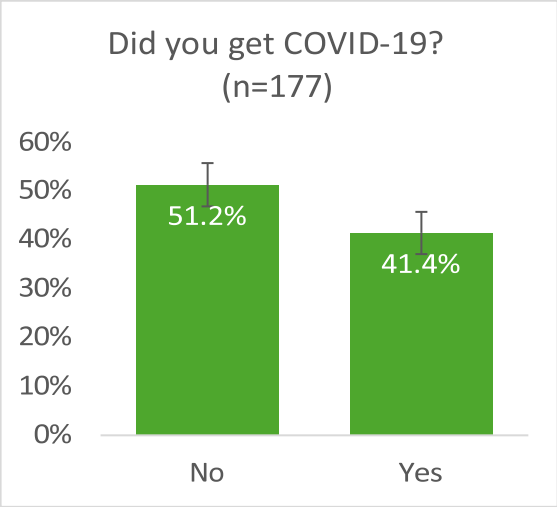
Interpretation: Most respondents (58.6%) reported no change in their physical health since March 2020. Of the rest of the participants, more responded that their physical health worsened (23.1%) than improved (13.8%).

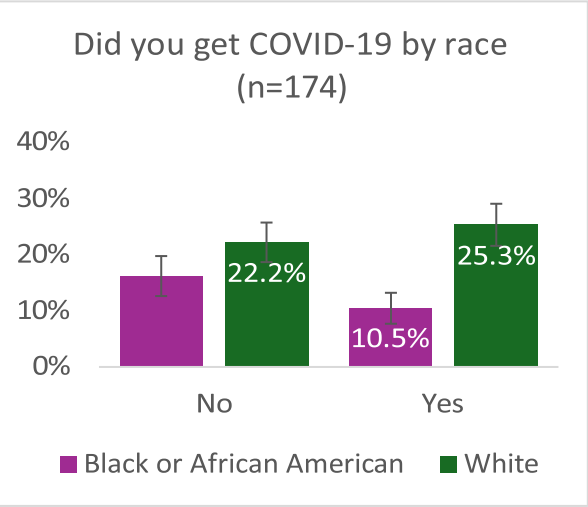
Q2: How has your mental health changed since March 2020?



Interpretation: More participants reported experiencing no change in their mental health since March 2020 (41.5%) followed closely by participants who said their mental health worsened (40%). Only 12.4% responded that their mental health improved.

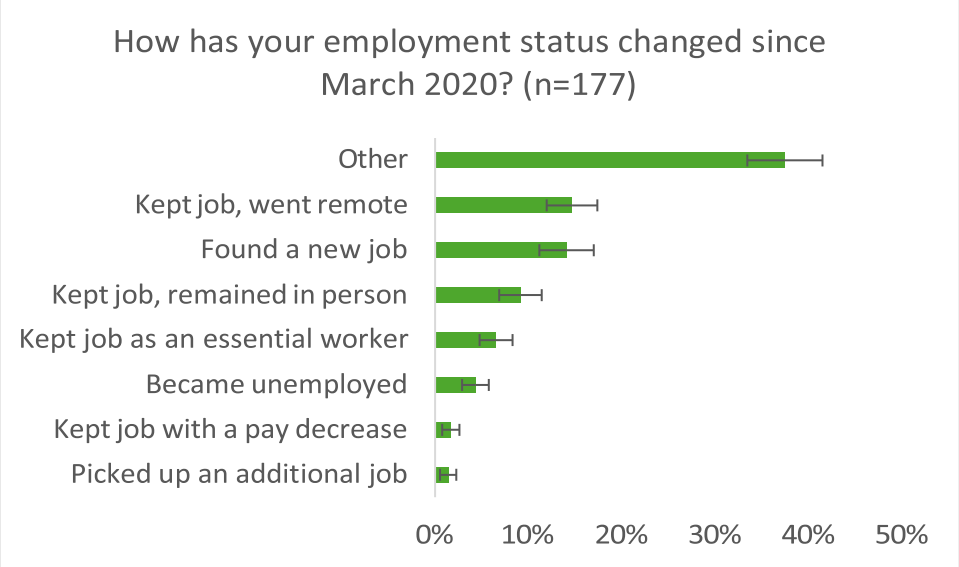
Q3: Did you get COVID-19?





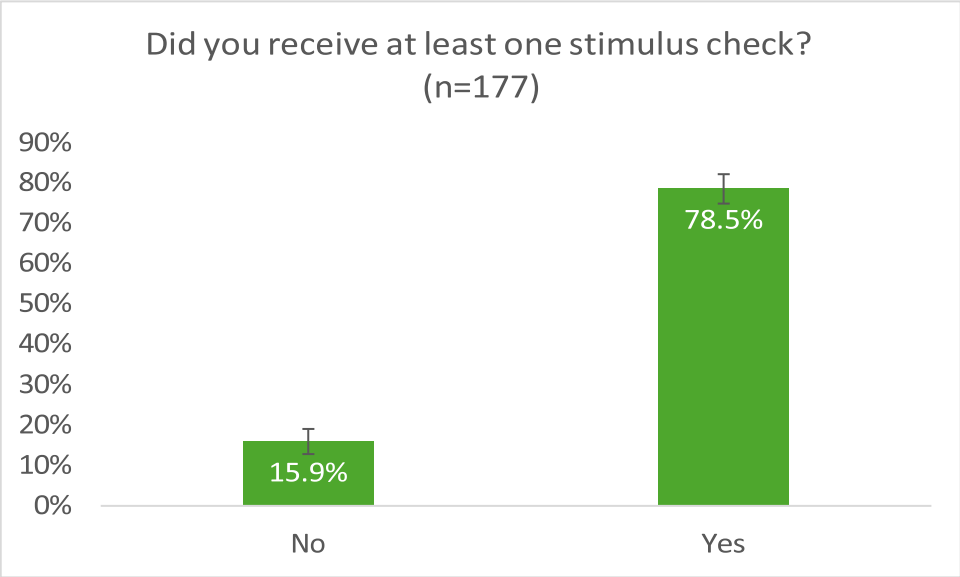
Interpretation: Most participants responded that they did not get COVID-19 (51.2%) while 41.4% did. More whites (25.3%) got COVID-19 than Black or African Americans (10.5%).

Q4: How has your employment status changed since March 2020?



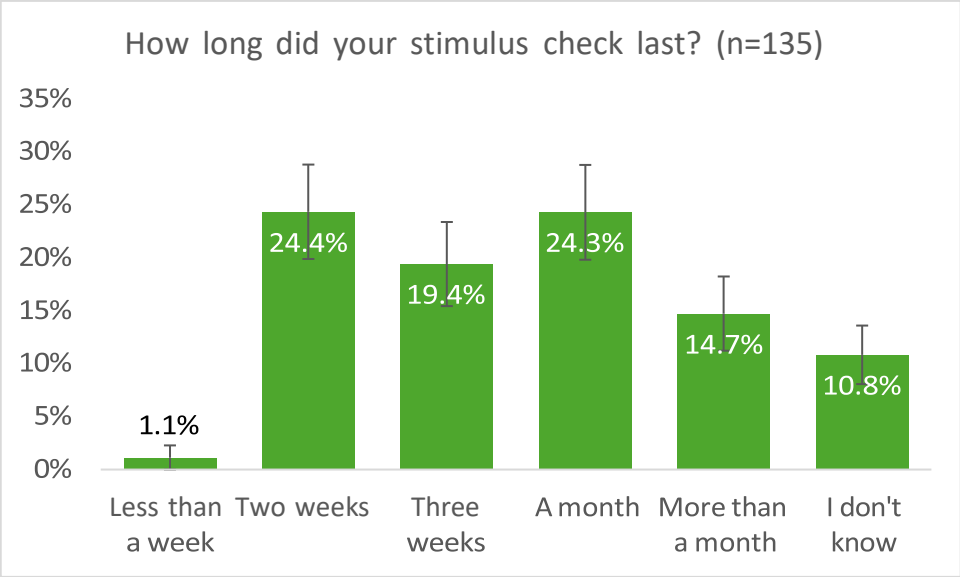
Interpretation: Many participants found a new job or kept their job and went remote. Many participants gave other changes in their employment status such as remaining retired, retiring after COVID-19 emerged, and there was no change.

Q5: Did you receive at least one stimulus check?



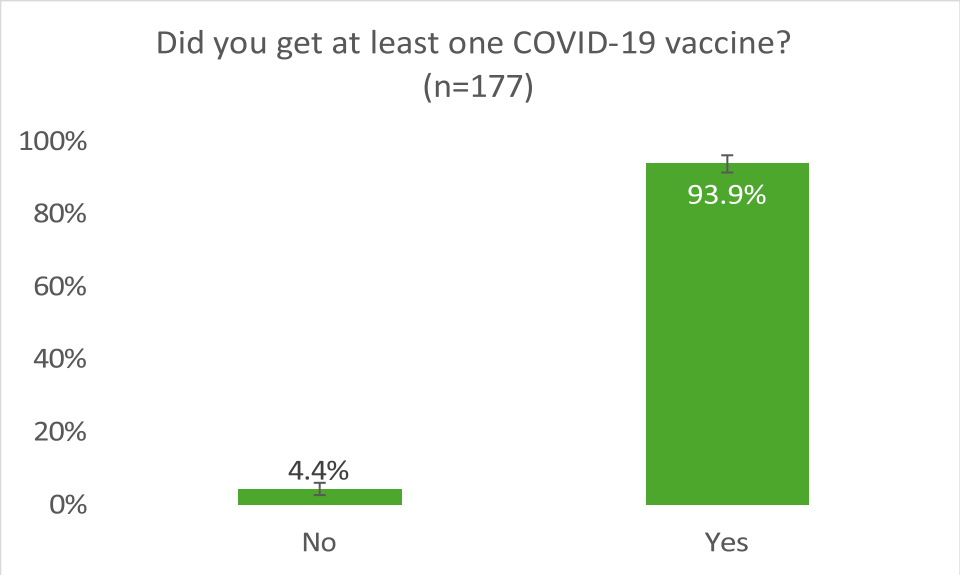
Interpretation: Most respondents reported receiving at least one stimulus check (78.5%)

Q6: How long did your stimulus check last?



Interpretation: Most respondents reported using their stimulus check within the first three weeks after receipt (44.9%).

Q7: Did you get the COVID-19 vaccine?



Interpretation: Most respondents reported receiving at least one COVID-19 vaccine (93.9%).

References:

1. Centers for Disease Control and Prevention (CDC) Community Assessment for Public Health Emergency Response (CASPER). 2020. Available here: https://www.cdc.gov/nceh/casper/default.htm
2. American Community Survey. 2021. 1-year estimates. Available here: https://data.census.gov/table?q=Durham+County,+North+Carolina
3. Kenan Institute of Private Enterprise. Health Disparities Were Devastating BIPOC Communities. Then Came COVID-19. Feb 17, 2021. Available here: https://kenaninstitute.unc.edu/kenan-insight/health-disparities-were-devastating-bipoc-communities-then-came-covid-19/
4. Yearby, R., Clark, B., Figueroa, J. February 2022. Structural Racism in Historical and Modern US Health Care Policy. https://doi.org/10.1377/hlthaff.2021.01466. Available here: https://www.healthaffairs.org/doi/10.1377/hlthaff.2021.01466
5. Centers for Disease Control and Prevention. 2022. The Syphilis Study at Tuskegee Timeline. Available here: https://www.cdc.gov/tuskegee/timeline.htm.
6. Bhutta, N., Hizmo, A., Ringo, D. October 2022. How much does Racial Bias Affect Mortgage Lending? Evidence from Human and Algorithmic Credit Decisions. https://doi.org/10.17016/FEDS.2022.067 Available here: https://www.federalreserve.gov/econres/feds/how-much-does-racial-bias-affect-mortgage-lending.htm
7. Bertrand, M., Mullainathan, S. July 2003. National Bureau for Economic Research. Are Emily and Greg more employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination. Available here: https://www.nber.org/papers/w9873
8. US Bureau of Labor Statistics. 2018. Labor Force Characteristics by Race and Ethnicity, 2018. Available here: https://www.bls.gov/opub/reports/race-and-ethnicity/2018/home.htm
9. Census Bureau. Census quick facts. 2022. Available here: https://www.census.gov/quickfacts/fact/table/durhamcountynorthcarolina,US/PST045222

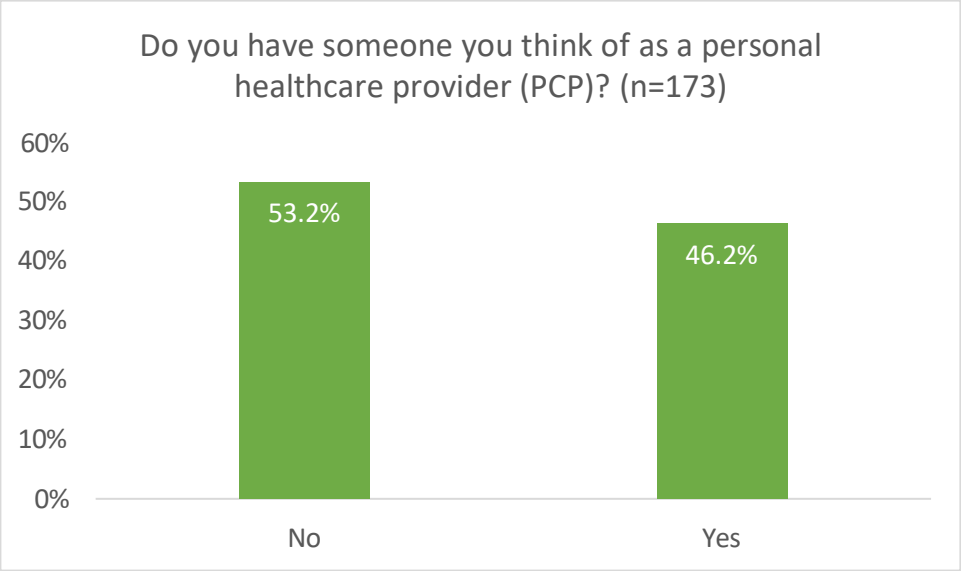
Demographic	2023 Durham County Comunidad Latina Community Health Assessment Survey results
Median Age	42
Gender	
Man	42.6%
Woman	57.4%
Education	
Less than 9th grade	40.5%
9-12th grade, no diploma	19.1%
High school graduate or equivalent	16.7%
Some college, no degree	-
Associate's degree	-
Bachelor's degree	-
Graduate or professional degree	6.6%
Employment status	
Disabled	
Employed full-time	46.6%
Employed part-time	9.7%
Homemaker	22.2%
Retired	-
Self-employed	-
Student	-
Unemployed	8.5%

Table 1: Demographic information of the 2023 Durham County Community Health Assessment.

Since the Hispanic and Latino sample was collected at events specific to that population, the results can only be extrapolated to Hispanics and Latinos attending these events. The results cannot be generalized to all Hispanics and Latinos living in Durham County.

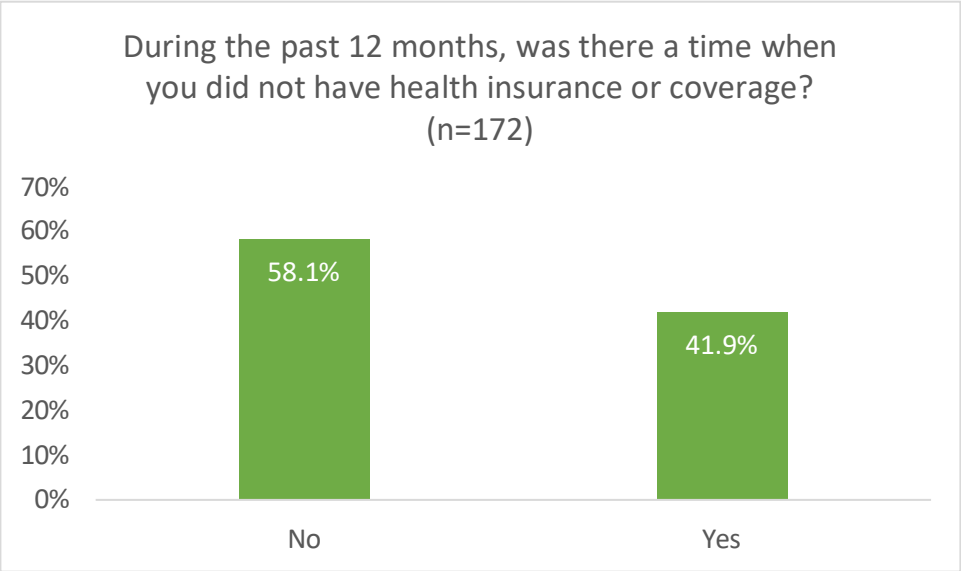
Access to Care:

Q1: Do you have one person you think of as a personal doctor or healthcare provider (PCP)?



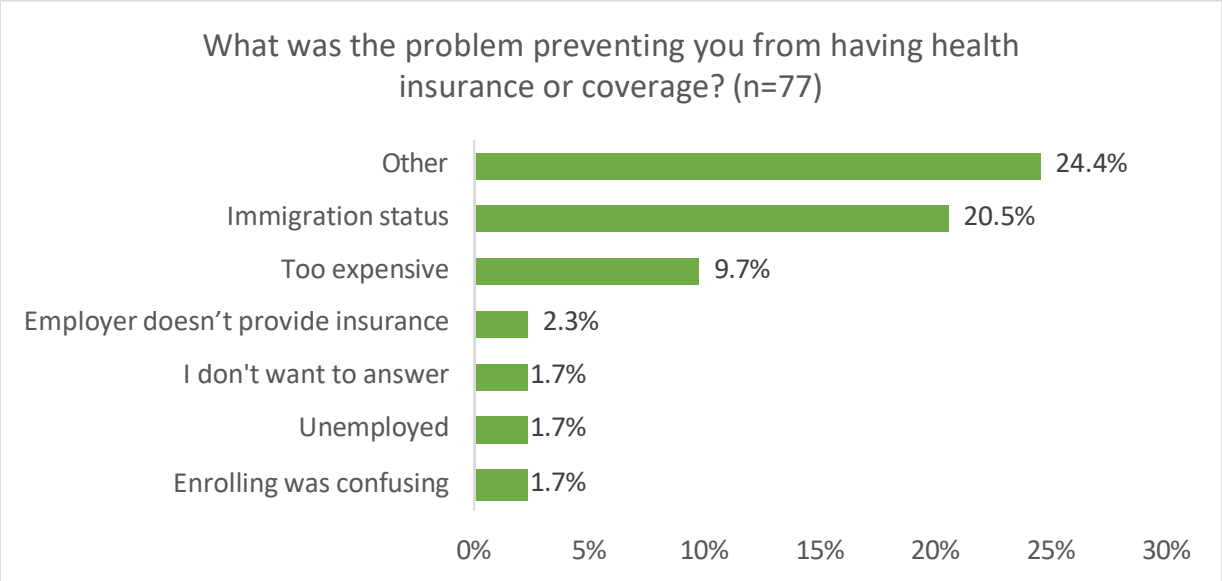
Interpretation: Over half of the survey participants (53.2%) reported not having someone they consider a personal healthcare provider (PCP).

