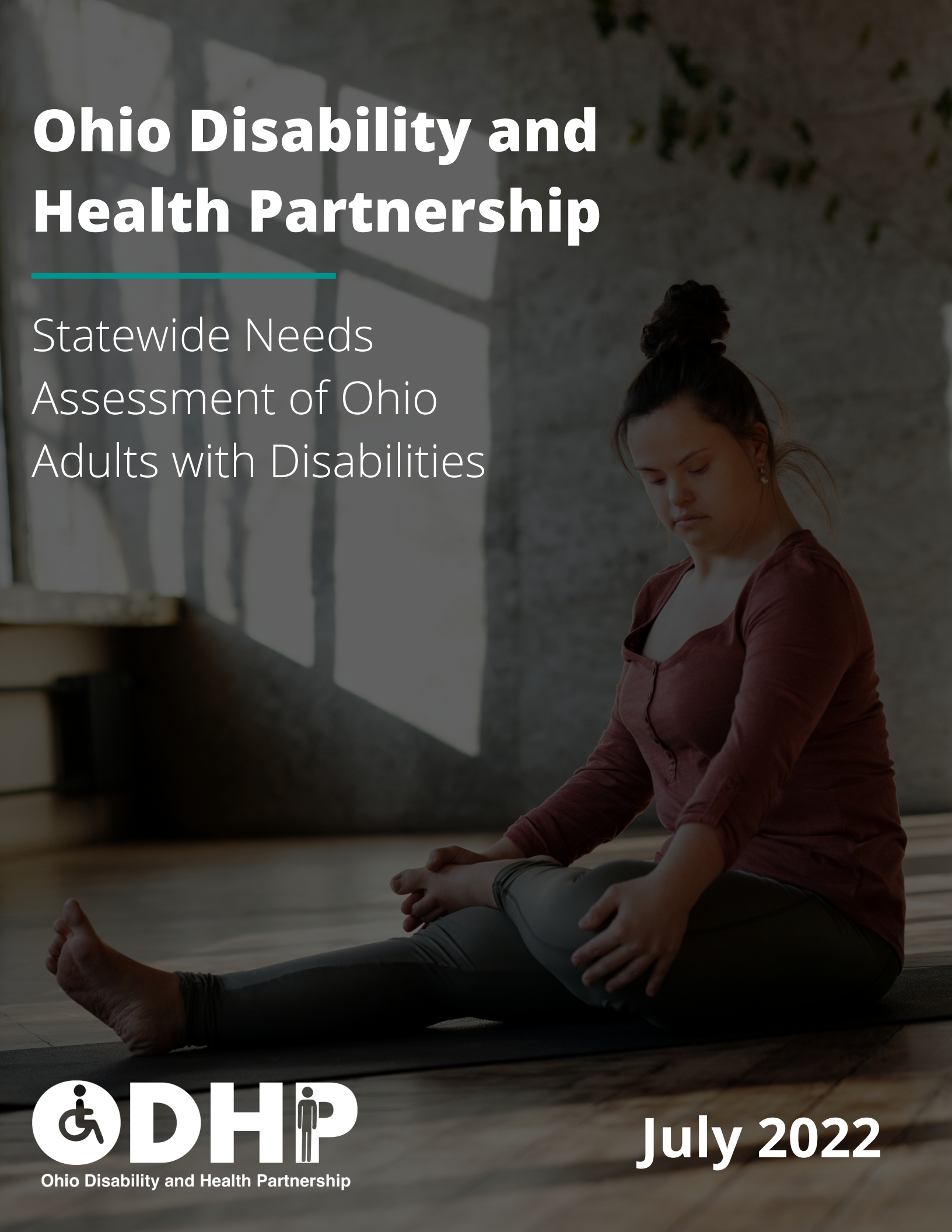
Ohio Disability and Health Partnership

Statewide Needs Assessment of Ohio Adults with Disabilities



ODHP
Ohio Disability and Health Partnership

July 2022

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About the Ohio Disability and Health Partnership

The Ohio State University Nisonger Center partnered with the Ohio Department of Health, the University of Cincinnati Center for Excellence in Developmental Disabilities, the Ohio Colleges of Medicine Government Resource Center, and a statewide Disability Health Partnership comprised of people with disabilities, representatives from disability organizations, healthcare providers, and representatives from state agencies impacting disability and/or health policies to establish the Ohio Disability and Health Partnership (ODHP).

Funded since 2012 by the Centers for Disease Control and Prevention as a state capacity-building program on disability and health, ODHP's program goals are to: 1) establish, expand, and enhance partnerships with organizations that serve adults with disabilities, 2) identify gaps in resources and tools to promote health among adults with disabilities through conducting a statewide needs assessment, define action steps to address those gaps, and develop a statewide repository of accessible health tools and resources for Ohioans with disabilities, 3) train healthcare personnel on best practices in providing accessible preventive healthcare to adults with disabilities, 4) link adults with intellectual and/or developmental disabilities (IDD) to preventive healthcare and health promotion programs in their community, 5a) implement and evaluate evidence-based health promotion interventions, 5b) implement policy, system, and environmental changes, and 6) disseminate key findings and lessons learned.

Acknowledgments

Funding Acknowledgment

This report was supported by the Cooperative Agreement Number, NU27DD000032, funded by the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the Department of Health and Human Services.

Acknowledgments

The Ohio Disability and Health Partnership gratefully acknowledges our project advisory committee, the Disability and Health Partnership Needs Assessment Work Group, representing people with disabilities, disability advocates, and state-agency partners who guided the development, implementation, and interpretation of this needs assessment.

Cover Photo

Cliff Booth. (2020). *Woman Doing Yoga* [Photograph]. Pexels. https://www.pexels.com/photo/woman-doing-yoga-4057731/

Suggested Citation

Whalen Smith CN, Tosun L, Shetterly S, Hackenberg L, Munir A, Randle K, Ellsworth D, Coleman E, Riddle I, Havercamp SM. Ohio Disability and Health Partnership Statewide Needs Assessment of Ohio Adults with Disabilities. July 2022. The Ohio Disability and Health Partnership, Columbus, Ohio.

Summary

Introduction

The purpose of this report is to understand the healthcare needs of Ohio adults with disabilities. This report explains the differences in health between Ohio adults with disabilities and Ohio adults without disabilities. Some key takeaways from the report are listed below.

Steps

To understand the healthcare needs of Ohio adults with disabilities, The Ohio Disability and Health Partnership (ODHP):

(1) Looked at current Ohio survey data,
(2) Had conversations with Ohio adults with disabilities about their healthcare experiences, and
(3) Talked with a statewide advisory group of people with disabilities, family members, support staff, and disability experts.

Key Takeaways

- Mental health is the biggest healthcare need for Ohio adults with disabilities.
- Adults with disabilities have worse mental health, physical health, and chronic condition outcomes compared to adults without disabilities.
- Ohio adults with disabilities report being treated unfairly by healthcare providers because of disability bias.
- The most common barriers to healthcare for people with disabilities include: a lack of healthcare provider understanding about disability, being denied accommodations, physical inaccessibility of building and places, inaccessibility of equipment like exam tables, inadequate insurance coverage, and lack of transportation.
- Ohio adults with disabilities and the statewide advisory group of people with disabilities, family members, support staff, and other disability experts say that healthcare professionals need better training on caring for people with disabilities. This includes knowledge about disabilities and skills for interacting with patients with disabilities.

Action Plan

The Ohio Disability and Health Partnership will use what we learned from this report to:

(1) Gather accessible healthcare resources for Ohio adults with disabilities.
(2) Train healthcare providers about people with disabilities.
(3) Help people with disabilities find healthcare options.
(4) Offer healthy living programs to people with disabilities.
(5) Make changes to systems that impact people with disabilities.
(6) Share what we learned from this report with others.

Introduction

Background

To mitigate the health disparities facing adults with disabilities, the Centers for Disease Control and Prevention (CDC) funded the Ohio Disability and Health Partnership (ODHP) to conduct activities to improve the health of Ohio adults with intellectual/developmental disabilities (IDD) and adults with mobility limitations. Nationally, it is well-documented that people with disabilities have experienced health inequities and barriers to accessing quality care for decades. For example, the 1994-95 National Health Interview Survey (NHIS) found that women with functional limitations had more comorbidities (hypertension, overweight, mental health issues) and less access to dental/eye care and general medical care compared to women who did not have any functional limitations (Chevarley et al., 2006). Based on NHIS (Chevarley et al., 2006) and 2010 BRFSS data (Pharr and Bingum, 2012), older women with severe functional limitations were less likely to receive pap smears or mammograms compared to women with no functional limitations. The 1998 and 2000 data from the Behavioral Risk Factor Surveillance System (BRFSS) concluded that adults who had severe disabilities were less likely to receive the pneumonia and influenza vaccines and women with disabilities received fewer breast exams compared to peers without disabilities (Diab and Johnston, 2004). Additionally, the 2010 BRFSS found that people with disabilities had a higher odds ratio for chronic diseases like cancer, asthma, and diabetes as well as obesity (Pharr and Bingum, 2012). People with disabilities also have a higher incidence of chronic illness at younger ages (Krahn et al, 2015). Additionally, transgender people with disabilities are more likely to experience poor mental health outcomes in comparison to transgender people without disabilities according to the 2015 U.S. Transgender Survey (DREDF, 2018). More recently, the 2016 BRFSS identified specific healthcare access barriers for people with disabilities including cost as disability prevalence increases with higher rates of poverty (Okoro et al., 2018). People with disabilities are 2.5 times more likely to skip or delay healthcare because of the excessive cost (Krahn et al, 2015). In summary, people with disabilities experience worse health outcomes than people without disabilities, have more preventable secondary conditions, and experience earlier death (Drum et al., 2005).

Many of these disparities are driven by service deficits, ableism, and other forms of discrimination, especially among people with disabilities who have additional marginalized identities. There is a great need for enhancing partnerships among organizations that serve adults with disabilities, to implement changes that promote improved access to care and health outcomes, and to assess communities' needs to identify gaps in resources and tools. ODHP seeks to address health disparities of Ohioans with disabilities through project activities, however, the current health needs of Ohio adults with disabilities are unknown. It has been nearly a decade since the last statewide public health needs assessment of Ohio adults with disabilities was completed (Yang et al., 2013). Therefore, ODHP conducted a statewide needs

assessment of Ohio adults with disabilities to better inform project planning and other stakeholder groups.

Purpose

To conduct a statewide needs assessment to identify:

(1) Health disparities and inequities among Ohio adults with IDD and mobility limitations and other disability types

(2) Existing resources for accessible preventive healthcare services and health promotion programs

(3) Gaps in information related to accessible healthcare providers, programs, polices and services

(4) Barriers to engagement with preventive healthcare services and health promotion programs among Ohio adults with IDD and mobility limitations and other disability types

The results of this assessment will increase the knowledge of key stakeholders about the healthcare needs of Ohioans with disabilities and inform the planning and development for the Ohio Disability and Health Partnership project activities.

Methods

We used a mixed-method approach to complete a comprehensive statewide needs assessment, which included secondary data analysis, listening sessions with Ohioans with disabilities, and discussions with key informants. We worked in close collaboration with our Disability Health Partnership (DHP) Needs Assessment Work Group to plan and implement all phases of the assessment using a consensus-based participatory process. The DHP Needs Assessment Work Group was comprised of seven members, four of which had intellectual and developmental disabilities (IDD), mobility limitations, and/or sensory disabilities. The remaining three participants represented disability serving organizations. Recruited from our ODHP statewide advisory committee, these seven individuals volunteered to serve on this needs assessment work group. The work group convened four times over Zoom throughout the assessment and assisted with recruitment efforts for our listening sessions.

PRECEDE-PROCEED Health Promotion Planning Model

Our statewide needs assessment was guided by the PRECEED-PROCEED Model, an effective and evidence-based framework for health promotion and program planning (Scott, 2001). This model emphasizes expected outcomes based on social, epidemiological, behavioral, environmental, educational, and organizational and administrative data (Crosby and Noar, 2011). PRECEED-PROCEED is flexible, adaptable, and provides continuous evaluation and assessment. The PRECEDE steps were used as the framework to conduct the assessment while the PROCEED steps (process evaluation, impact evaluation for intermediate objectives, and outcome evaluation) will guide the development of our ongoing evaluation plan based on the action plan developed as a result of this assessment. Table 1 describes our assessment questions for each step of the PRECEED Model and corresponding data sources. The Results section of this report are organized by the PRECEDE steps, where we report findings by the 1) social assessment, 2) epidemiological assessment, 3) behavioral and environmental assessment, 4) educational assessment, and 5) administrative and policy assessment. We then summarize the findings from each step of the assessment in Table 11 in the Discussion section of this report to organize relationships between the findings for action planning.

Table 1: PRECEDE Model Assessment Questions and Data Sources

PRECEDE Step	Assessment Questions	Data Sources
Social Assessment	1) What are the priority health concerns of Ohio adults with IDD and mobility limitations? 2) What unmet preventive healthcare and health promotion needs are reported? What are the gaps and barriers to accessible preventive health care and health promotion programs?	Listening sessions
Epidemiological Assessment	3) What health disparities do Ohio adults with IDD and mobility limitations face based on existing data and statistics?	Secondary data analysis
Behavioral & Environmental Assessment	4) What are the behavioral, attitudinal, and environmental factors associated with health disparities for Ohio adults with IDD and mobility limitations?	Listening sessions
Educational Assessment	5) What predisposing, reinforcing, and enabling factors could be leveraged to address health disparities for Ohio adults with IDD and mobility limitations?	Listening sessions
Administrative & Policy Assessment	6) What are the current capacity and resources in Ohio that may help us in successful program implementation?	Listening sessions Key Informants

Secondary Data Analysis

For this assessment, we used data from existing Ohio population health surveys to estimate the healthcare access and health outcomes for Ohio adults with disabilities as well as disparities between adults with and without disabilities. We made comparisons to national estimates where available. Topics covered included disability prevalence, demographic characteristics, healthcare utilization generally and engagement with preventative healthcare in particular, access and barriers to care, health outcomes (including chronic conditions, mental health, and physical health), and practice of healthy lifestyle behaviors. Each data source used for the secondary data analysis is described below.

Data Sources

The Ohio Medicaid Assessment Survey (OMAS) is an Ohio-specific assessment that provides healthcare access, utilization, and health status information about residential Ohioans, with a concentration on Ohio's Medicaid, Medicaid-eligible, and non-Medicaid populations. It is a mail, web, and random digit dial telephone survey. With a sample size of almost 32,000 adult interviews, the 2019 survey is representative of all residential non-institutional Ohioans. The majority of the prevalence and demographic estimates, as well as disparity ratios, presented in this report come from the 2019 OMAS survey public use file and they are unadjusted for age unless otherwise noted.

The Behavioral Risk Factor Surveillance System (BRFSS) is a collaborative project between all of the states in the United States and the Centers for Disease Control and Prevention (CDC). It is a system of ongoing health-related telephone surveys designed to collect data on health-related risk behaviors, chronic health conditions, and the use of preventive services from the non-institutionalized adult population (18 years and older) residing in the United States. Many of the prevalence estimates as well as some of the disparity ratios presented in this report come from the 2020 Ohio BRFSS survey and they are unadjusted for age unless otherwise noted. When available, age-adjusted estimates from the 2018 and 2019 CDC Disability and Health Data System (DHDS), which derives measures from the BRFSS, are referenced for national comparisons.

The National Core Indicators (NCI) Adult In-Person (Consumer) Survey is a collaborative effort between the National Association of State Directors of Developmental Disabilities Services (NASDDDS) and the Human Services Research Institute (HSRI) publicly funded developmental disability (DD) supports and who have at least one paid service, in addition to case management, from the state DD service system. The Ohio survey randomly sampled 734 respondents 18 years of age or older from a frame of 38,935 adults in the Home and Community-Based Services (HCBS) waiver program (1915c), individuals living in the Ohio Department of Developmental Disabilities Intermediate Care Facilities for Individuals with Intellectual Disabilities (ICFs/IID), and individuals receiving services from county boards.[1] It should be noted that the Ohio NCI covers only 70 of Ohio's 88 counties; 18 counties make up the Mid-East Ohio Regional Council (MEORC) sample, which separately administers NCI surveys and reports estimates. The MEORC estimates are excluded from the findings presented here.[2] Therefore, while the NCI estimates presented in this report are described as being representative of Ohioans with IDD, they are in fact more narrowly representative of adults receiving DD services and DD case management in 70 Ohio counties.