Q2: During the past 12 months, was there a time when you did not have health insurance or coverage?



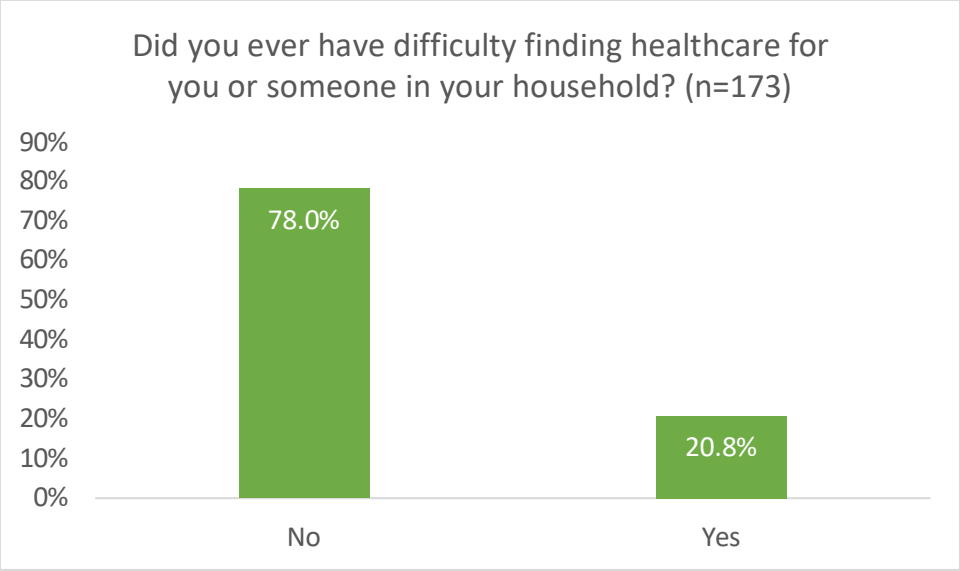
Interpretation: Over half of the survey participants (58.1%) reported not having a lapse in health insurance or coverage in the past year. Females (26.6%) are more likely to have a lapse in health insurance or coverage then men (15.4%).

Q3: Since you had reported having a lapse in health insurance or coverage in the past year, what prevented you from having health insurance or coverage?



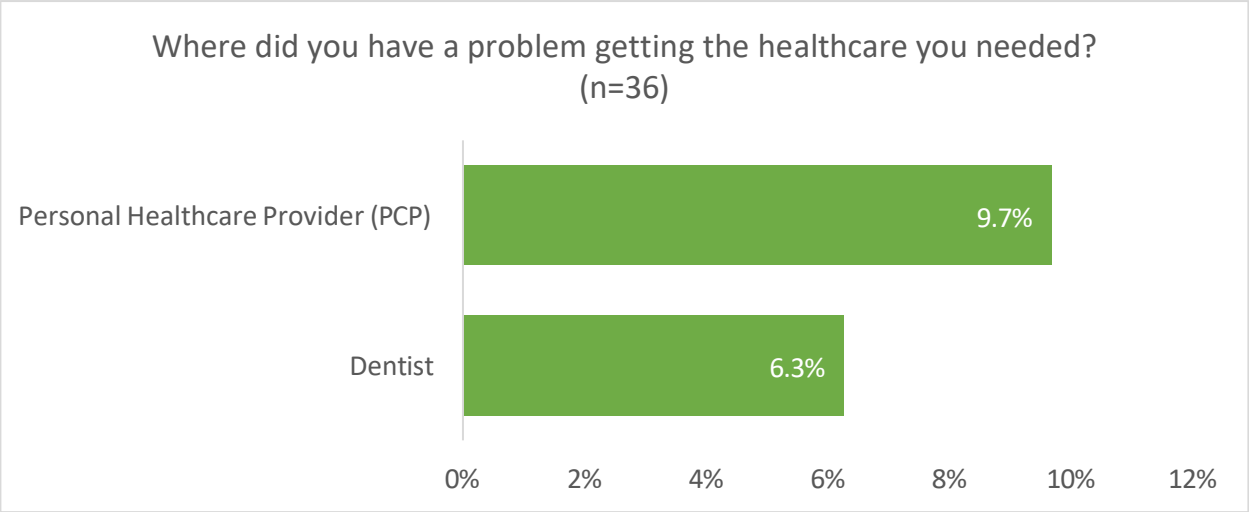
Interpretation: The most common reason people had a lapse in health insurance or coverage in the past year was immigration status (20.5%) followed by the cost being too high (9.7%). Some other reasons include not applying for coverage, not going to the doctor, it's too time consuming, and having a lack of information to apply.

Q4: In the past 12 months, did you have a problem getting the healthcare you needed for you or for someone in your household from any type of healthcare provider, dentist, or pharmacy?



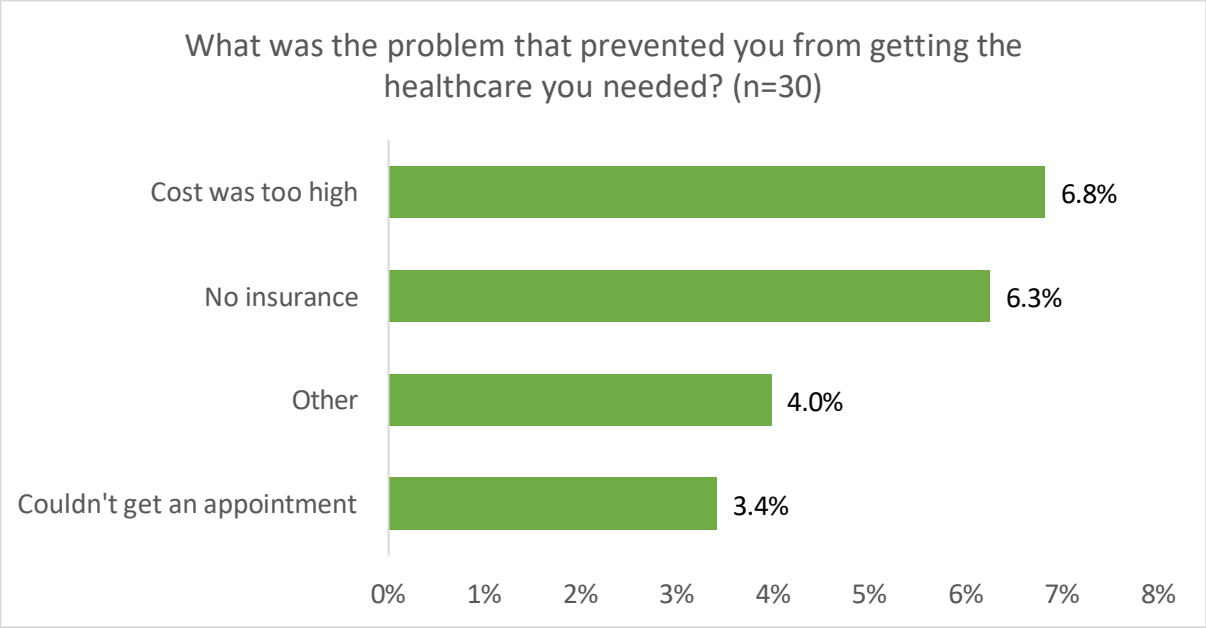
Interpretation: Most of the survey respondents (78%) reported not having any difficulty getting healthcare in the past year.

Q5: Since you reported having difficulty getting healthcare, what type of provider did you or someone in your household have trouble getting healthcare from?



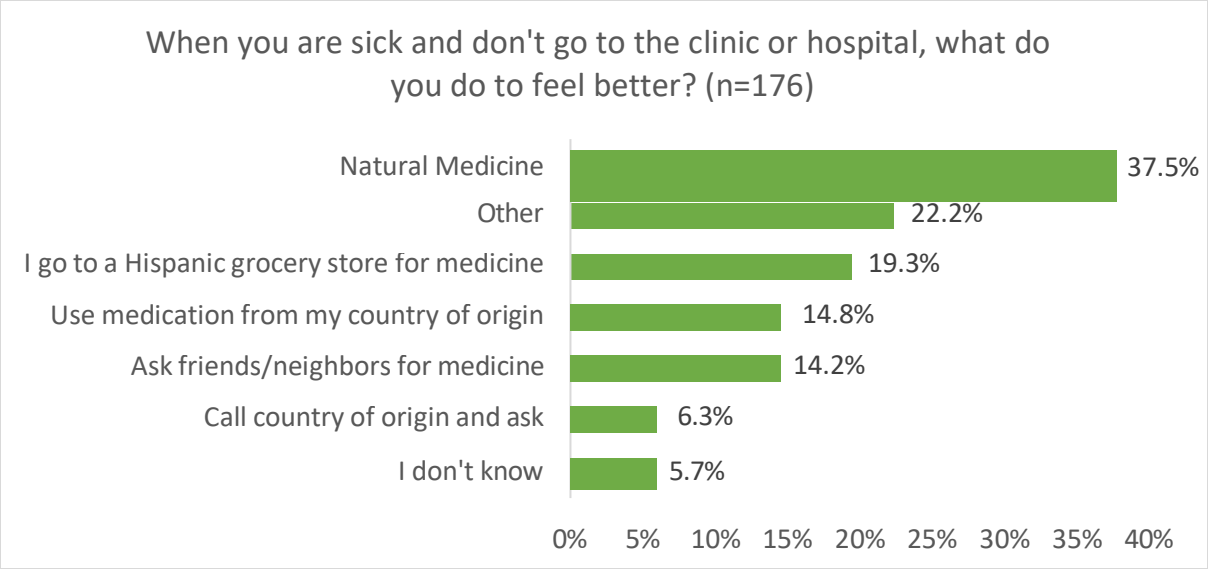
Interpretation: The most common type of provider survey participants had difficulty getting care from was a personal healthcare provider (PCP) (9.7%) followed by the dentist (6.3%). Some other locations survey participants had difficulty getting healthcare including specialists such as orthopedist and otolaryngologist.

Q6: What was the problem that prevented you or someone in your household from getting the necessary healthcare?



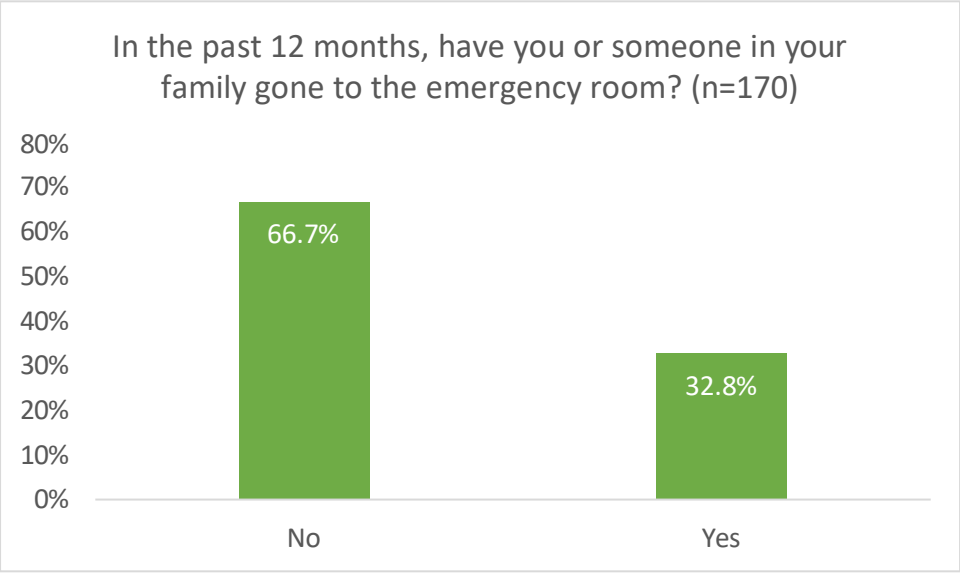
Interpretation: The most common barrier survey participants had to getting healthcare was the cost being too high (6.8%) followed by not having health insurance or coverage (6.3%). Some other reasons for having difficulty getting healthcare include immigration status, lack of medical specialists, no transportation, and doctor's office was too far away.

Q7: When you are sick and don't want to go to the clinic or hospital, what do you do to feel better?



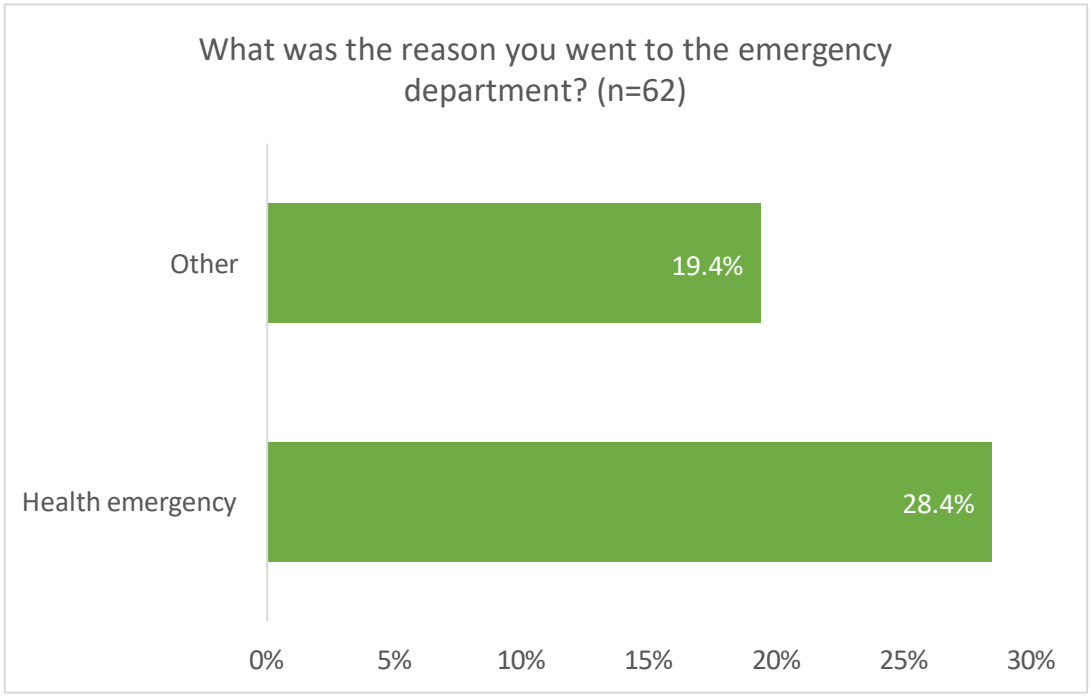
Interpretation: The most common way survey participants make themselves feel better without seeking professional healthcare providers is using natural medicine (37.5%) followed by going to a Hispanic or Latino grocery store for medicine (19.3%) and using medication from their country of origin (14.8%). Some other ways survey participants make themselves feel better include self-medicating and going to the doctor/pharmacy and taking over the counter pills such as acetaminophen.

Q8: In the past 12 months, have you or someone in your family gone to the emergency room?



Interpretation: Two-thirds of survey participants reported not going to the emergency room in the past 12 months. Females (21%) were more likely to go the emergency room than males (12%).

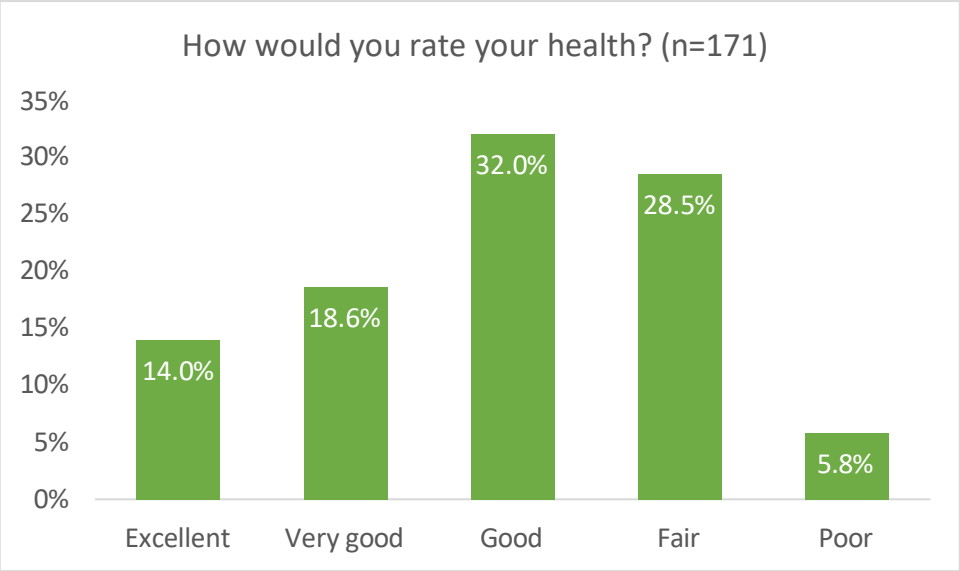
Q9: Did you go to the emergency room for any of the following reasons?



Interpretation: The vast majority of survey participants (28.4%) went to the emergency room in the past 12 months for a health emergency.

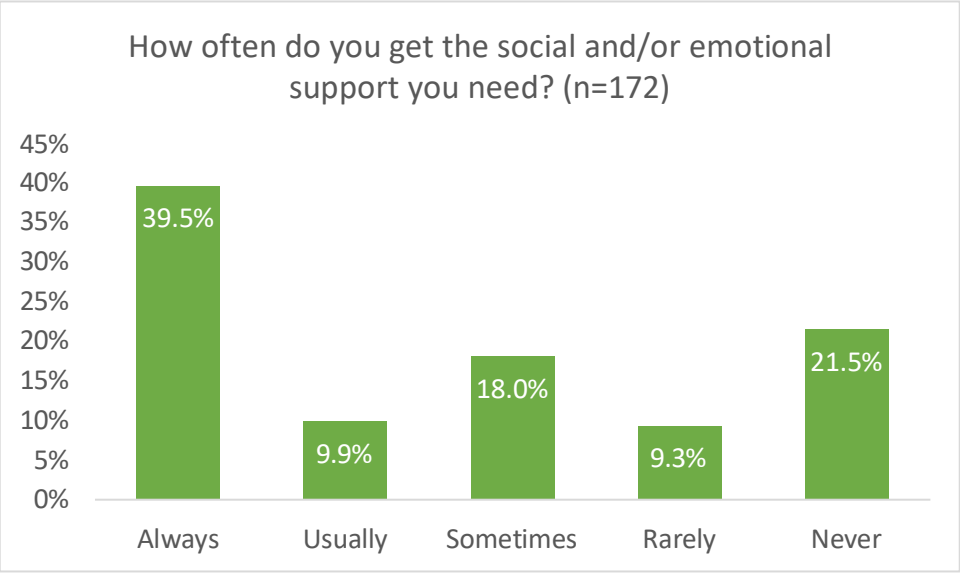
Personal Health:

Q10: Would you say, in general, your health is excellent, very good, good, fair, or poor?



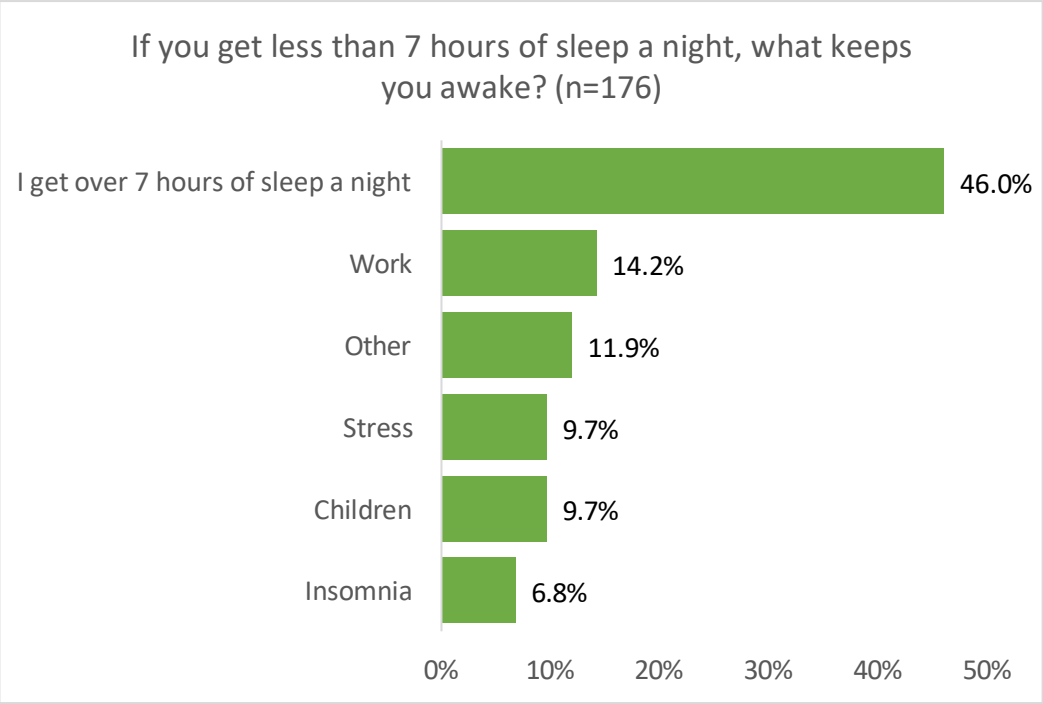
Interpretation: Most survey participants reported being in good health (32%) followed by having fair health (28.5%). Females (13%) are much more likely to have very good health than males (5.9%).

Q11: How often do you get the social and/or emotional support you need?



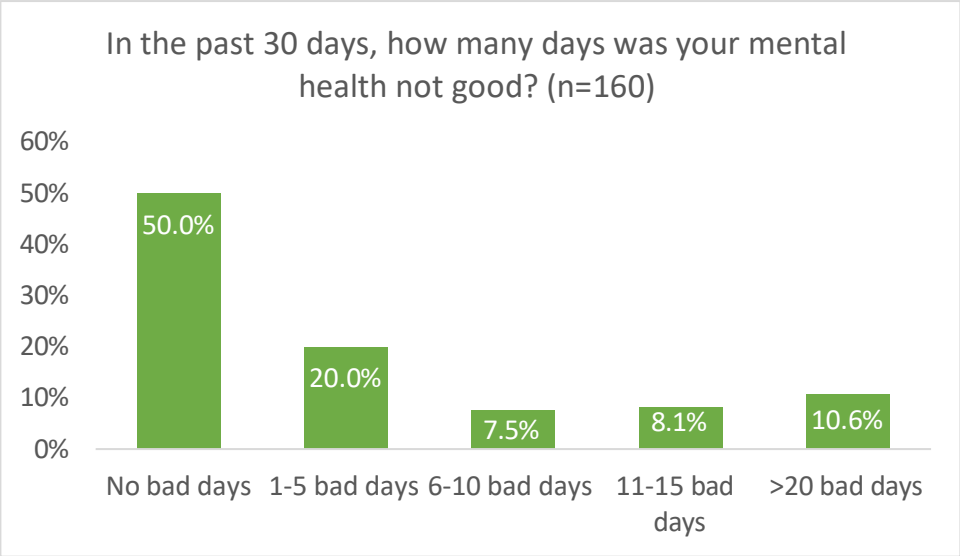
Interpretation: Most survey respondents reported always having the social and/or emotional support they need, however, one in five survey respondents reported never getting the social and/or emotional support they need.

Q12: If you get less than 7 hours of sleep a night, what keeps you awake?



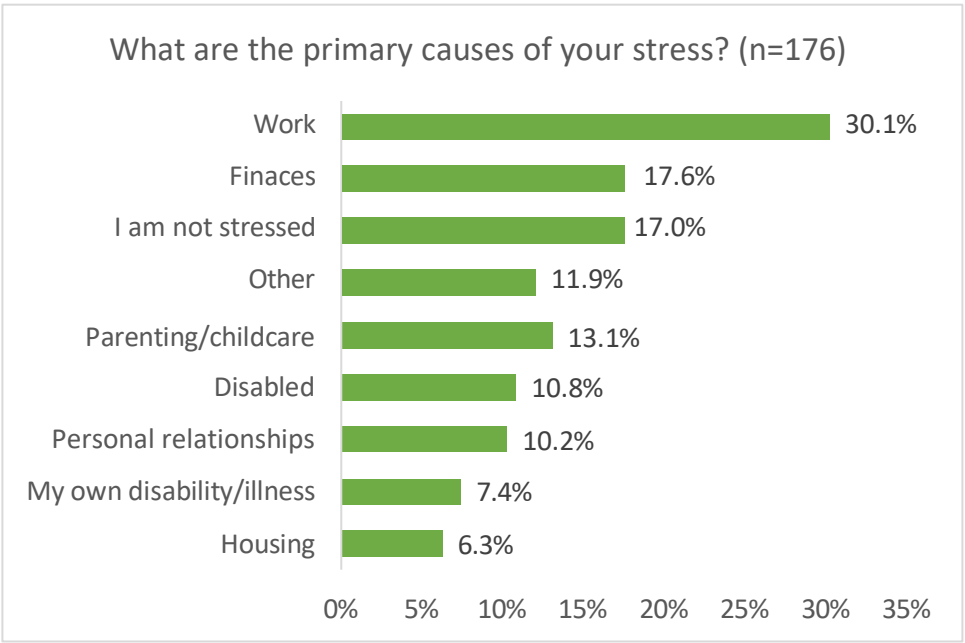
Interpretation: Nearly half of all survey participants reported getting at least 7 hours of sleep a night (46%). The most common reason people didn't get at least 7 hours of sleep a night was work (14.2%), stress (9.7%), and children (9.7%). Some other reasons that survey participants do not get at least 7 hours of sleep a night include anxiety or panic attacks, being pregnant, and cell phones and TV.

Q13: Now thinking about your mental health, which can include stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?



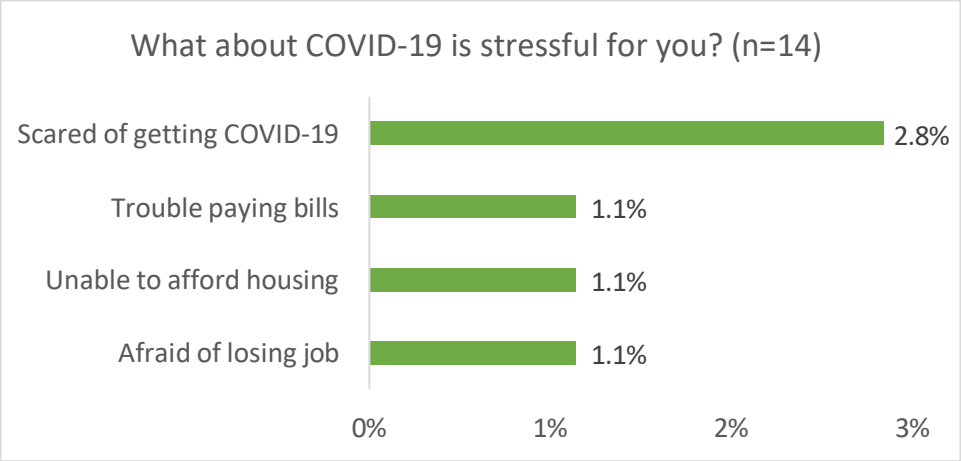
Interpretation: Half of the survey participants reported having no bad days in the past 30 days (50%). Having 1-5 bad days (20%) in the past 30 days was double of those having >20 bad days (10.6%).

Q14: What are the primary causes of your stress?



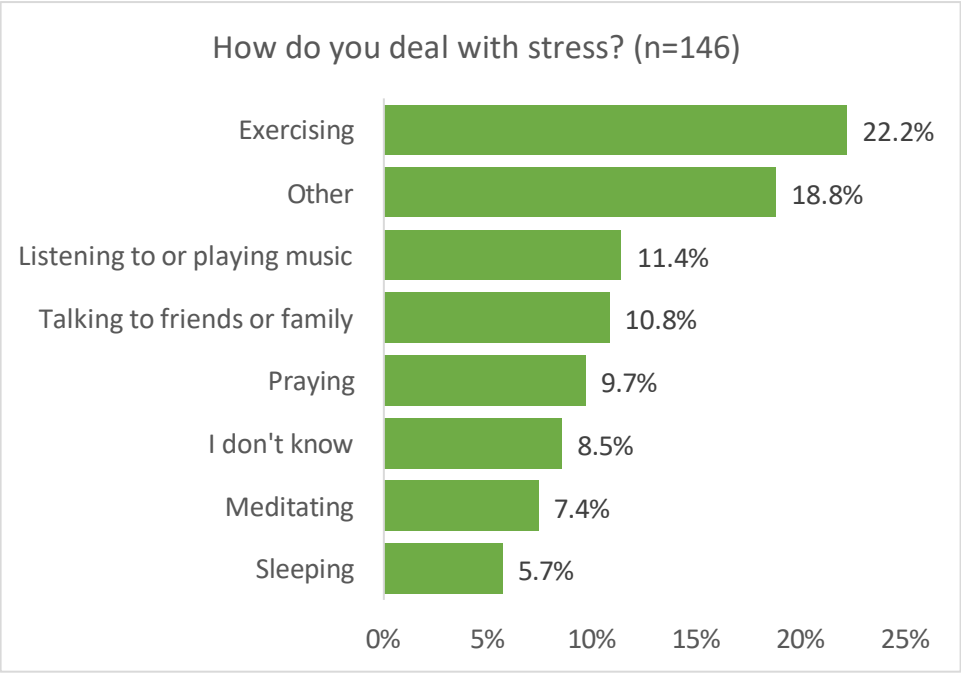
Interpretation: The most common causes of stress include work (30.1%), finances (17.6%), and parenting and childcare (13.1%). Those that reported not experiencing any stress accounted for 17% of survey participants. Some other reasons people reported being stressed about include isolation, emotional changes, and loss of a family member.

Q15: What about COVID-19 is stressful to you?



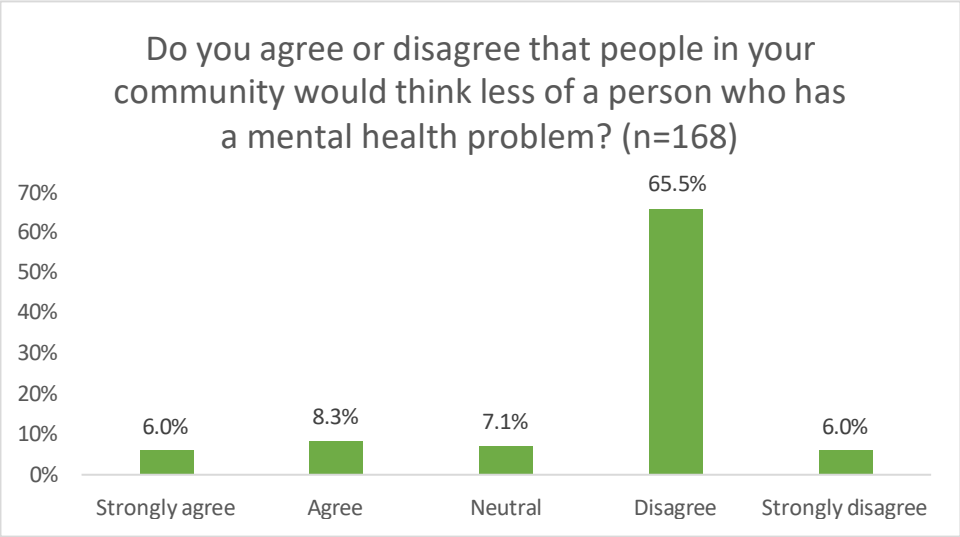
Interpretation: Most survey participants that reported being stressed about COVID-19 reported being afraid of getting COVID-19 (2.8%). This was followed by being afraid they'd lose their job (1.1%), being unable to afford housing (1.1%), and trouble paying bills (1.1%).

Q16: How do you cope with stress?



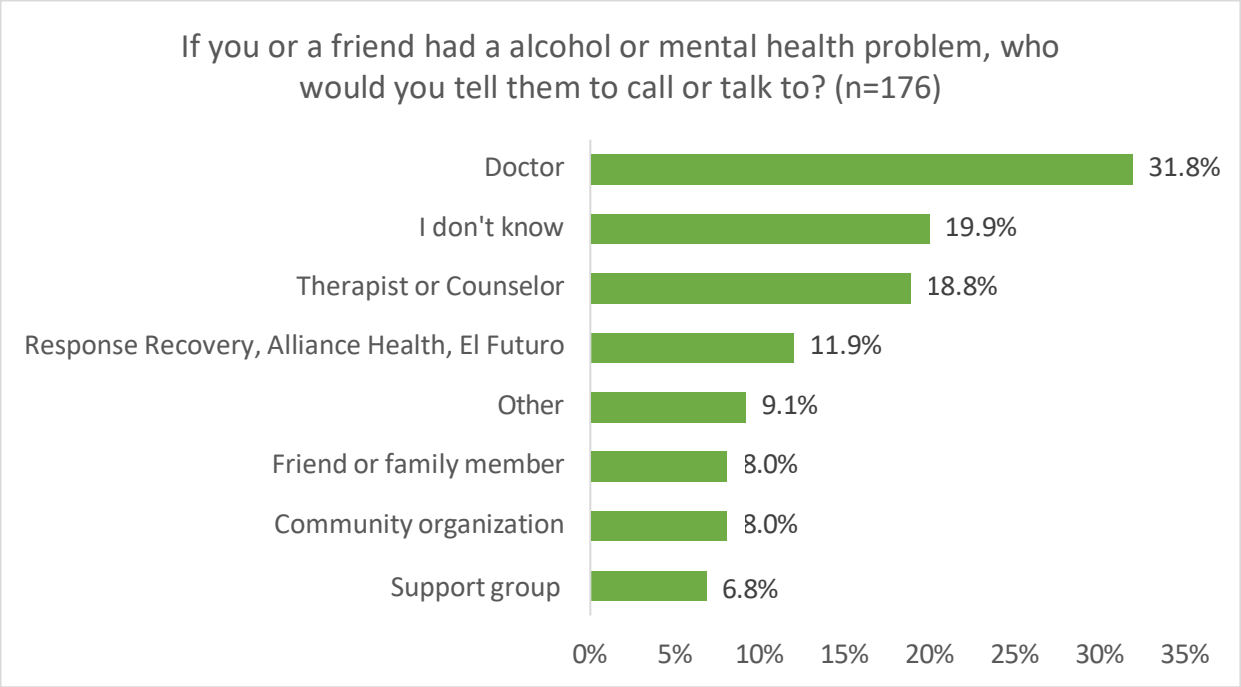
Interpretation: The most common way to cope with stress according to survey participants is to exercise (11.9%) followed by talking to friends or family (9.7%) and meditating (7.4%). Some other ways survey participants deal with stress include reading, calming oneself, yardwork, taking medication, and participating in church.

Q17: To what extent do you agree or disagree that the statement that people in your community would think less of a person who has a mental health problem?



Interpretation: The vast majority of survey respondents (65.6%) reported disagreeing that they think their community would think less of a person who has a mental health problem.

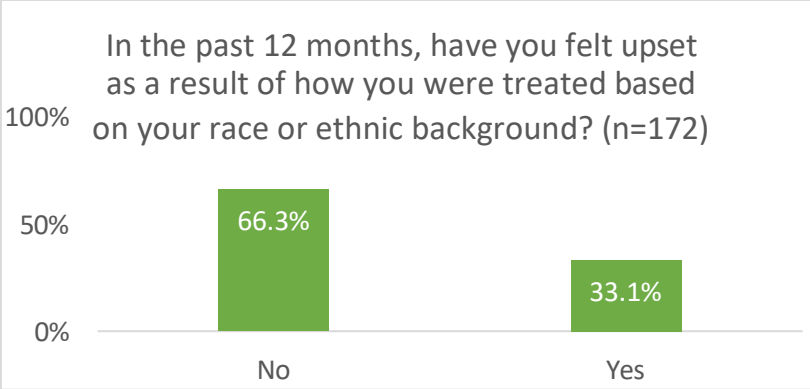
Q18: If you or a friend or family member needed counseling for a mental health or drug or alcohol use problem, who would you tell them to talk to?



Interpretation: Most often (31.8%), survey participants reported that they would refer their friend to a doctor if they were having a mental health problem followed by not knowing (19.9%) and a therapist or counselor (18.8%).

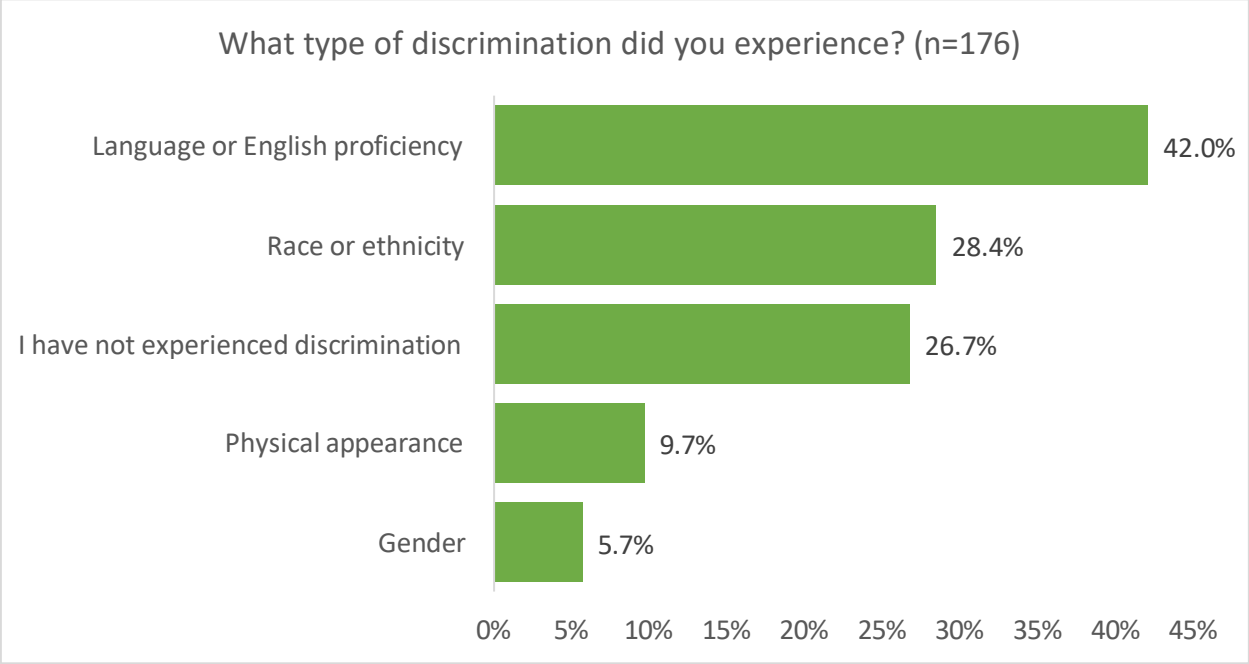
Discrimination:

Q19: During the past 12 months, have you felt upset as a result of how you were treated based on your race or ethnic background?