[1] Individuals receiving services under the Ohio Medicaid Home Care Waiver were not specifically sampled but may be included in the sample.

[2] The Ohio MEORC is made up of 18 county boards in Southeastern Ohio (MEORC). Only 12 of the 18 counties in the MEORC collect data for the NCI. The most recent MEORC state report (2013-2014) can be found at: NCI Adult Consumer Survey Outcomes (nationalcoreindicators.org)

The Ohio NCI sample is made up of adults with a developmental disability, most of whom have intellectual disability.[3] However, every person selected into the sample is given an opportunity to respond and no one is prescreened or predetermined to be unable to respond, regardless of disability type. Estimates presented for the Ohio NCI are pulled from Ohio's 2017-2018 state report as public use files are not readily available.[4] The NCI documentation indicates that these indicators are risk-adjusted for age, level of intellectual disability, level of mobility, and whether any behavioral supports are needed to prevent self-injury, disruptive or destructive behavior. However, there is no discussion of any use of weight adjustments to address potential bias. We calculate 95% confidence intervals to provide an approximation of the precision of the NCI estimates.[5] For certain outcomes (primarily pertaining to engagement with preventative care) there was high missingness in the Ohio sample; these estimates are flagged as to be interpreted with caution. While there is no comparison population in the NCI survey that would allow for an evaluation of disparities between adults with and without disabilities, we use the NCI data to present prevalence data pertaining to health outcomes for Ohioans with IDD. When appropriate, we also reference national estimates from the NCI for comparison.[6]

The CDC/ATSDR Social Vulnerability Index (SVI) is a collaboration between the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR) to use United States (U.S.) Census data to determine the social vulnerability of every U.S. census tract.[7] It includes estimates of disability totals among the non-institutionalized civilian population, which we use to map county-level disability prevalence and count estimates. In addition to providing demographic information about the geographic location of individuals with disabilities in Ohio, the SVI project also allows for a relative assessment of which Ohio counties are faring the poorest along a variety of social factors. Each county is ranked against other Ohio counties along 15 social factors, grouped into four themes with individual scores, and combined to make up the county's overall Social Vulnerability Index score.[8] We use the 2018 SVI data to indicate the structural and environmental challenges that Ohioans with disabilities face and which may influence healthcare access and outcomes, as well as the geographic variation in these vulnerabilities.

[3] An estimated 88% of adults receiving DD services in Ohio have an intellectual disability diagnosis (Figure 64 in Appendices).
[4] https://www.nationalcoreindicators.org/states/OH/report/2017-18/
[5] Simple random sampling was assumed for the calculation of these confidence intervals since NCI documentation listed the sampling technique for Ohio's survey as "random sample."
[6] The NCI national estimates are a weighted mean of the estimates of participating states (46 plus the District of Columbia and 22 sub-state entities). It accounts for variance across states in the number of adults served by the state DD service system by using a state's total survey-eligible population to weight its contribution to the national estimate. Therefore, a state's contribution to the NCI national average is proportional to its service population. The weights are adjusted based on a state's sampling strategy.
[7] https://www.atsdr.cdc.gov/placeandhealth/svi/index.html
[8] The four themes that make up the overall SVI are socioeconomic status, household composition and disability, minority status and language, and housing type and transportation.

Measuring Disability

In the NCI, the population sampled is made up of adults receiving supports and case management from the state DD service system. Therefore, the entire sample is assumed to be adults with developmental disabilities, and most likely, as aforementioned, adults with intellectual disabilities.

In OMAS, BRFSS, and SVI analyses,[9] we primarily identified Ohioans with disabilities using the U.S. Department of Health & Human Services (HHS) six-set of functional limitations:

(1) Are you deaf or do you have serious difficulty hearing? (Hearing)

(2) Are you blind or do you have serious difficulty seeing, even when wearing glasses? (Vision)

(3) Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions? (Cognitive)

(4) Do you have serious difficulty walking or climbing stairs? (Mobility)

(5) Do you have difficulty dressing or bathing? (Self-care)

(6) Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping? (Independent living)

A limitation of health surveillance surveys is the lack of items allowing the identification of people with intellectual disability (ID) or developmental disabilities (DD). Without these indicators, it is impossible to disaggregate survey data to learn about the health of this vulnerable population. The six questions allowed us to identify adults who have at least one of these six functional disabilities. In OMAS, we were also able to identify a seventh category of disability - adults with developmental disabilities - using a yes/no question that asks, "Do you have a developmental disability?".

Finally, we leveraged the presence of the developmental disability question in OMAS to create a proxy indicator for an eighth category of disability - intellectual disability (ID)/intellectual and developmental disability (IDD). Adults who indicated that they have both a developmental disability and cognitive limitations were considered to have IDD, categorized as "ID/IDD proxy" in our figures. We acknowledge that cognitive disability is a much broader classification than intellectual disability (with the latter pertaining to deficits in adaptive functioning as well as intellectual functioning that manifest during the developmental period). However, by combining the two criteria (DD and cognitive limitation), we aim to identify people with ID in our sample and report on the health of this otherwise invisible population. We acknowledge that this ID indicator is imperfect. An individual who responds affirmatively to the DD and cognitive limitations questions may be referring to the presence of ID in both questions.

[9] The SVI data does not disaggregate disability by functional limitation, but the HHS six-set of questions are used in the American Communities Survey to identify an adult with a disability (yes/no), which is the primary source of population data used in the SVI.

Alternately, they may have ID and another developmental disability such as autism spectrum disorder or cerebral palsy. Because of this ambiguity in the data, we use the term "intellectual disability/intellectual and developmental disability (ID/IDD)" to refer to this subgroup in the OMAS findings.

While we provide results for all disability types in this report, because the target populations for the CDC Disability and Health Program are adults with IDD and mobility limitations, we specifically focus our comments on findings for adults with IDD (using the best available indicator we have available) and mobility limitations in our narrative discussion of the results.

Listening Sessions

Listening sessions with Ohio adults with disabilities were completed to provide in-depth qualitative information on their awareness of and barriers to accessing preventive healthcare services and health promotion programs. Listening session data are useful to help frame and interpret quantitative data collected in the assessment (Gilmore, 2011).

Our DHP Needs Assessment Work Group guided the development of a qualitative interview listening session guide. With the DHP Needs Assessment Work Group, we prioritized a set of questions to address the key assessment questions in the social assessment, behavioral & environmental assessment, educational assessment, and administrative & policy assessment steps of the PRECEDE model. The questions and protocol for listening session recruitment and implementation were reviewed by the DHP Needs Assessment Workgroup for accessibility.

Recruitment for the listening sessions occurred over a one-month period. We reached out to contacts and collaborators across the state, including our Disability Health Partnership (ODHP advisory committee), to assist in the recruitment of Ohioans with disabilities via emails, flyers, social media, and word of mouth. Any Ohio adult with a self-identified disability was eligible to participate in the listening sessions. We aimed to recruit 30 individuals with a target of an equal number of people with IDD, mobility limitations, and sensory disabilities. We offered seven listening session times via Zoom (with a call-in option over the phone) with approximately five to six individuals with a similar disability type in each group over the period of one-month with options for both morning and evening times to increase accessibility. All listening sessions had live captioning service and provided participants with information about all the accessibility features of Zoom. All accommodation requests were met including the use of American Sign Language (ASL) interpreters and allowing caregivers to attend and assist an individual to participate in the conversation. Additionally, one session was offered in Spanish. Each session was 90-minutes and recorded for transcription. One project team member moderated each session and one team member recorded notes.