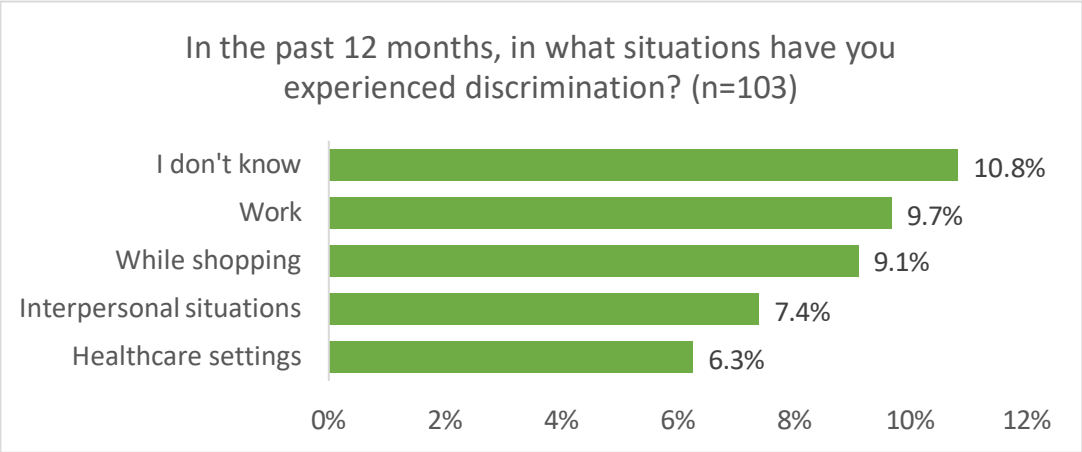
Interpretation: Approximately one in three (33.1%) survey participants reported being upset by how they were treated based on their race or ethnic background. Females (19.5%) were more likely to report feeling upset than males (14.2%).

Q20: Discrimination (interpersonal or structural) can happen because of many reasons. Please choose which of these reasons you think may have contributed to the discrimination you experienced in the last 12 months.



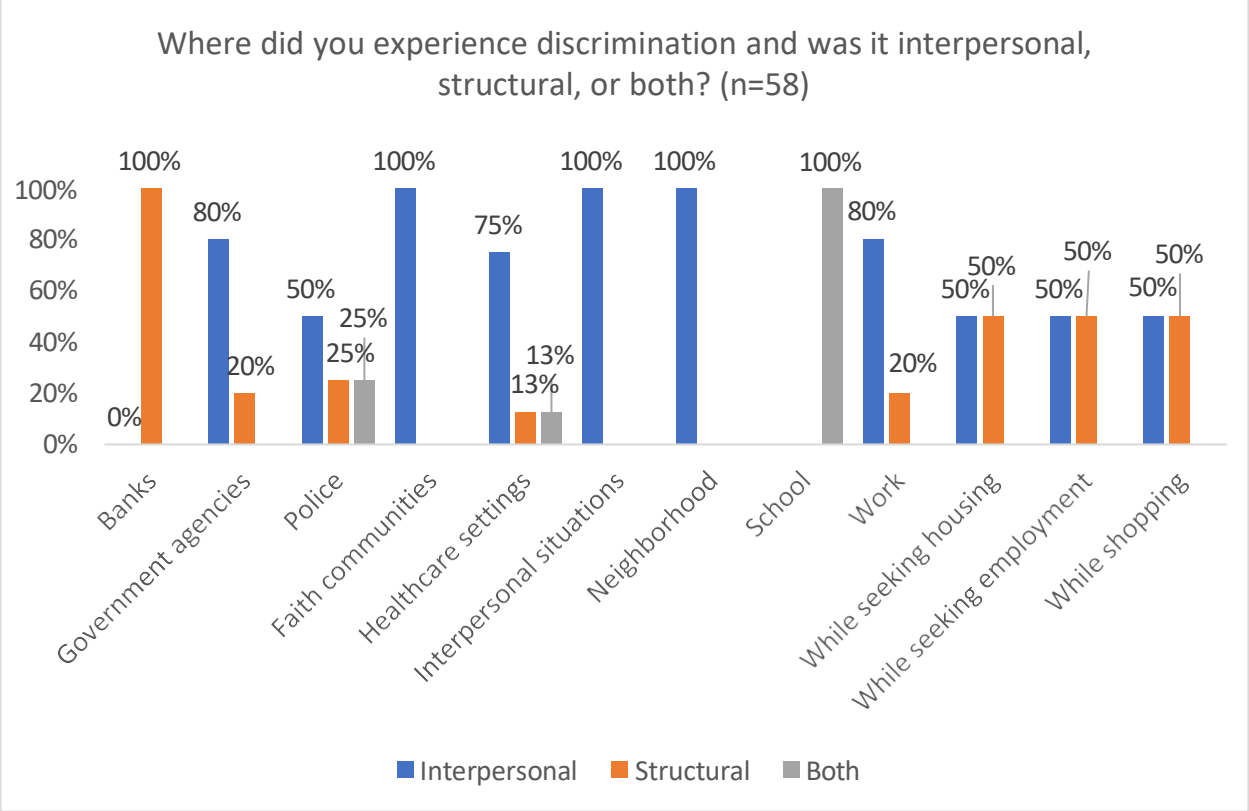
Interpretation: The most common type of discrimination experienced by survey participants is based on language or English proficiency (42%). Racism and discrimination based on ethnic background was next (28.4%) followed by physical appearance (9.7%). Over one in four survey participants reported not experiencing discrimination (26.7%).

Q21: In the past 12 months, in what situations have you experienced discrimination?



Interpretation: Several survey respondents did not know where they experienced discrimination in the past 12 months. The workplace (9.7%) was the most commonly known location followed by while out shopping (9.1%) and in interpersonal situations (7.4%).

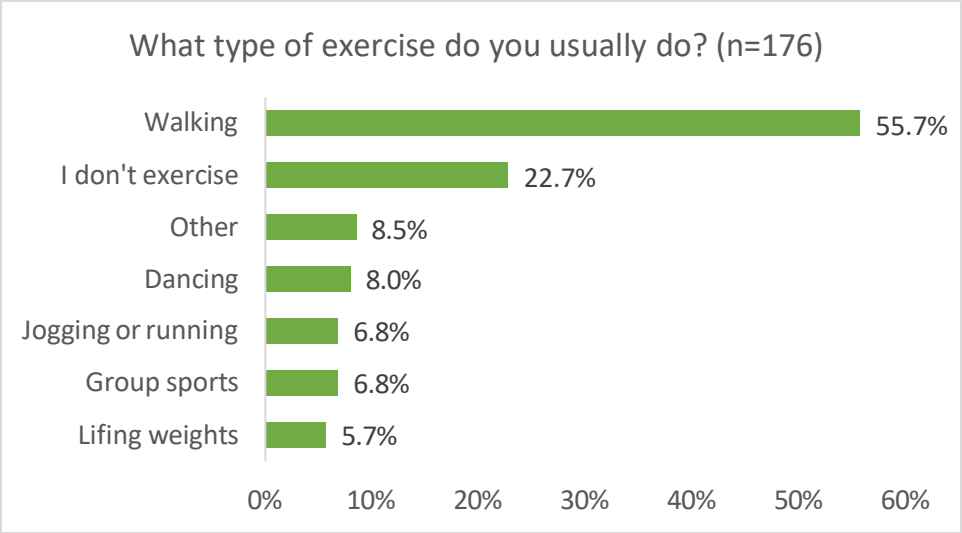
Q21A: Was the discrimination you experienced interpersonal or structural?



Interpretation: The discrimination experienced in faith communities, interpersonal situations, and neighborhoods was all interpersonal. Discrimination by banks was all structural. While seeking housing, employment, and shopping were evenly divided by interpersonal and structural situations.

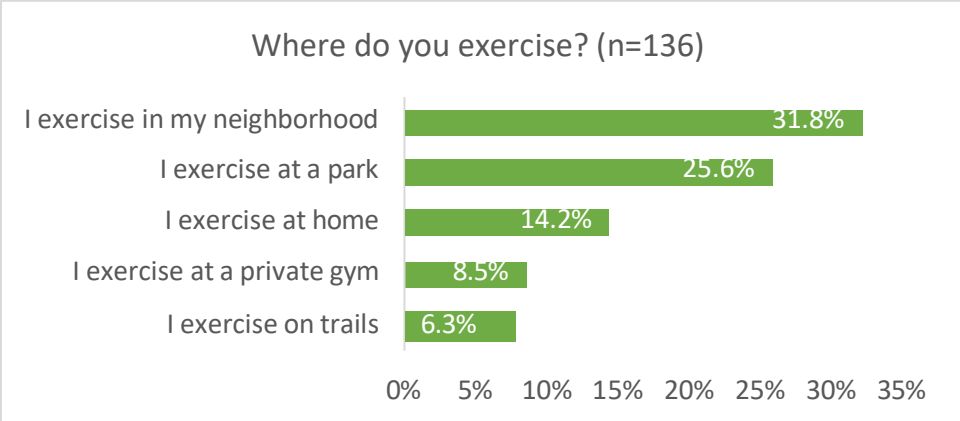
Physical Health:

Q22: What types of physical activity do you usually do?



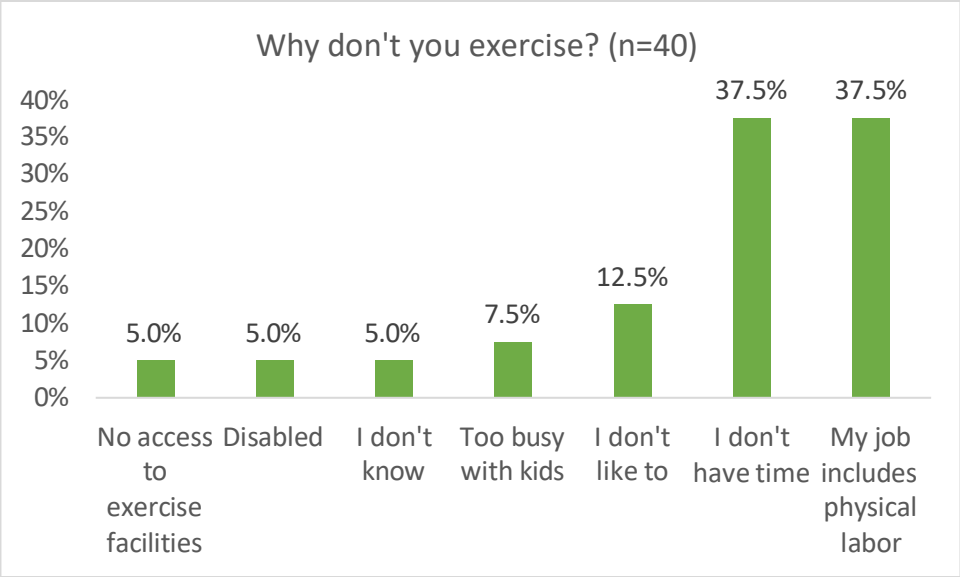
Interpretation: Over half the survey participants (55.7%) reported walking as their primary form of physical activity followed by dancing (8%) and group sports (6.8%). Nearly one in four survey participants reported not exercising at all. Some other forms of exercise mentioned were boxing, going to the gym (unspecified), and stairs.

Q23: Where do you usually exercise or engage in physical activity?



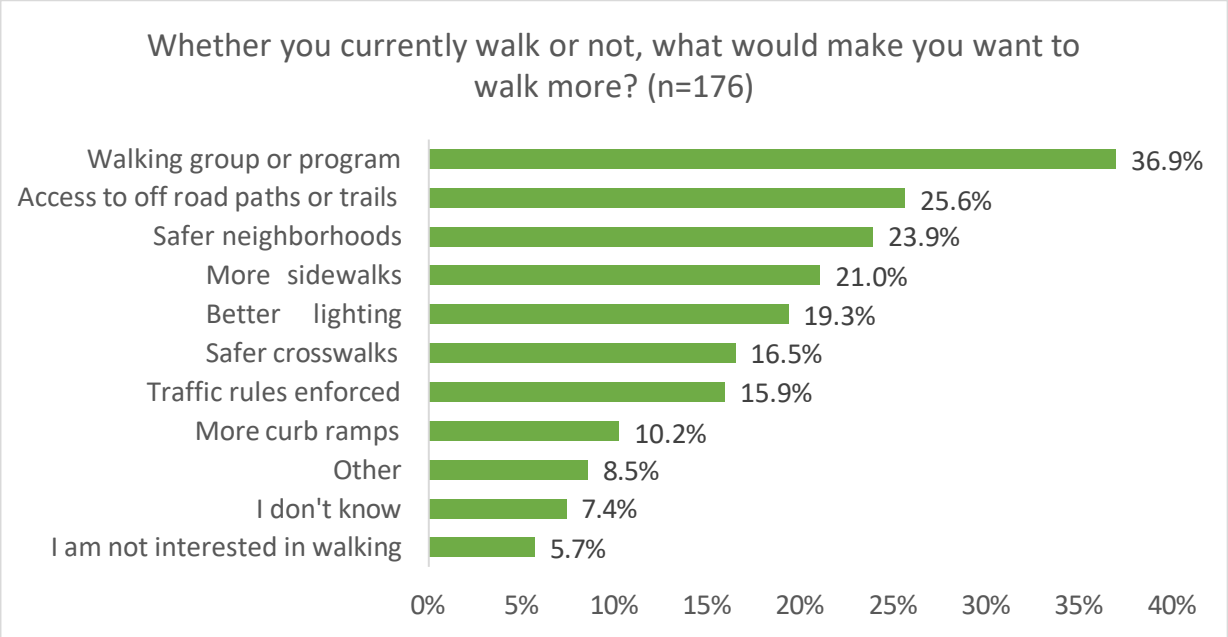
Interpretation: Most survey participants (31.8%) reported exercising in their neighborhood followed by at a park (25.6%) and at home (14.2%).

Q24: Since you responded that you don't exercise, what are the reasons you don't exercise during a normal week?



Interpretation: The most common reasons survey participants reported not exercising was not having time and having a job that includes physical labor.

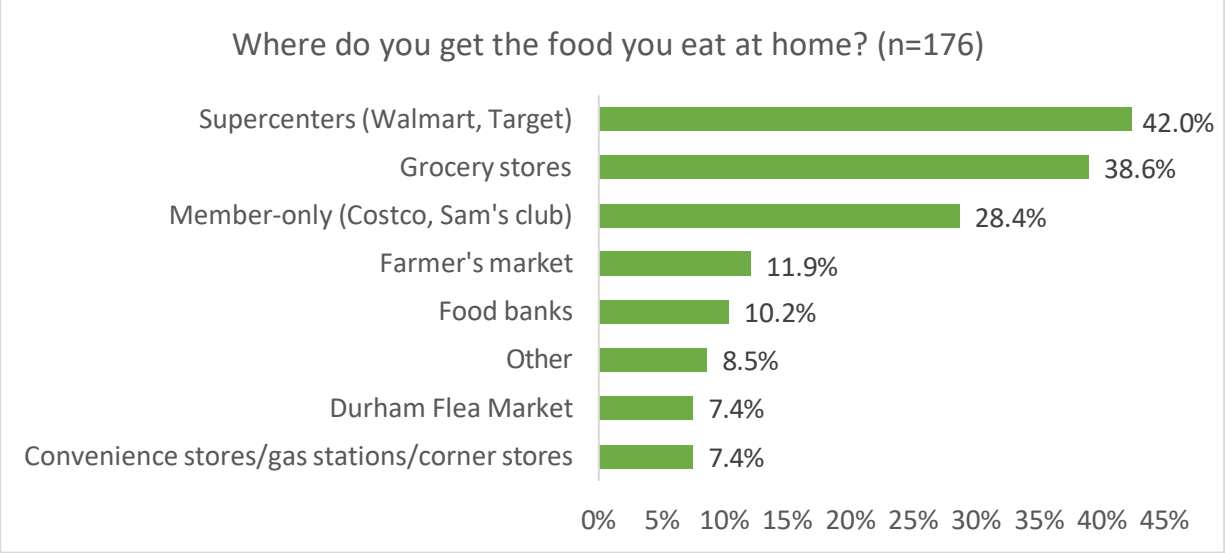
Q25: Whether you currently walk or not, would any of the following make you want to walk more? This includes for fun, for exercise, to get to a destination, etc.



Interpretation: The most common reason survey participants would walk more was being included in a walking group or program (36.9%) followed by access to off road paths or trails (25.6%). Some other reasons for motivating survey participants to walk more include wanting to improve their health and more parks.

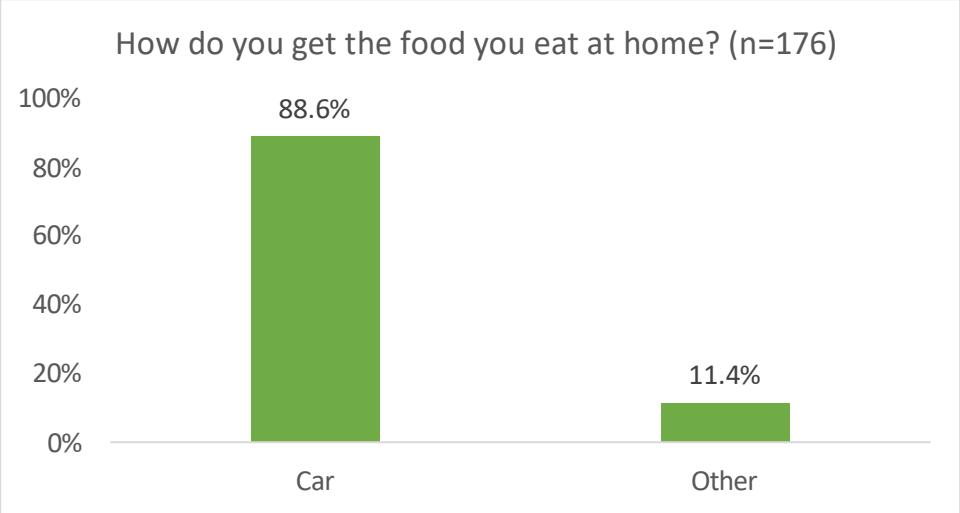
Nutrition:

Q26: Where do you get most of the food you eat at home?



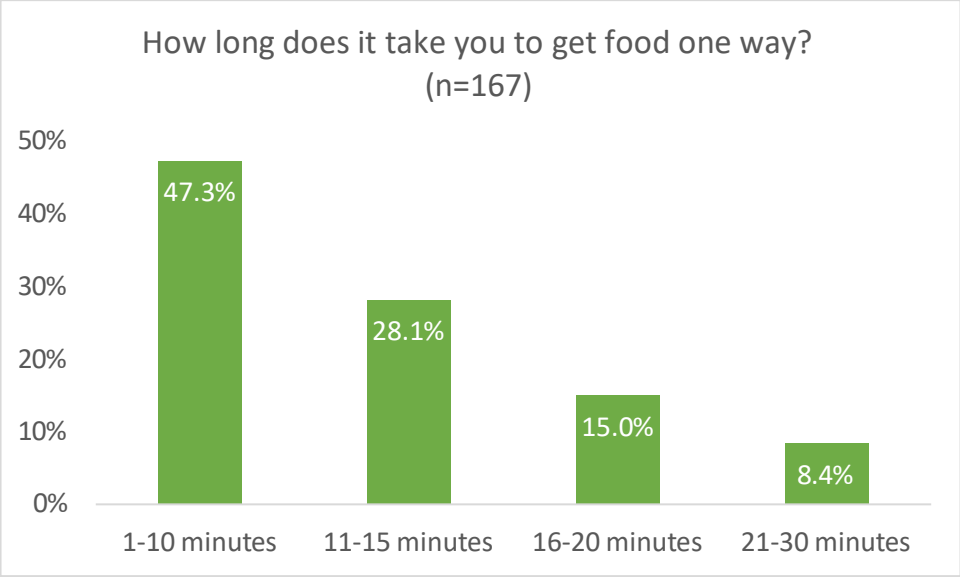
Interpretation: The most common place survey participants shopped for food include supercenters such as Walmart or Target (42%) followed by grocery stores (38.6%). Other places include Hispanic and Mexican stores and Compare Foods.

Q27: How do you usually get there?



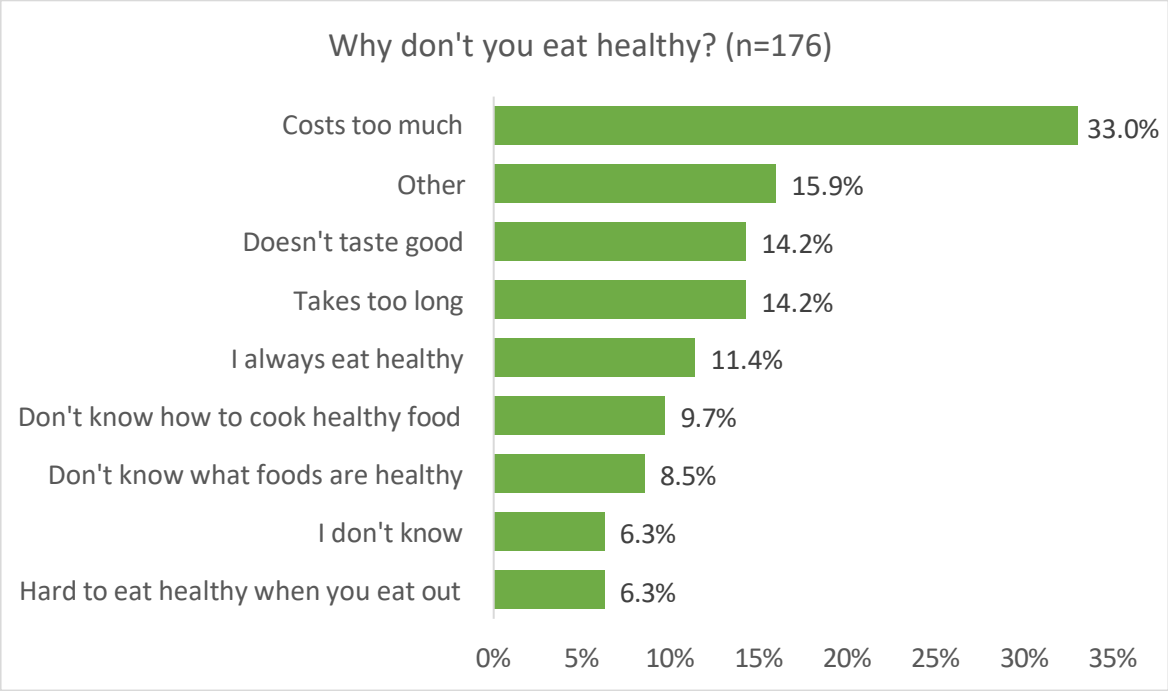
Interpretation: The vast majority of survey participants get their groceries by car (88.6%). Other forms of transportation included motorcycles, walking, bus, biking, and taking a taxi/Uber/Lyft.

Q28: About how long does it take you to get there one-way?



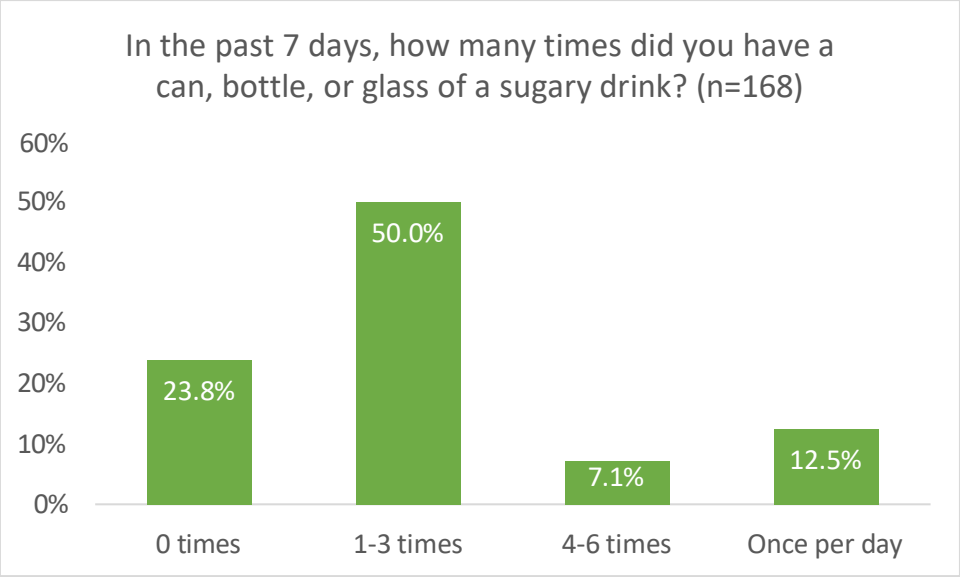
Interpretation: Most survey participants live within 10 minutes of a grocery store (47.3%). Nearly all survey participants live less than 21 minutes away from a grocery store.

Q29: Most of us don't eat healthy all the time. When you aren't eating a healthy diet, what do you think makes it hard for you to eat healthy?



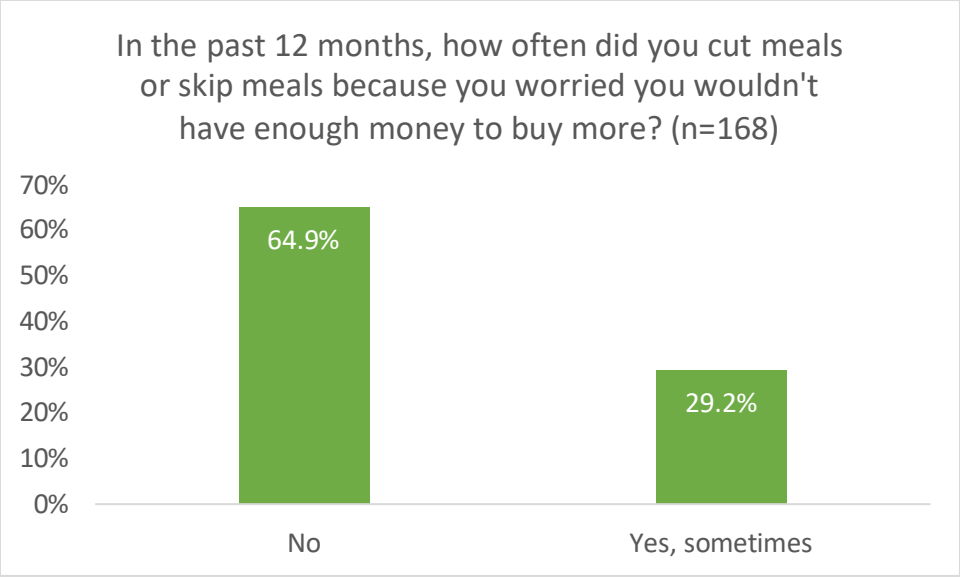
Interpretation: The main reason survey participants reported not eating healthy all the time was the cost of healthy food being too high (33%). Other reasons included not wanting to break routine and their culture.

Q30: During the past 7 days, how many times did you drink a can, bottle, or glass of a sugary drink (includes soda, sweet tea, fruit punch, lemonade, fruit drinks, and sports drinks). Please don't count diet drinks.



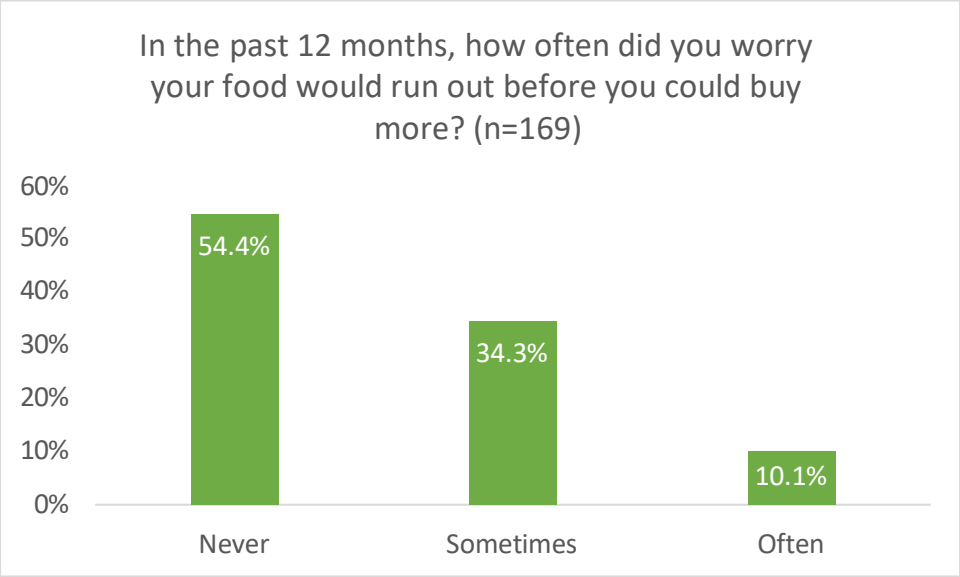
Interpretation: Half of the survey participants (50%) reported drinking a can of a sugary beverage 1-3 times per week. Meanwhile nearly one in four survey participants (23.8%) reported not having a sugary beverage within the past week.

Q31: In the past 12 months, did you ever cut the size of your meals or skip meals because there wasn't enough money for food?



Interpretation: Most survey participants reported not cutting the size or skipping meals (64.9%).

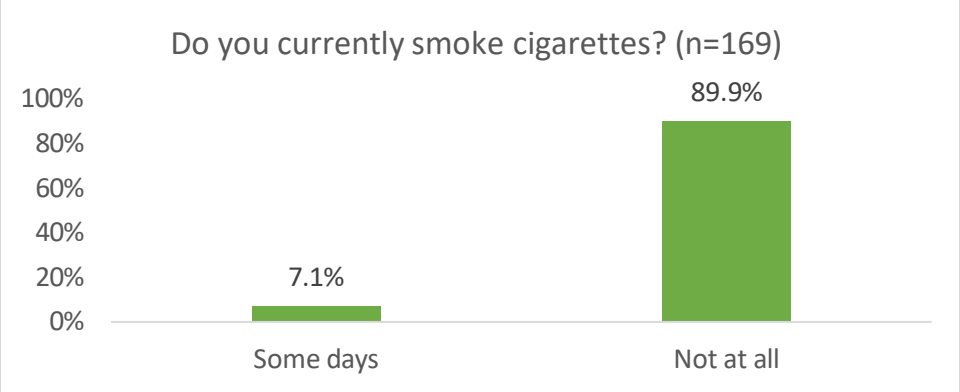
Q32: In the past 12 months, I was worried whether our food would run out before we got money to buy more food.



Interpretation: Nearly half (44.4%) of survey participants reported never worrying about whether or not their food would run out before they got money to buy more food.

Tobacco:

Q33: How often do you smoke cigarettes?



Interpretation: The vast majority of survey participants (89.9%) reported not smoking cigarettes at all.

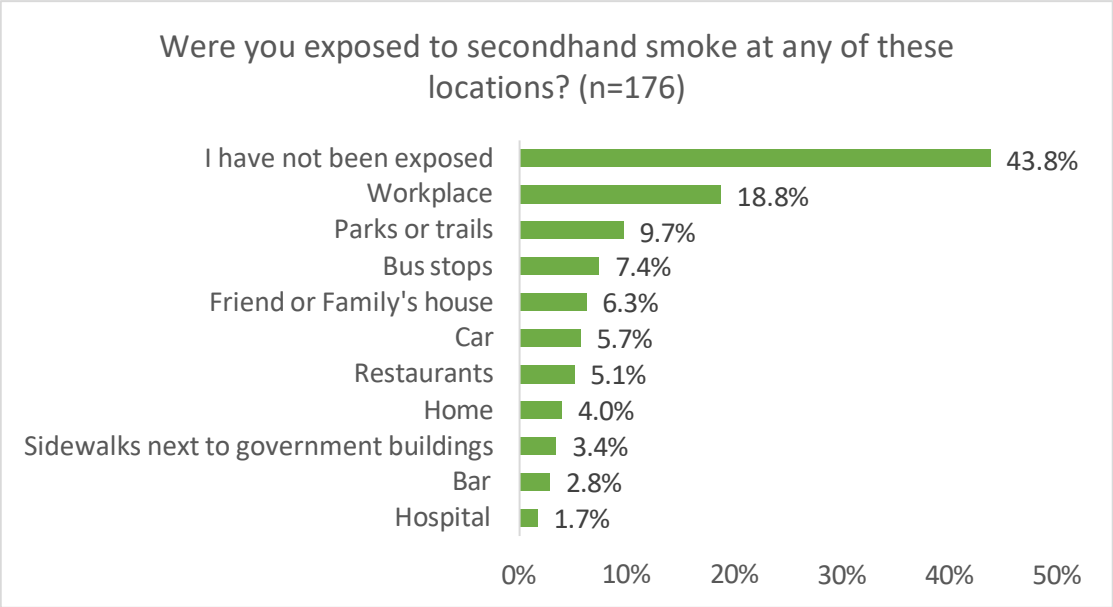
Q34: During the past 12 months, have you stopped smoking (e-cigarettes, herbal cigarettes, cigars, cigarillos, little cigars, pipes, bidis, kreteks, water pipes (hookah) or marijuana) for one day or longer because you were trying to quit smoking?

Data is too small to chart. Of those that reported smoking cigarettes, 75% of them reported trying to quit smoking.

Q35: Do you now use e-cigarettes every day, some days, or not at all?

Data is too small to disaggregate every day and some days. Nearly all survey participants (97.5%) reported not using e-cigarettes.

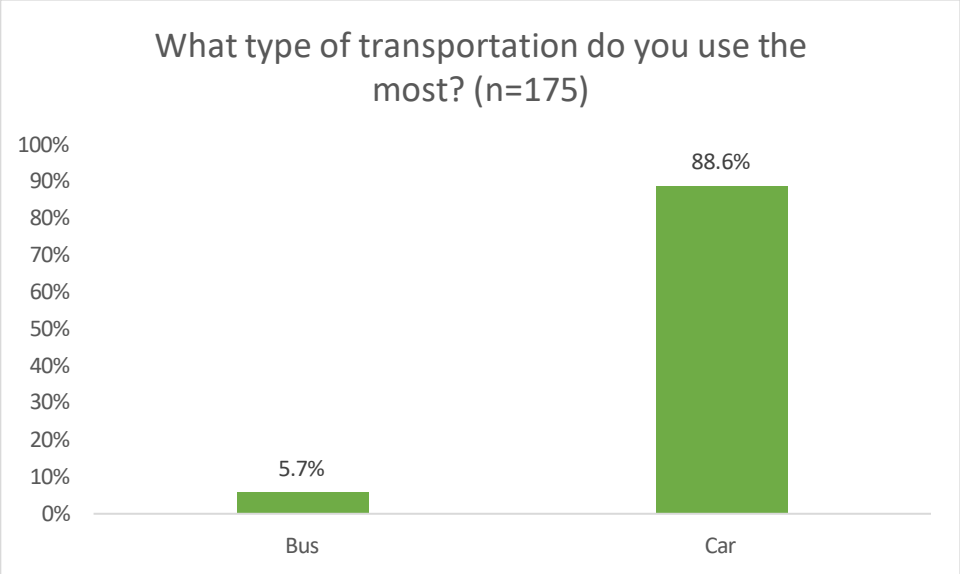
Q36: Have you been exposed to secondhand smoke in Durham County in the past year at any of these places?



Interpretation: Nearly half of all survey participants (43.8%) reported not being exposed to secondhand smoke. Those that were exposed reported being in the workplace (18.8%), on parks or trails (9.7%), and bus stops (7.4%).

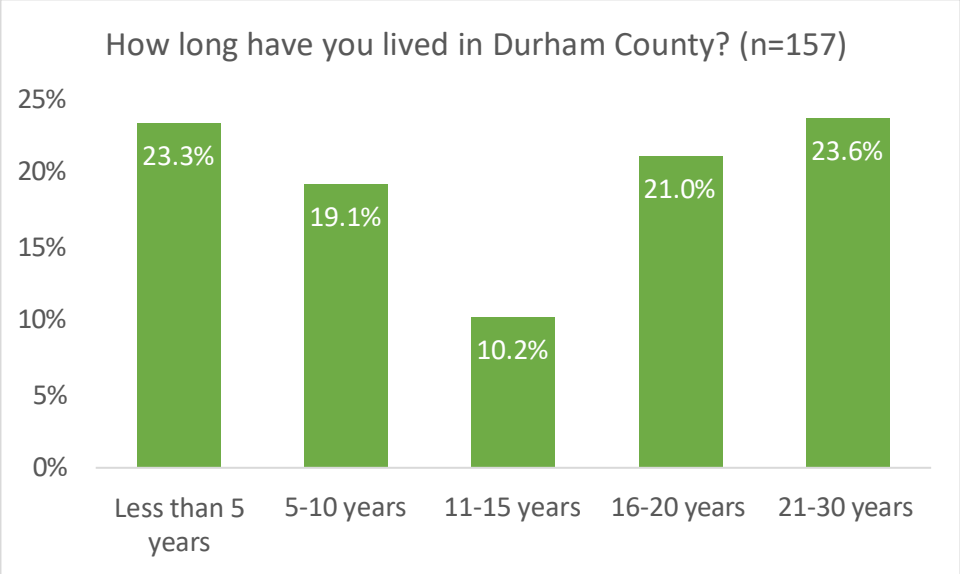
Household:

Q37: In a typical week, what kinds of transportation do you use the most?