While we attempted to recruit a diversity of individuals in terms of disability type, age, gender, race, ethnicity, and geographic location, our sample was not randomized and thus results from the listening sessions cannot be generalized to the population of Ohio adults with disabilities.

These qualitative results are limited to the perspectives of listening session participants who were recruited from non-institutionalized settings.

Key Informants

Finally, we had discussions with key informants to provide supplemental information for our assessment. Key informants are useful in needs and capacity assessments to help frame and identify key areas of need (Gilmore, 2011). We used our full Disability Health Partnership (ODHP advisory committee) and DHP Needs Assessment Work Group as key informants throughout the assessment to help frame and interpret the results from the assessment, to help prioritize key findings from the assessment for action planning, and to collect additional resources to contribute to our Ohio Disability and Health Resource Guide, which will be an online guide of accessible health tools and resources for Ohioans with disabilities. This information was collected through meetings with our DHP and via Qualtrics.

Data Analysis

For the secondary data analysis, public use files were downloaded, and data was imported into R for all processing and analysis. Estimates for OMAS and BRFSS data were calculated by the assessment team, while estimates for SVI and NCI data were extracted from their respective websites and reports. When using raw survey data, variables were recoded as necessary to construct outcomes of interest. When using a priori estimates, confidence intervals were calculated for an approximate measure of precision. Since all secondary data came from representative sample surveys, estimates were adjusted using survey weights. Prevalence estimates were unadjusted for age unless otherwise specified and have 90% confidence intervals. Prevalence rate ratios were calculated using a survey-weighted Poisson regression model with robust standard errors and controlling for age, race, sex, and county type.[10]

All qualitative data from the listening sessions was transcribed and uploaded to ATLAS.ti for content analysis. A team of three evaluators generated a coding frame through a combination of deductive and inductive methods, beginning with topics that emerged from the PRECEDE model framework and allowing for the addition of codes as the team reviewed the transcripts. Transcripts were analyzed through an iterative process of independent coding, informal intercoder comparisons and discussions, and additional coding and refinement of the coding frame. First, two evaluation team members independently coded each transcript, applying a multiple coding approach in which passages of text could be categorized with one or more relevant codes. After completing the first transcript, each pair of coders met to discuss their application of codes to ensure consensus and refined the coding frame as needed. Once all seven transcripts were coded, the files were merged, codes were deduplicated, and areas of inconsistency were flagged. The three evaluators then met as a group to discuss overlaps and divergences in coding. Next, the needs assessment lead reviewed the merged transcripts and

[10] County type is a control variable only in the models using OMAS 2019 survey data.

resolved any outstanding coding discrepancies. Through this multi-step process, 152 codes were generated and applied to the data. Finally, the team reviewed code densities, co-occurrences and relationships between topics, and generated reports in Atlas.ti to assess patterns emerging in the data. The three evaluators discussed these findings internally, as well as with an ODHP team member who has a disability, and then finalized the interpretation of the analysis.

Results

Prevalence and Social Vulnerability of Ohio Adults with Disabilities

Prevalence of Ohio Adults with Disabilities

Using data from the 2019 Ohio Medicaid Assessment Survey (OMAS), we estimate population totals for each disability group in Ohio. It is estimated that over 3 million Ohio adults have a disability, as defined by the HHS six-set of disability questions or an affirmative response to the OMAS developmental disability question (Table 2). We estimate that nearly 1.5 million adults have a mobility limitation (1,480,763), 414,708 have a developmental disability, and 275,052 have an intellectual disability or intellectual and developmental disability (ID/IDD).

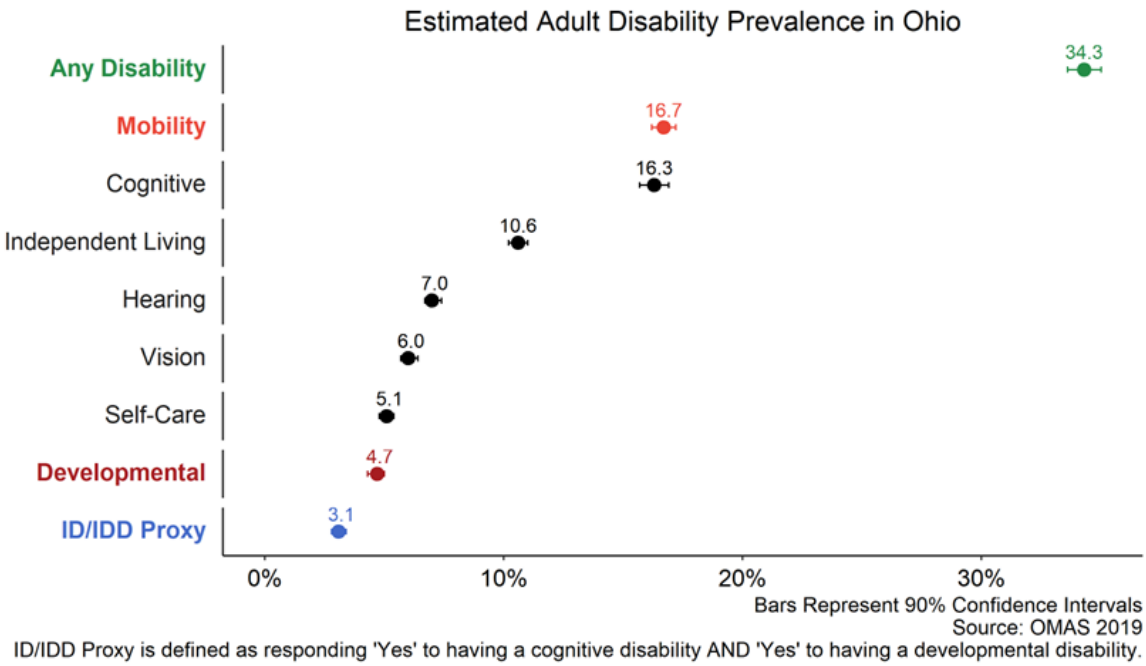
Table 2: Ohio Estimated Adult Population Totals for Disability (OMAS 2019)

Disability Group[a]	Estimated Adult Population Total with 90% CI[b]
ID/IDD Proxy	275,052 [247,436, 302,667]
Developmental	414,708 [383,227, 446,189]
Self-Care	452,562 [424,238, 480,886]
Vision	535,086 [506,271, 563,901]
Hearing	622,845 [592,825, 652,865]
Independent Living	939,686 [899,535, 979,836]
Cognitive	1,446,322 [1,388,988, 1,503,656]
Mobility	1,480,763 [1,434,010, 1,527,516]
Any Disability	3,030,935 [2,960,053, 3,101,817]

[a] Disability groups are not mutually exclusive; [b] Source: OMAS 2019

Figure 1 shows unadjusted estimates for adult disability prevalence in Ohio. We estimate that more than one-in-three adults in Ohio have a disability (34.3%), with the largest disability subgroup having mobility limitations (16.7%). An estimated 4.7% of adults have a developmental disability, and an estimated 3.1% have ID/IDD.