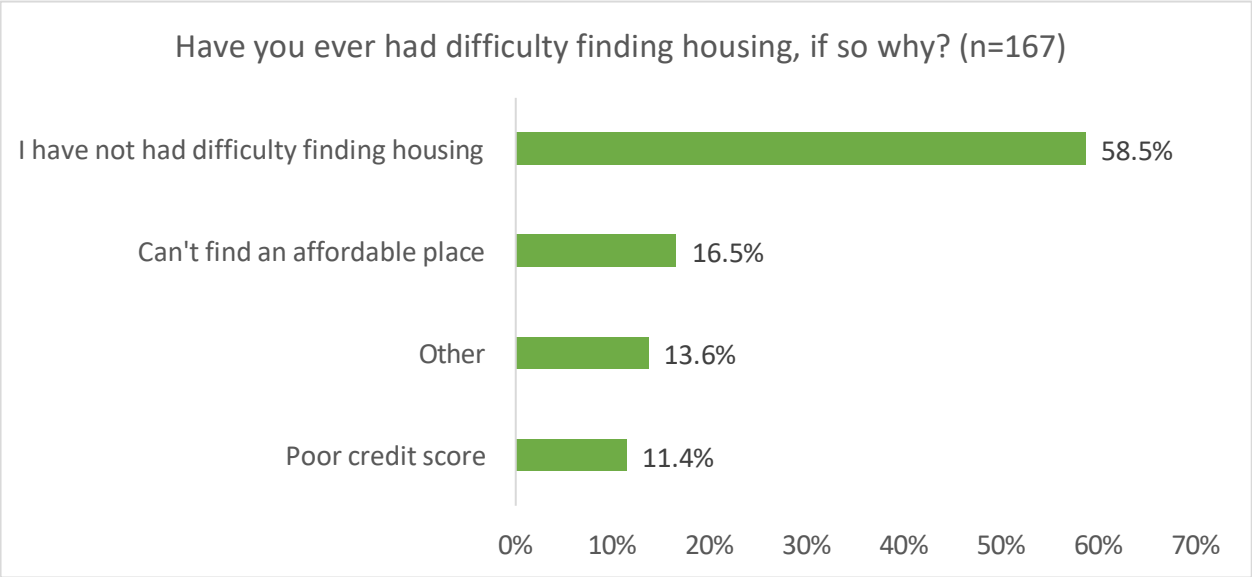
Interpretation: The vast majority of survey participants (88.6%) reported using a car as their primary mode of transportation followed by taking the bus (5.7%). Some other primary forms of transportation include biking, walking, using a taxi, Uber, or Lyft.

Q38: How long have you lived in Durham County?



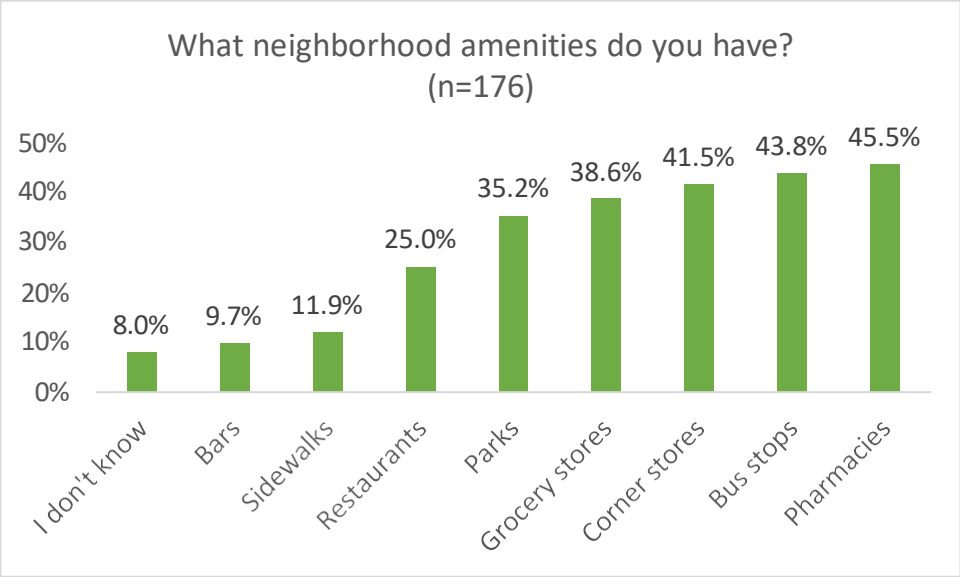
Interpretation: Over half of the survey participants (52.6%) reported living in Durham County for less than 16 years. Females (27.7%) are more likely to have lived in Durham for over 16 years than males (16.8%). Data was suppressed for those that lived in Durham for 6-10 years due to low sample size.

Q39: Have you ever had difficulty finding a home? If so, why?



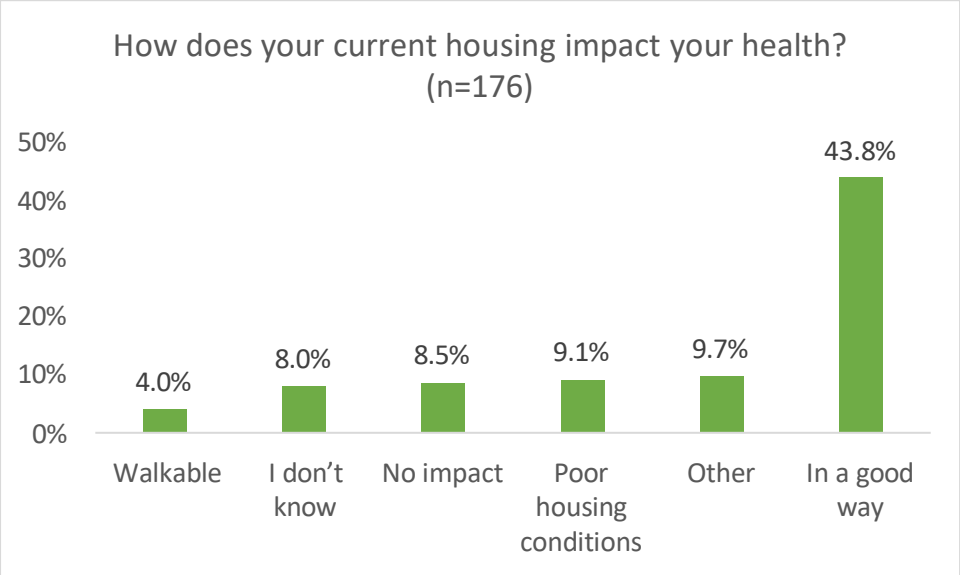
Interpretation: Over half of the survey participants (58.5%) reported not experiencing any difficulty finding housing. The main other reason survey participants had difficulty finding housing was immigration issues, lack of documentation and housing record.

Q40: What resources are easily accessible in your neighborhood?



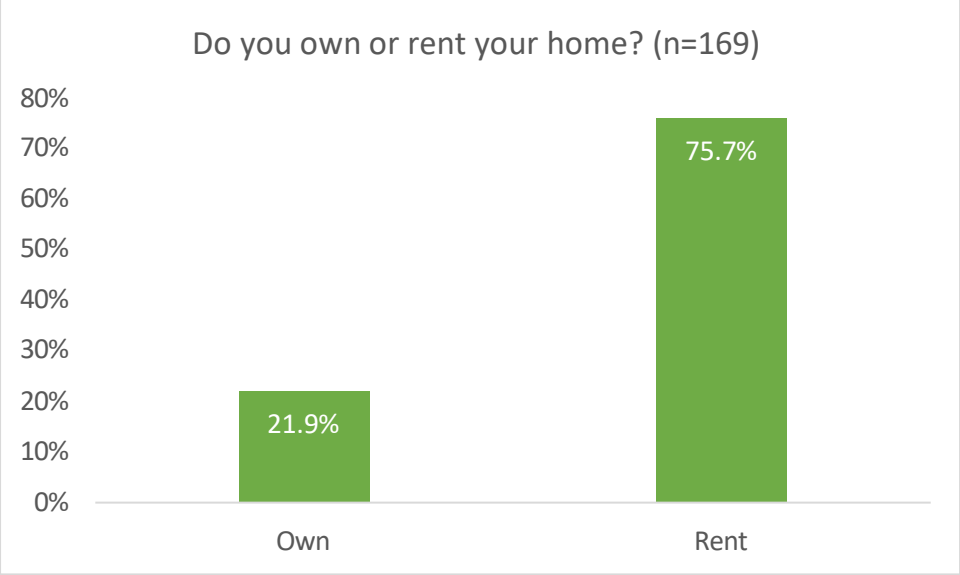
Interpretation: Several neighborhood amenities are available to many survey participants. Pharmacies (45.5%), bus stops (43.8%), and corner stores (41.5%) are the top three amenities reported. Some residents reported having all amenities while some reported not having any.

Q41: How do you think your current housing impacts your health?



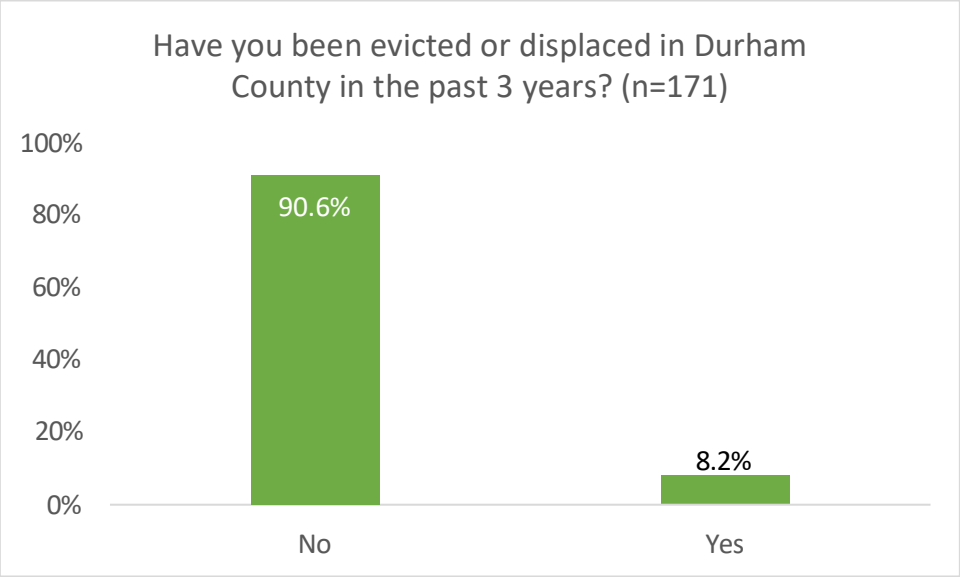
Interpretation: Most survey participants reported their current housing impacts their health in a good way. Some of the other ways housing impacted resident's health include housing being stressful and too much noise.

Q42: Do you own or rent your home?



Interpretation: Three in four survey participants (75.7%) reported renting their home.

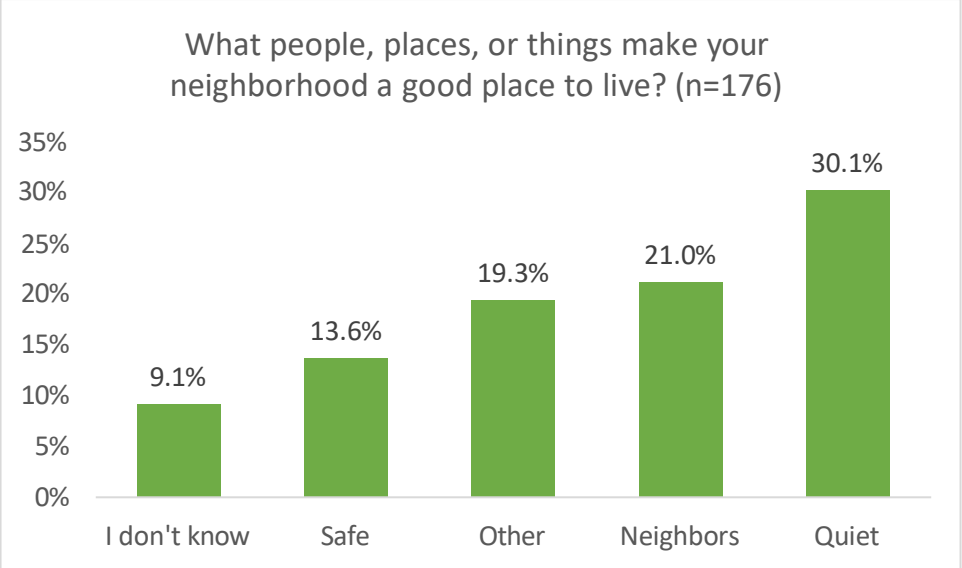
Q43: Have you or someone in your household been evicted or displaced while living in Durham County in the past three years?



Interpretation: Nearly all survey participants reported not being evicted or displaced while living in Durham County in the past 3 years.

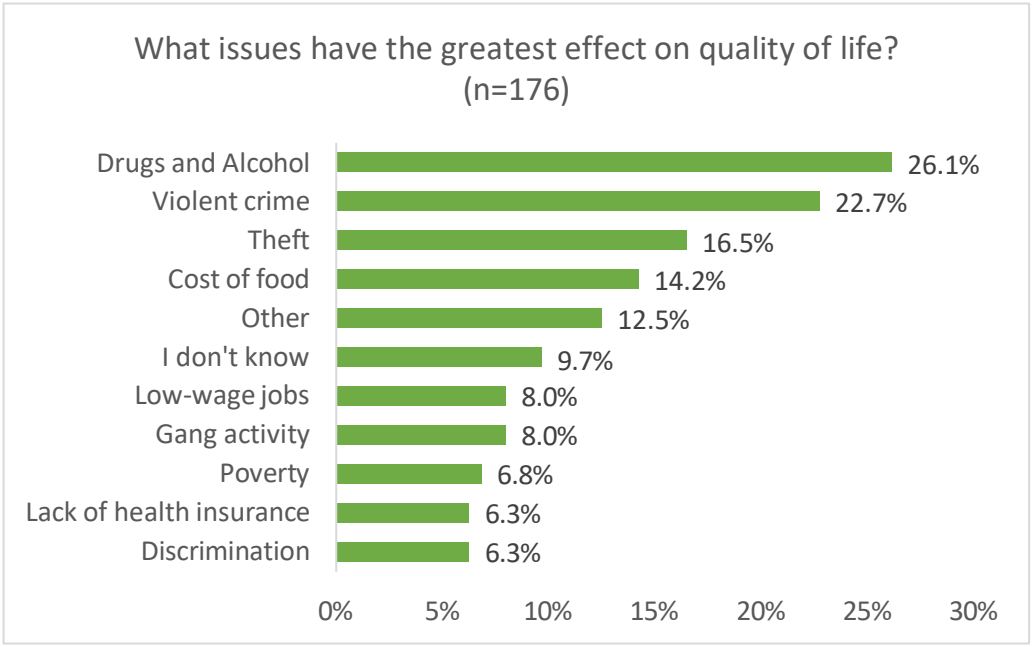
Community Improvement:

Q44: What people, places, or things, make your neighborhood a good place to live?



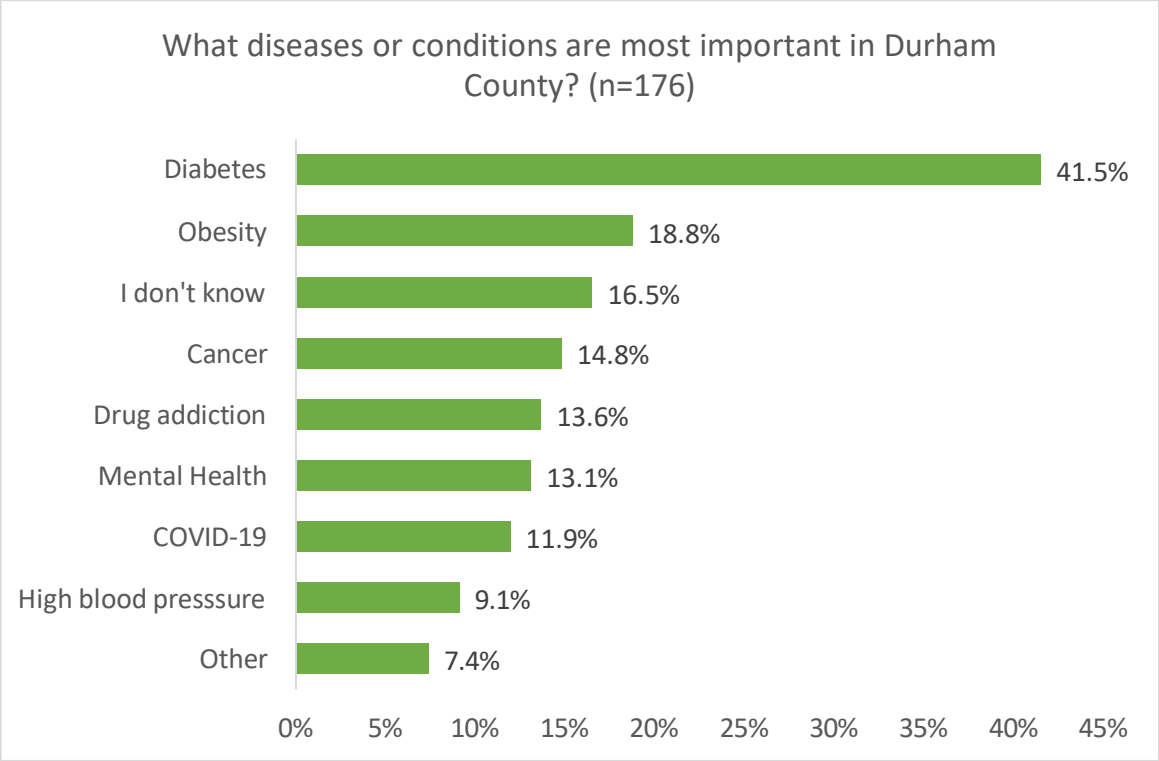
Interpretation: Most survey participants reported that their neighborhood is quiet (30.1%), and the neighbors are great (21%). Some other reasons survey participants reported their neighborhood being a good place to live included the greenery, kids present, and a higher population of Hispanics and Latinos.

Q45: What issues have the greatest effect on quality of life for you personally or your community in Durham County?