Figure 1: Estimated Adult Disability Prevalence in Ohio



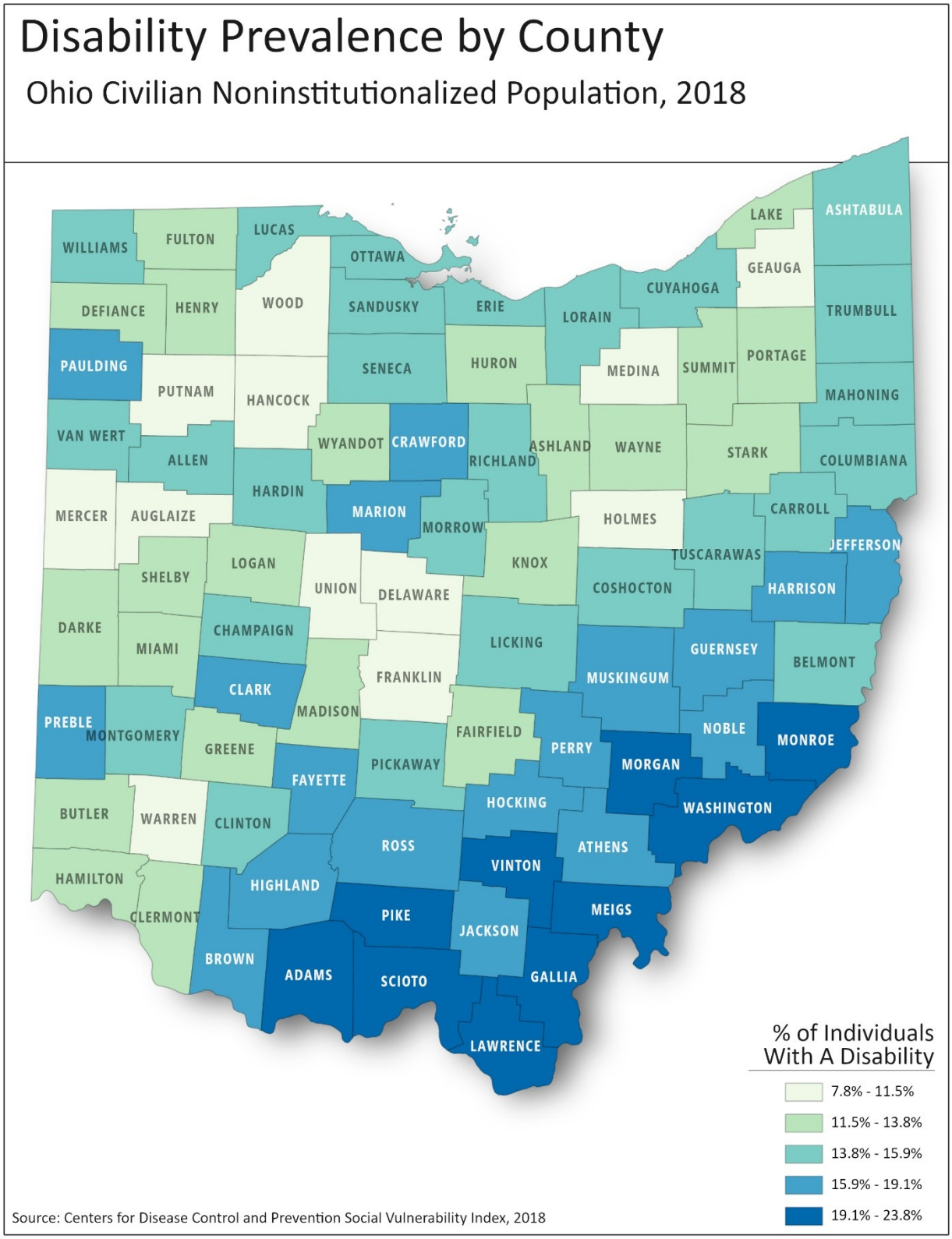
Geographic Distribution of Ohioans with Disabilities

While the focus of this report is predominantly on the health needs and disparities in care and outcomes for adults with disabilities aggregated at the state level, we also present data about the geographic distribution of disability within the state. We do so to illustrate the spatial variation in the presence of people with disabilities, and by extension, the spatial variation in both absolute and relative need for healthcare resources. We utilize the CDC/ATSDR Social Vulnerability Index (SVI)[11] to provide county-level disability prevalence and count estimates, as well as assessments of the socioeconomic, housing, and overall vulnerability of Ohio counties with the largest proportion of people with disabilities.

Figure 2 shows disability prevalence in Ohio by county for the civilian non-institutionalized population in 2018. As a share of the population, people with disabilities have some of the largest representation in Ohio's Southeast. The ten Ohio counties with the largest prevalence of disability are all in Southeast Ohio and are classified as rural-Appalachian or rural non-Appalachian, where between above one-in-five (19.1%) and one-in-four (23.8%) residents have a disability. Pike County has the largest prevalence of disability, with 23.8% of its residents having a disability. Many counties with disability prevalence between 15.9% and 19.1% are also in the Appalachian Southeast of Ohio.

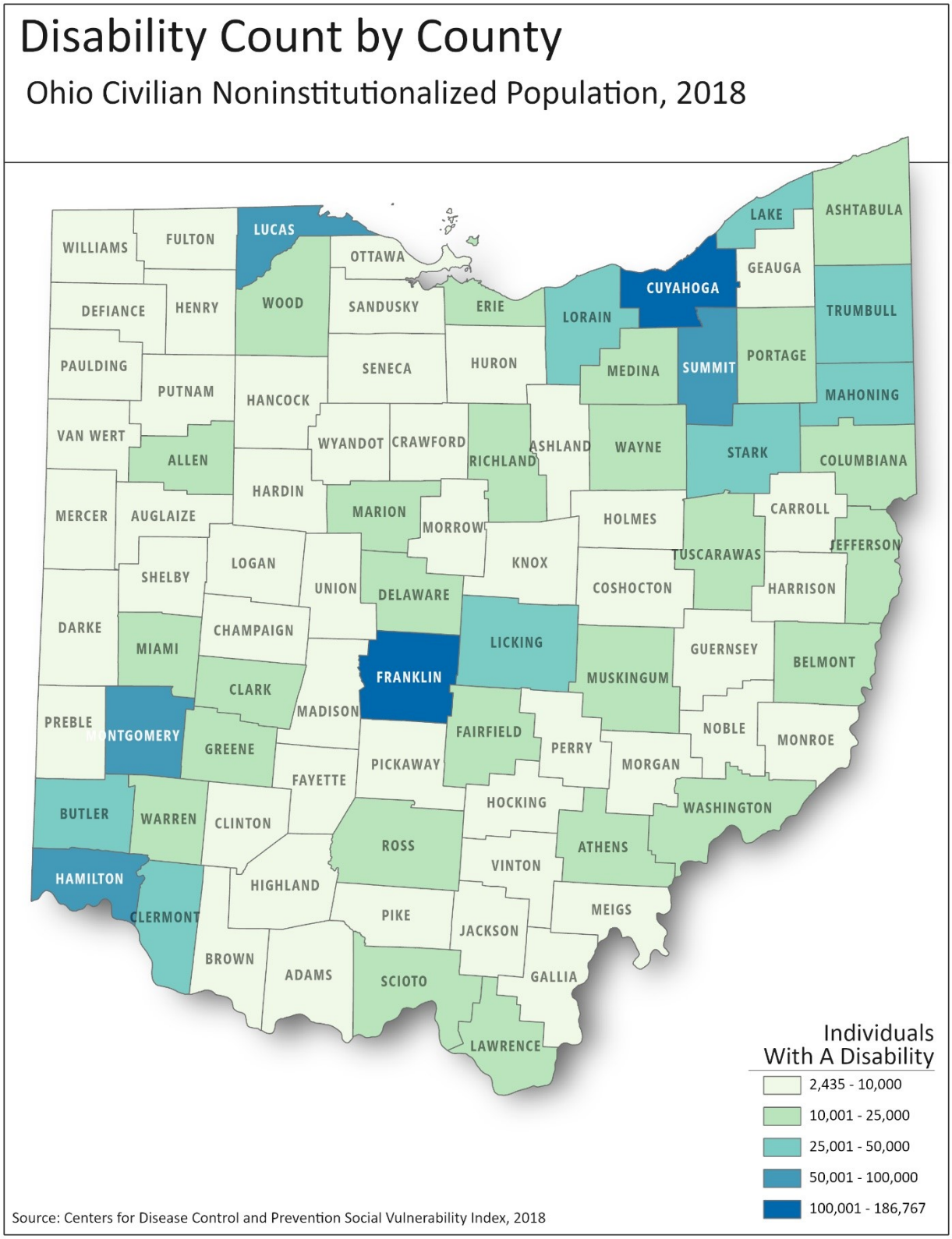
[11] https://www.atsdr.cdc.gov/placeandhealth/svi/index.html

Figure 2: Disability Prevalence by County (2018)



While disability prevalence rates are highest in Southeast Ohio, the major metropolitan centers of the state are home to the largest total counts of people with disabilities (Figure 3). Cuyahoga County and Franklin County are home to the largest total number of individuals with a disability - an estimated 186,767 and 142,488, respectively. Hamilton and Montgomery Counties are not far behind with an estimated 99,713 and 78,697 individuals with a disability.

Figure 3: Disability Count by County (2018)

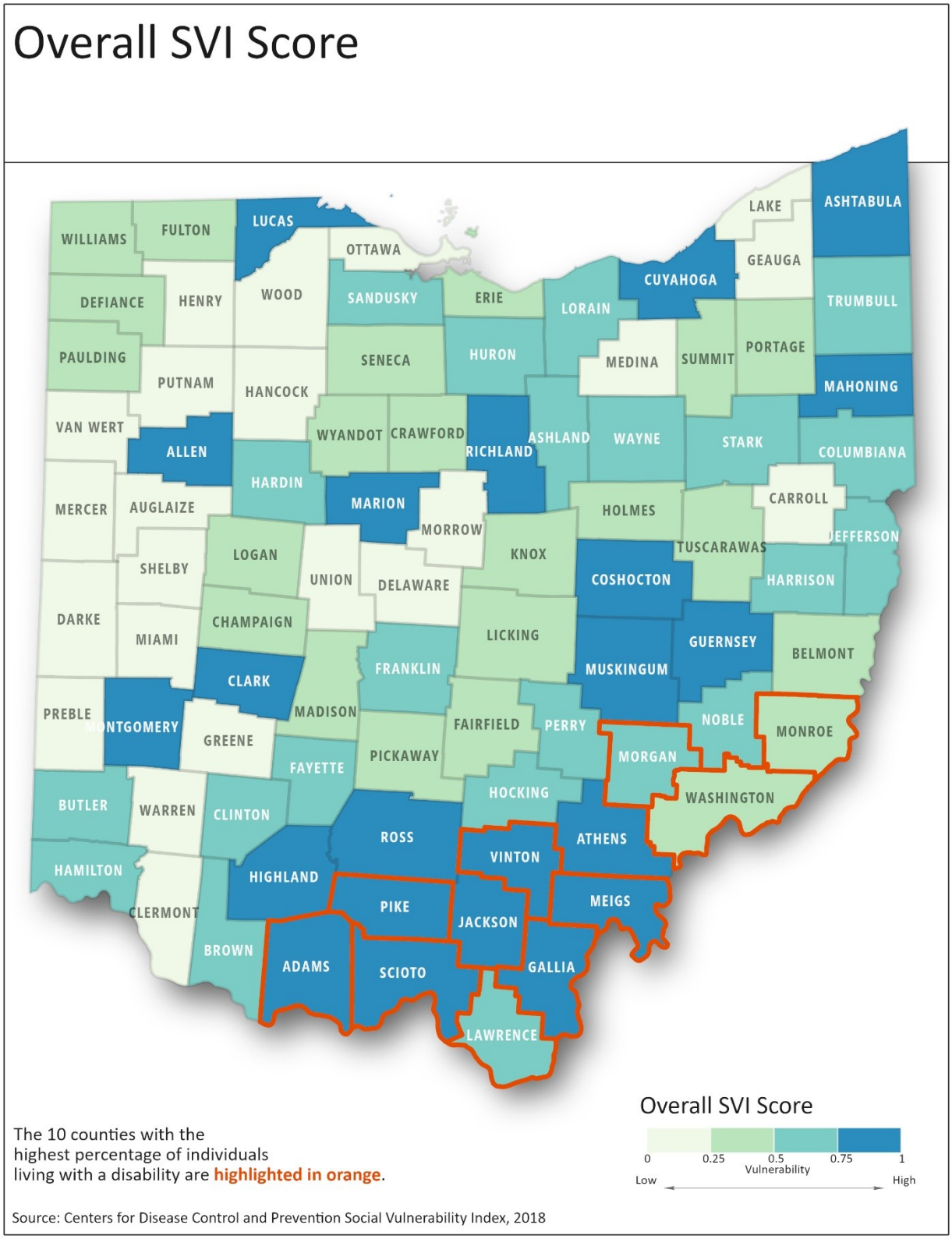


Social Vulnerability Index

In addition to providing demographic information about the geographic location of individuals with disability in Ohio, the Social Vulnerability Index (SVI) project also allows for a relative assessment of which Ohio counties are faring the poorest along a variety of social factors. A county's SVI score is an aggregate score between 0 and 1 that ranks each county on 15 social factors derived from United States (U.S.) Census variables, with a high score indicating more relative vulnerability and a low score indicating less relative vulnerability. These 15 social factors are grouped into four themes with individual scores that make up the overall SVI which include: 1) socioeconomic status, 2) household composition and disability, 3) minority status and language, and 4) housing type and transportation. The selection of these social factors was influenced by the primary goal of the SVI project, which is to support disaster management. For example, individuals with a disability are more likely than individuals without a disability to require financial support, transportation, medical care, or assistance with ordinary daily activities during disasters. Additionally, family members, neighbors, or caretakers responsible for the welfare of a disabled person might be less able to do so during a crisis or may find the magnitude of the task beyond their capability (Flanagan et al. 2011).

Figure 4 shows overall SVI scores for Ohio's 88 counties in 2018, with these scores specific to Ohio and with each county only ranked against other Ohio counties. While the most vulnerable Ohio counties are dispersed throughout the state, it is noteworthy that there is a sizable clustering of vulnerable counties in Southern Ohio. These counties make up the southernmost part of Ohio's Appalachian region, which is a region running along the Eastern and Southern border of the state. Additionally, out of the ten counties with the highest percentage of individuals with a disability (highlighted in orange), six are the among the top 25% most vulnerable counties in the state (Scioto, Pike, Adams, Vinton, Meigs, and Gallia). The intersection of acute social vulnerability and high prevalence rates of disability is particularly concerning, as it indicates that communities with some of the largest relative needs for higher quality and more equitable healthcare are facing social and economic barriers that will make reaching these goals even more challenging.

Figure 4: Social Vulnerability Index Scores by County (2018)



Two of the subthemes of the SVI capture structural and environmental factors that may influence access to healthcare and health outcomes for Ohio adults with disabilities – socioeconomic status and housing type and transportation. Figure 5 shows scores for the socioeconomic status (SES) theme, which aggregates estimates of the share of the population below the poverty line, unemployed, and without a high school diploma, as well as the per capita income in the county. The ten counties with the highest percentage of individuals with a disability are highlighted in orange. Similar to the overall SVI score, a higher SES score indicates more socioeconomic vulnerability. From this data it is evident that socioeconomic vulnerability is concentrated in the Southeast Appalachian area of the state, and that high disability prevalence co-occurs with socioeconomic disadvantages. Among the ten counties with the highest disability prevalence, nine are in the top 25% most socioeconomic vulnerable counties.

Figure 5: Socioeconomic Vulnerability by County (SVI 2018)