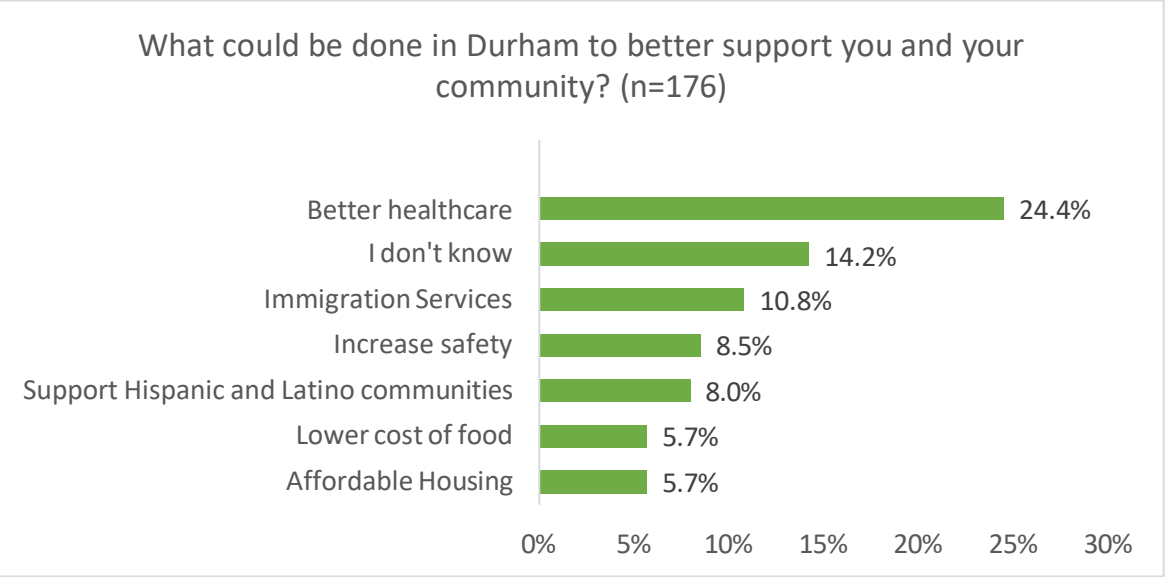
Interpretation: The most common issue mentioned by survey participants was drug and alcohol abuse (26.1%) followed by violent crime (22.7%) and theft (16.5%). Some other issues mentioned included delinquency and lack of recreation for youth.

Q46: What are the most important health problems, that is, disease or conditions, in Durham County?



Interpretation: The most common health problem reported by survey participants was diabetes (41.5%) followed by obesity (18.8%), and Cancer (14.8%). Some other issues mentioned included allergies, joint pain, and renal issues.

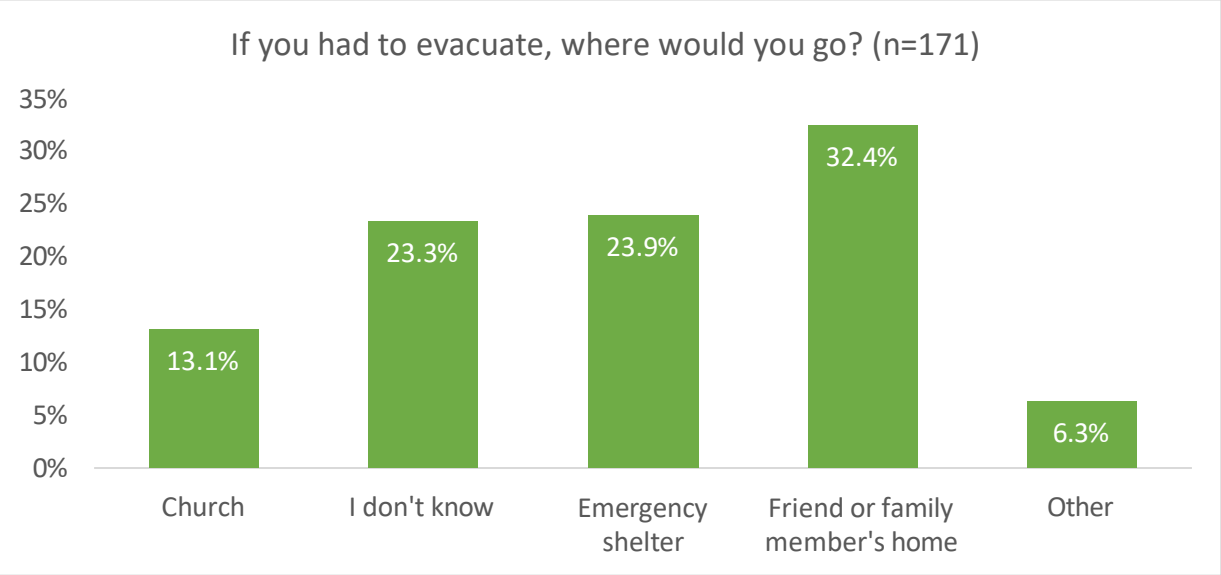
Q47: What could be done in Durham to support you and your community?



Interpretation: One in four (24.4%) of survey participants reported needing better healthcare followed by more immigration services (10.8%) and increasing safety (8.5%).

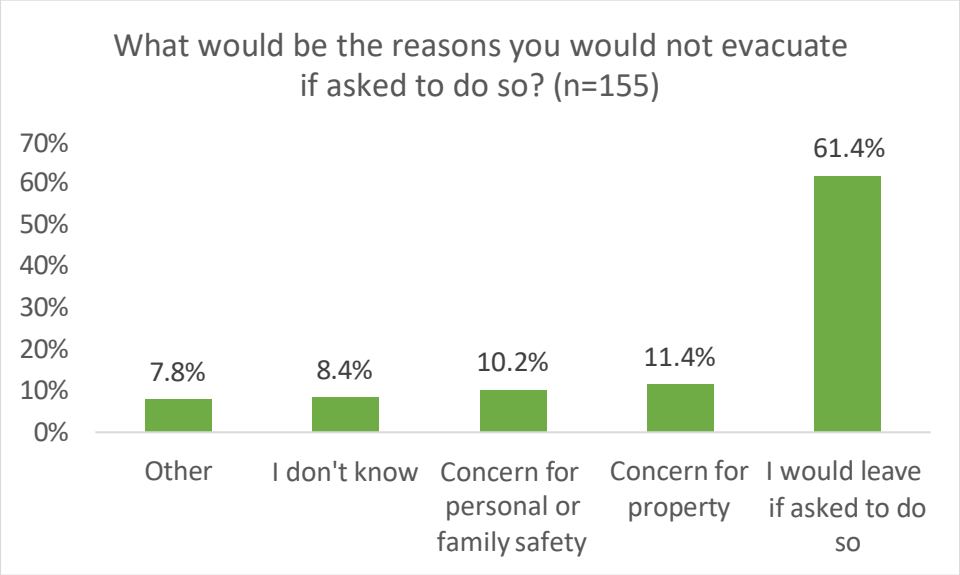
Emergency Preparedness:

Q48: If you couldn't remain in your home, where would you go in a community-wide emergency?



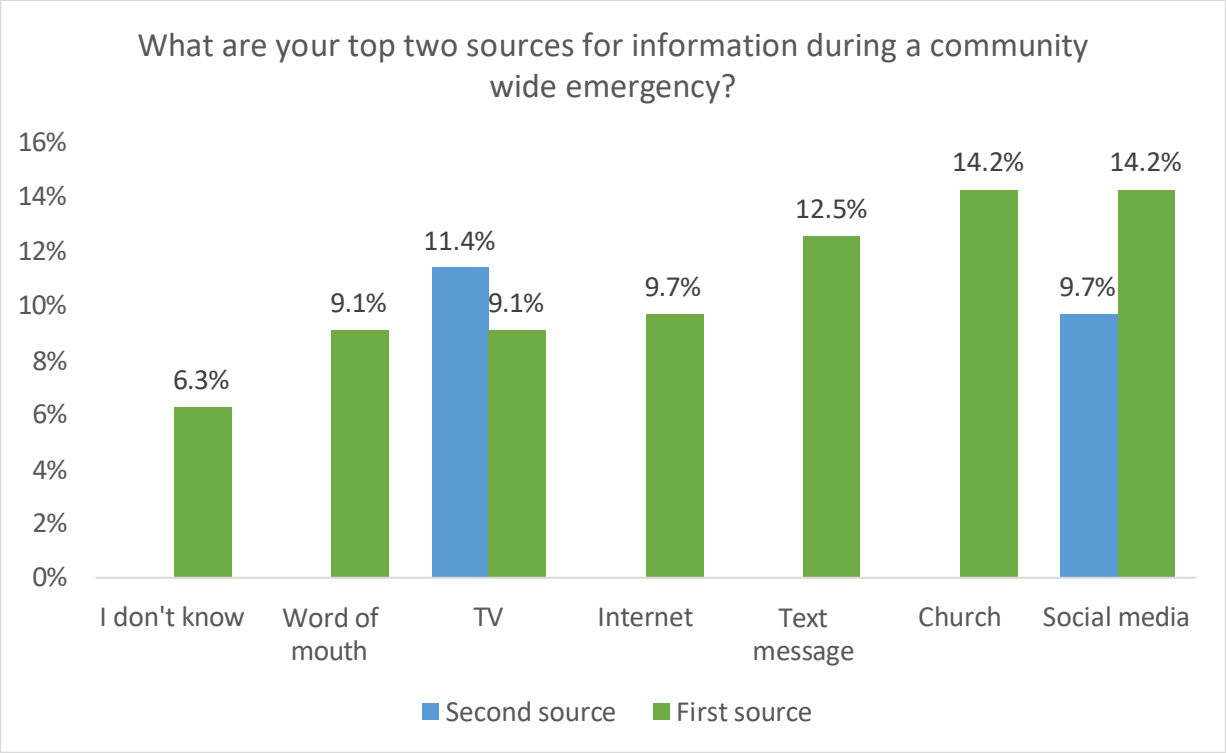
Interpretation: One in three (32.4%) survey participants reported they would go to a friend or family's house if they needed to evacuate. Some other places participants mentioned included their country of origin or out of state.

Q49: What would be the main reason you might not evacuate or leave your home if asked to do so?



Interpretation: Over half of the survey participants (61.4%) reported that they would leave if asked to do so. Concern for personal property (11.4%) was followed be concern for personal or family safety (10.2%). The most common other response was that the participant didn't know where to go.

Q50: Where would you go for information about a community disaster?

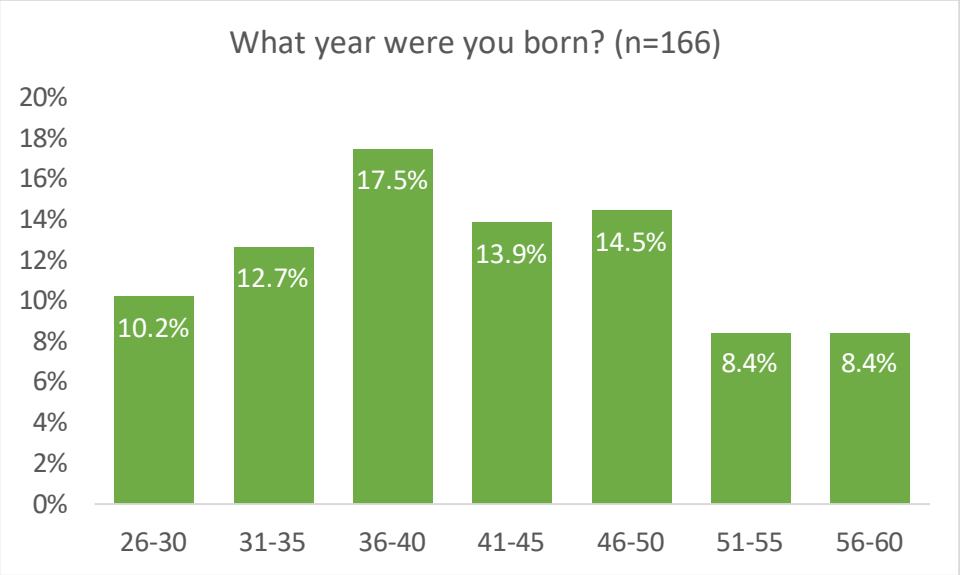


Interpretation: The primary first source of information on a community-wide emergency was social media (14.2%) followed by a church or place of worship (14.2%). The most common social media

platform participants reported using was Facebook. Not many participants mentioned a second source of information, but the TV was most common (11.4%).

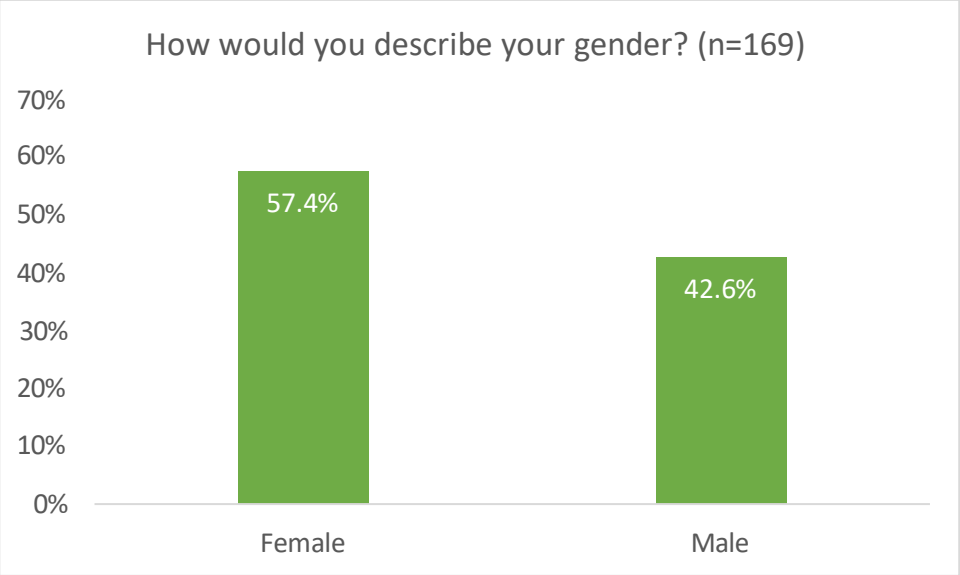
Demographics:

Q51: What year were you born?



Interpretation: Most residents are under 46 years of age (54.3%).

Q52: Describe your gender.

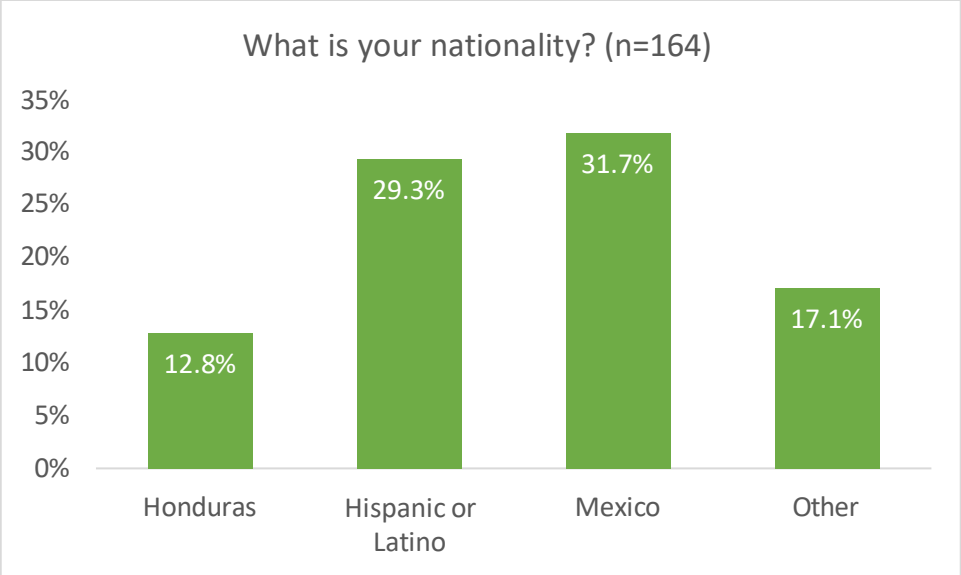


Interpretation: More females (57.4%) were surveyed than males (42.6%).

Q53: How would you describe your sexual orientation?

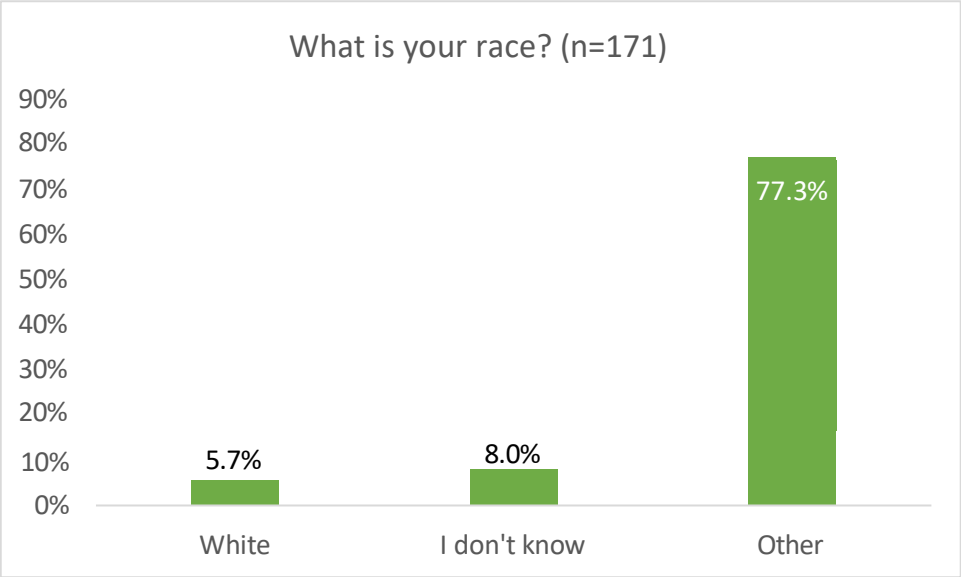
The vast majority of survey participants (90.9%) reported identifying as heterosexual or straight. Other sexual orientations were too small to disaggregate.

Q54: What is your nationality?



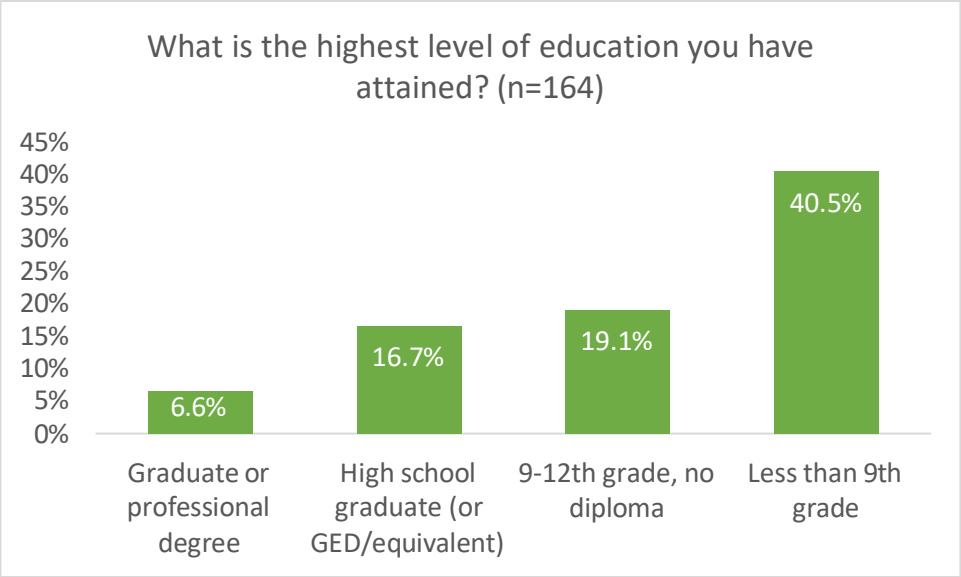
Interpretation: Nearly one in three (31.7%) of survey participants reported being from Mexico followed by Honduras (12.8%). Many participants reported their nationality as Hispanic or Latino (29.3%). Other nationalities were too small to disaggregate.