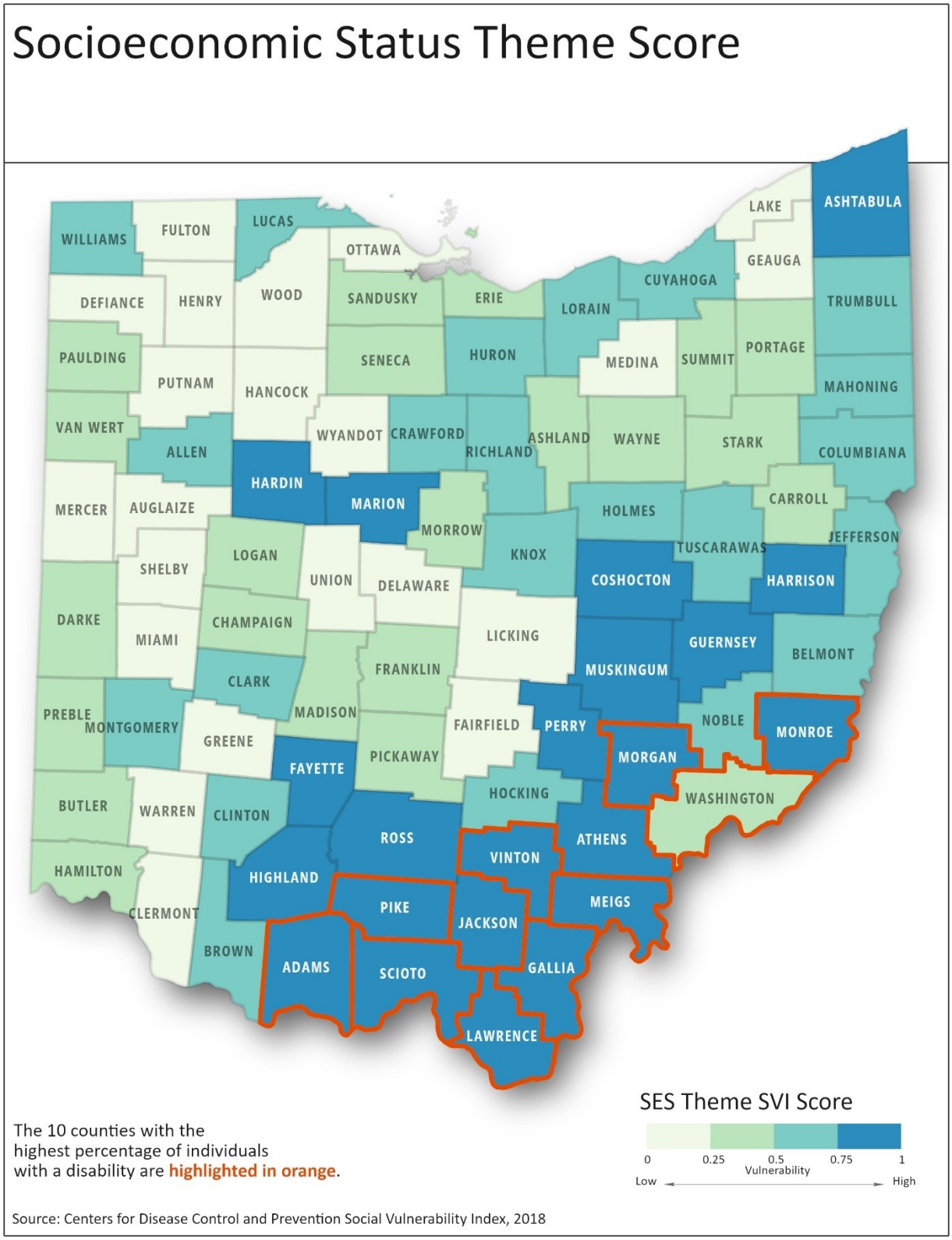
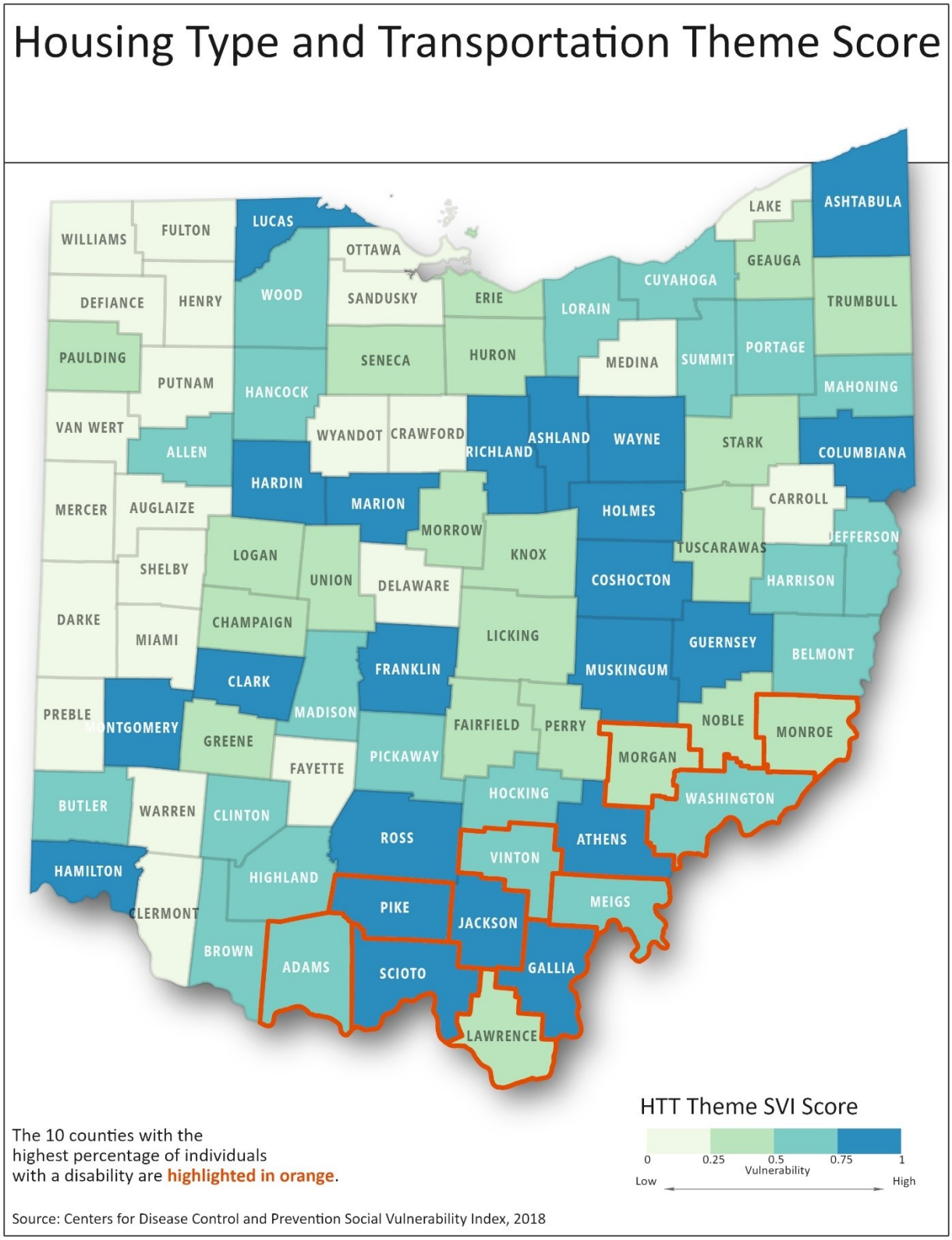


Figure 6 shows county scores for the housing type and transportation theme (HTT), which aggregates estimates of the number of mobile homes and multi-unit housing structures, the share of the population living in group quarters and of households without a personal vehicle, and of overcrowded housing (measured by households with more people than rooms) in a county. Similar to the overall SVI and SES theme scores, a higher HTT indicates more housing and transportation vulnerability. Unlike with socioeconomic vulnerability, housing and transportation vulnerability is less geographically clustered in one part of the state and seems to be an obstacle in both some of the large metropolitan counties and some of the more rural counties. Among the ten counties with the highest disability prevalence, three are in the top 25% most vulnerable counties for housing and transportation.