Q55: What is your race?



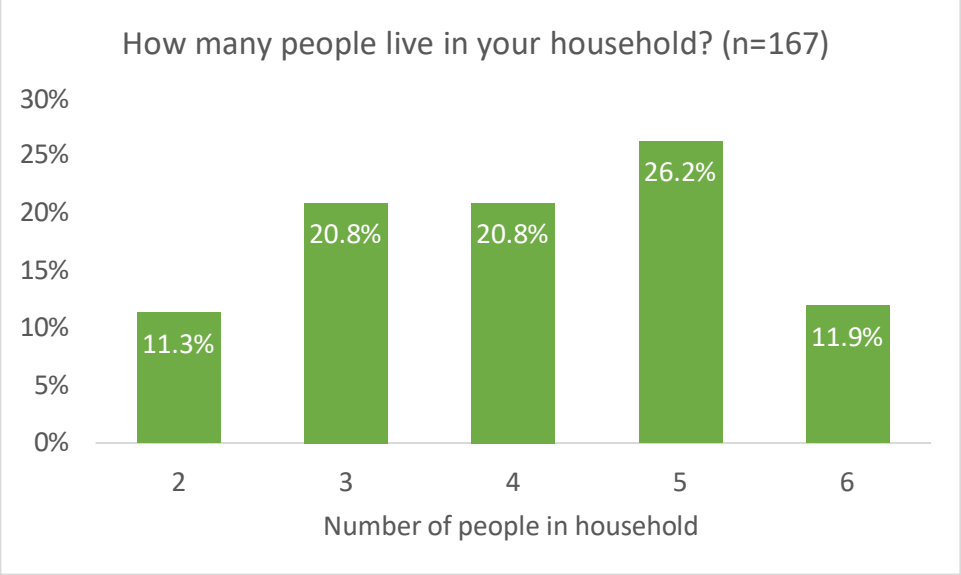
Interpretation: Most survey participants (77.3%) describe their race as 'other' out of the options provided (Asian, American Indian or Alaskan Native, Black or African American, Native Hawaiian or Other Pacific Islander, white). Other races were too small to disaggregate.

Q56: What is the highest level of school, college, or vocational training that you have finished?



Interpretation: Many survey participants reported not having any high school education (40.5%).

Q57: Including yourself, how many people live in your household?

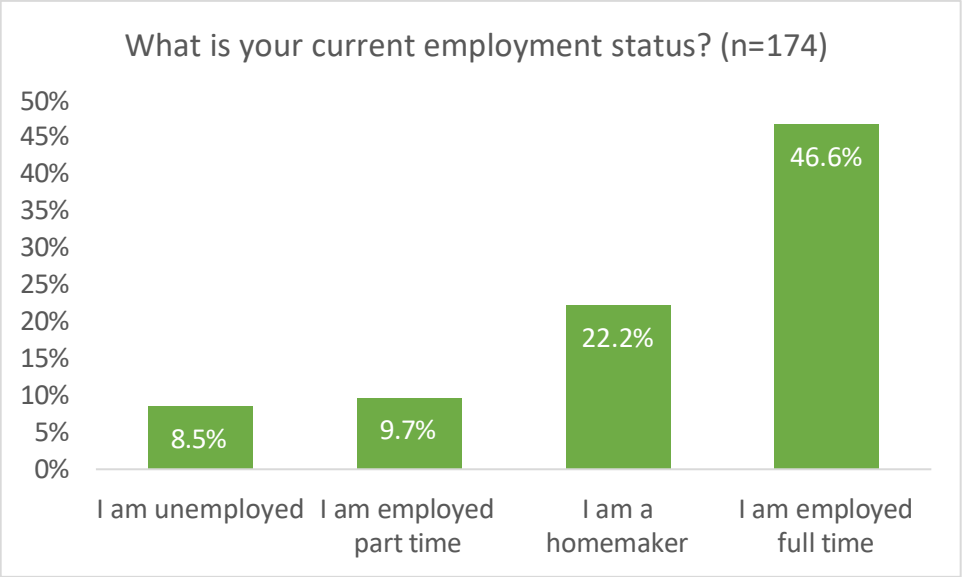


Interpretation: The majority of survey participants have at least four people in their household (58.9%).

Q58: Is your household income greater than 200% of the Federal Poverty Line (FPL) for your household size?

Data could not be collected for this question due to a technological issue with survey administration.

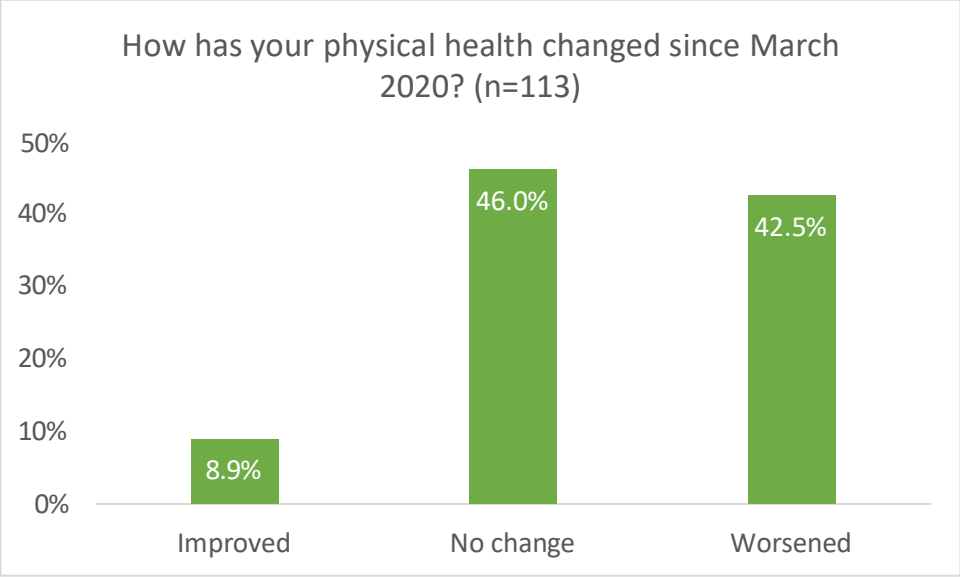
Q59: What is your current employment status?



Interpretation: Most survey participants reported being employed full time (46.6%) followed by being a homemaker (22.2%).

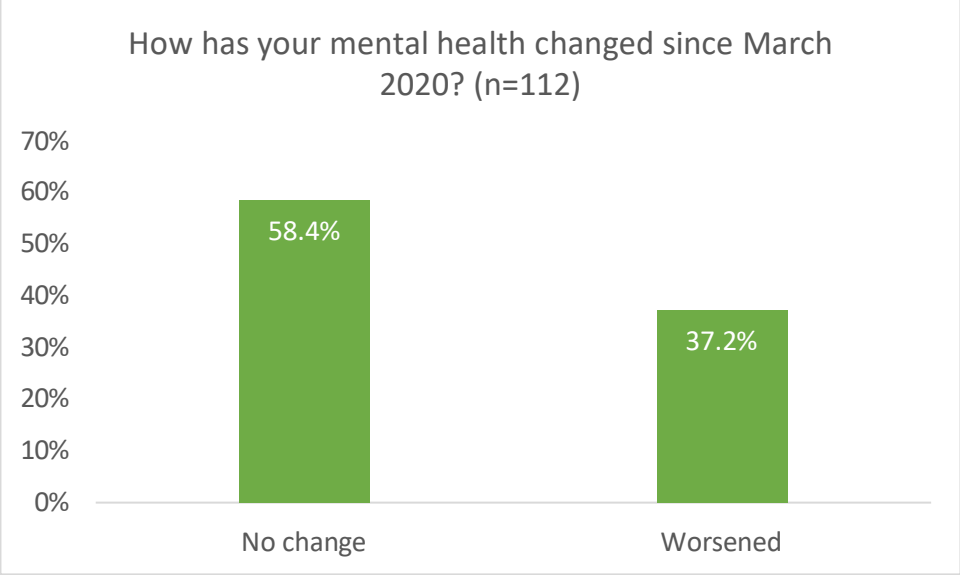
COVID-19:

Q1: How has your physical health changed since March 2020?



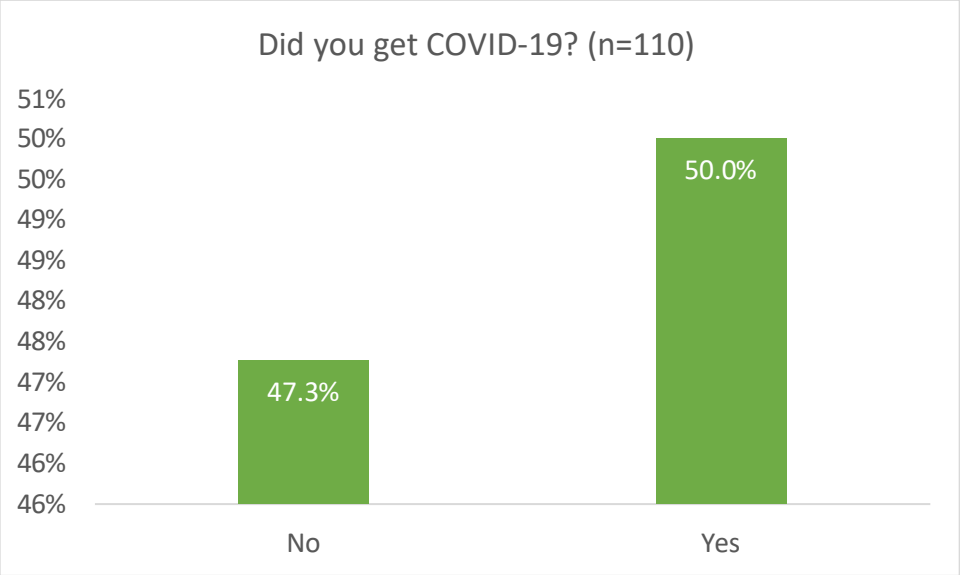
Interpretation: Nearly half of the survey participants (42.5%) reported their physical health worsening since March 2020. Only 8.9% reported their physical health improving.

Q2: How has your mental health changed since March 2020?



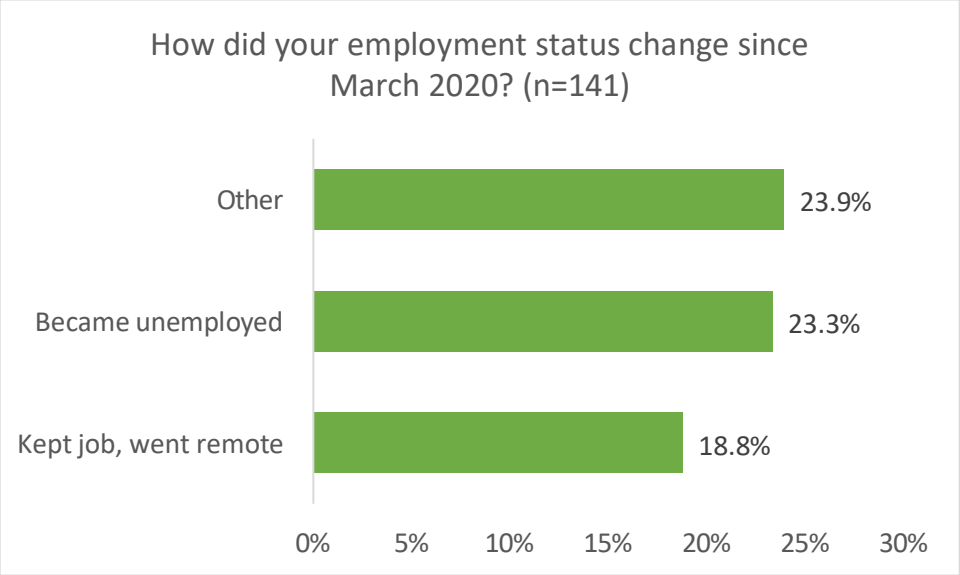
Interpretation: The number of those whose mental health improved was too small to disaggregate. Over one in three (37.2%) of survey participants reported their mental health worsened since March 2020.

Q3: Did you get COVID-19?



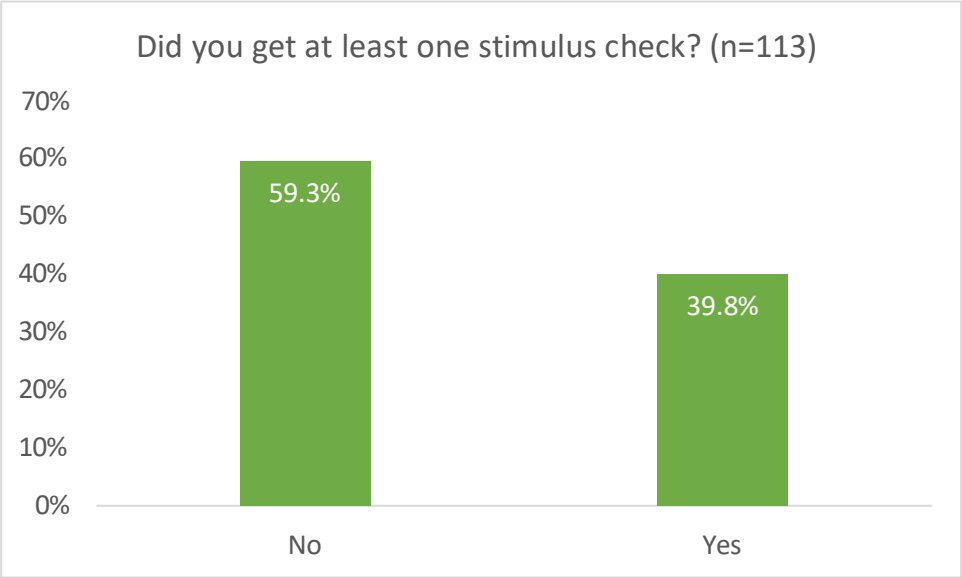
Interpretation: Half of the survey participants reported getting COVID-19. Females (33.6%) were twice as likely as males (16.4%) to get COVID-19.

Q4: How has your employment status changed since March 2020?



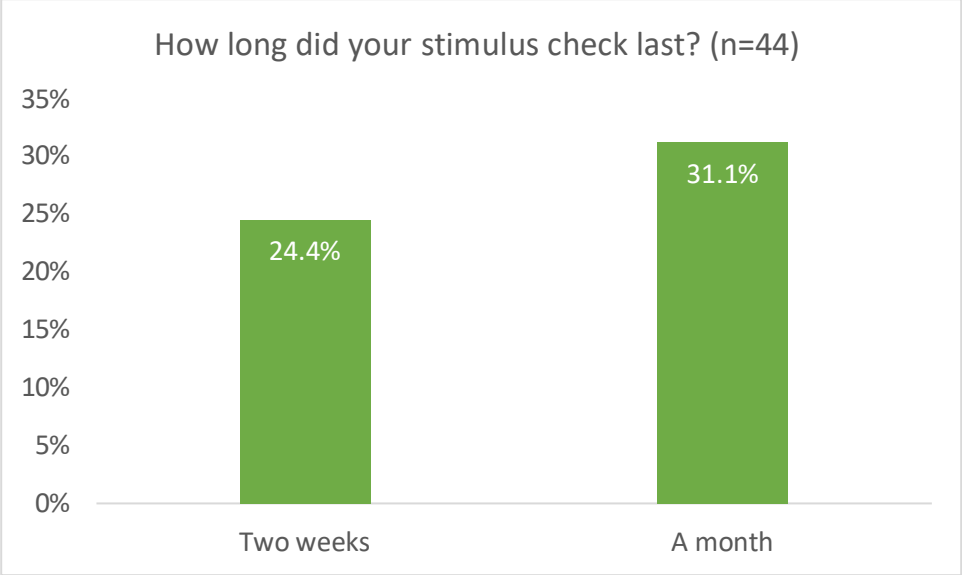
Interpretation: Nearly one in four (23.3%) of survey participants reported losing their job since March 2020. Some other employment statuses were remaining retired, being a student, and staying a homemaker.

Q5: Did you receive at least one stimulus check?



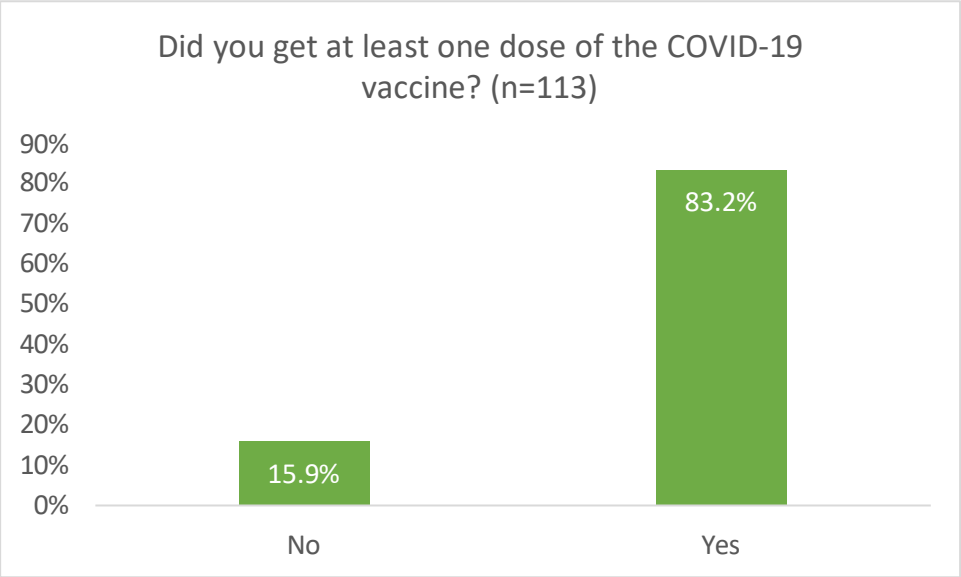
Interpretation: Less than half of the survey participants (39.8%) reported receiving at least one stimulus check.

Q6: How long did your stimulus check last?



Interpretation: Over half of survey participants that received a stimulus check made the stimulus check last for more than a month (51.1%).

Q7: Did you get at least one dose of the COVID-19 vaccine?



Interpretation: Most survey participants (83.2%) reported receiving at least one dose of the COVID-19 vaccine.