Figure 6: Housing and Transportation Vulnerability by County (SVI 2018)

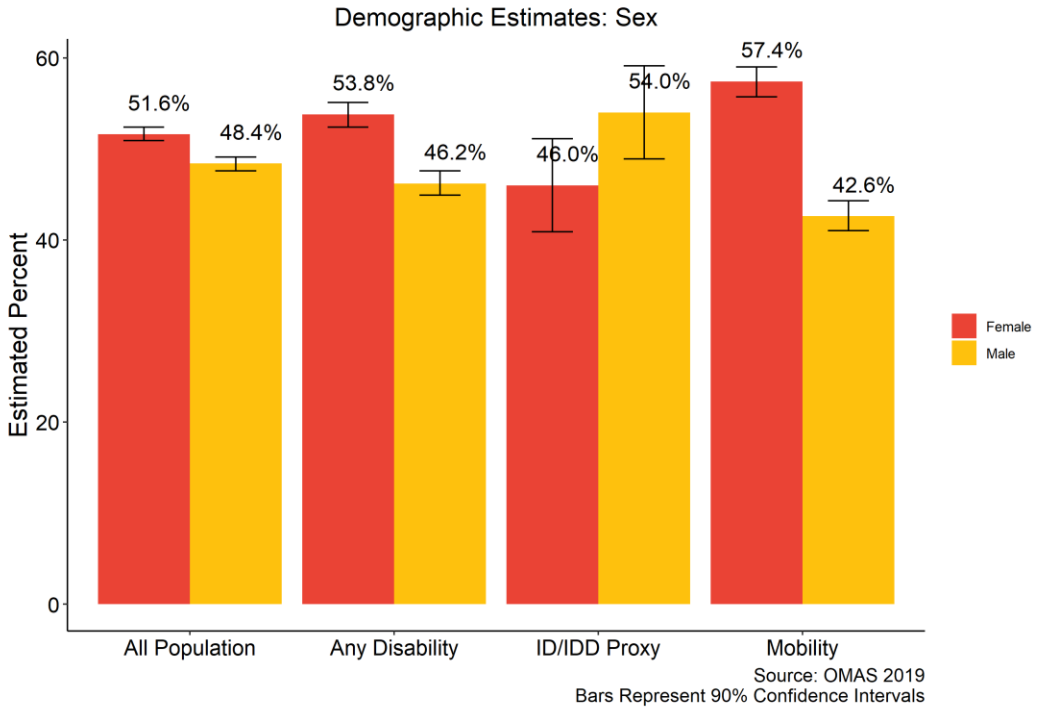


Demographics

Demographics of Ohio Adults with Disabilities

Using the 2019 OMAS, we estimate the demographic makeup of Ohio adults with disabilities. While the general Ohio population is estimated to be slightly more female than male (51.6% vs. 48.4%, respectively), the sex makeup of Ohio adults with disabilities and specifically Ohio adults with mobility limitations are estimated to be even more substantially skewed toward females (Figure 7). We estimate that 53.8% of Ohio adults with a disability are female, and 57.4% of Ohio adults with a mobility limitation are female. From the OMAS estimates, we find that there are no substantial differences in the sex makeup of Ohio adults with ID/IDD. However, from the National Core Indicators (NCI) we estimate that there are substantially more Ohio adults with IDD who are male – an estimated 60% are male and 40% are female (Figure 61 in Appendices).

Figure 7: Sex[12] Breakdown of Ohio Adults with Disabilities



Both in the general Ohio population and across disability subgroups, the majority of adults are White (Figure 8). About 19.6% of Ohio adults with disabilities are Black, Indigenous, and People of Color (BIPOC), which is comparable to estimates in the general population. From the NCI, we estimate that about 76% of adults with IDD are White (Figure 62 in Appendices), which is comparable to estimates from OMAS. The Ohio adult population with IDD is more White than

[12] We use the term "sex" to describe this demographic characteristic because the OMAS 2019 survey question options are "male", "female," or "other." However, the question itself asks respondents about their "gender." This incorrect conflation of gender and sex may create some error in measurement.

the national population with IDD, which is about 67% White, and less Hispanic/Latino (2% in Ohio) than the national population with IDD (10%).[13]

Figure 8: Race Breakdown of Ohio Adults with Disabilities

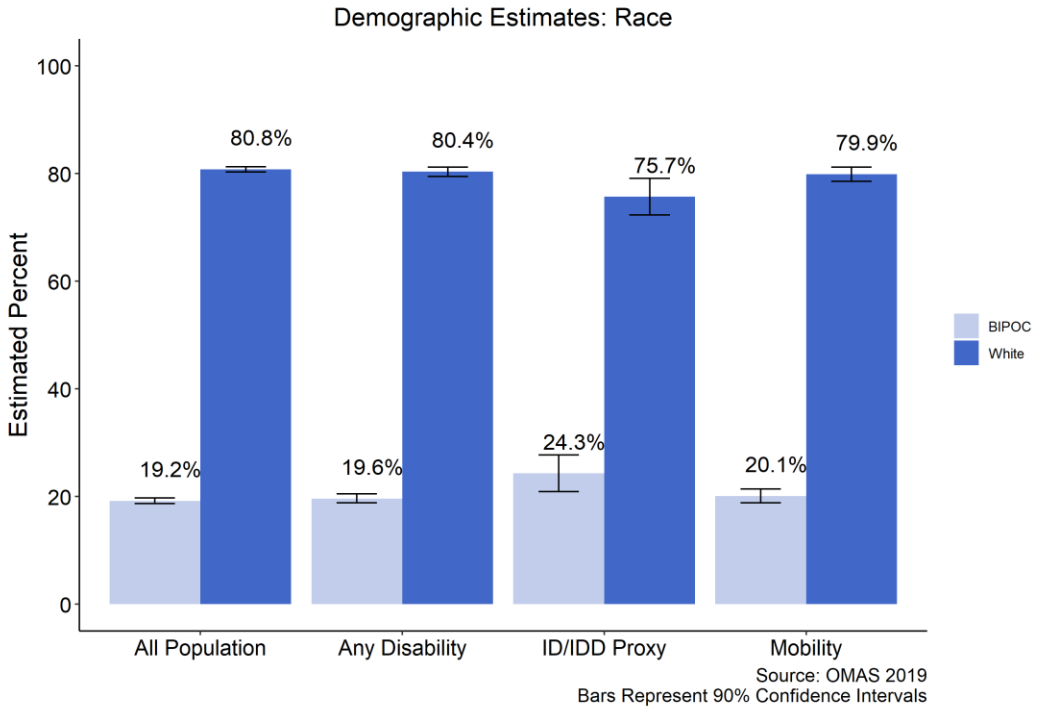
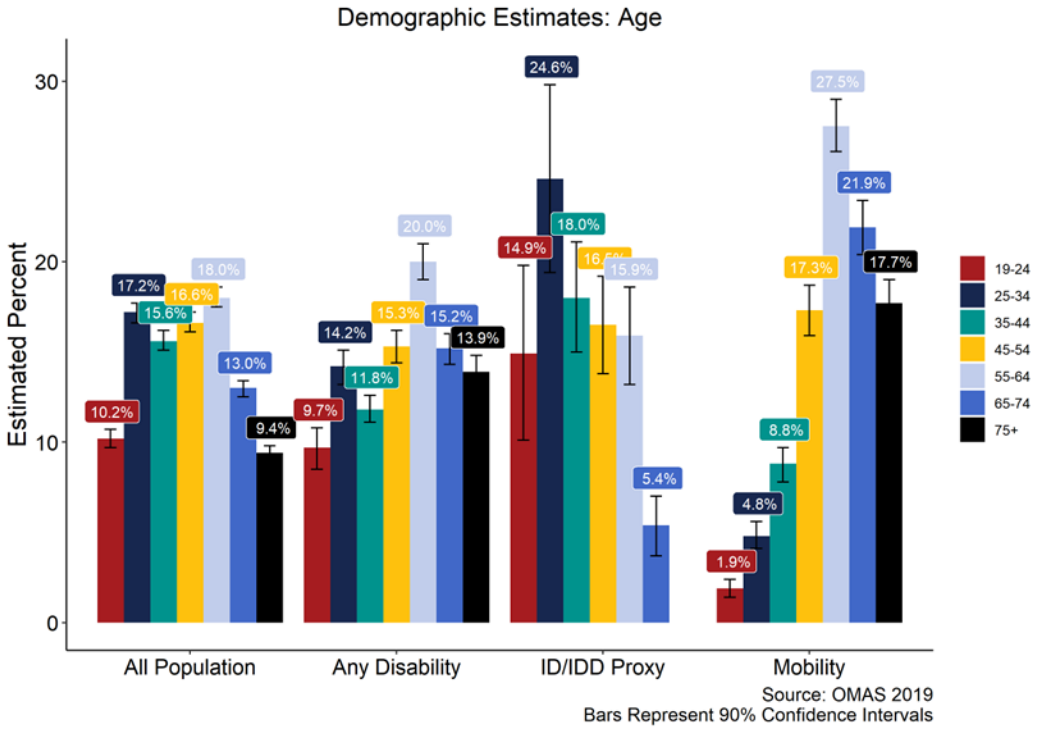


Figure 9 shows the age breakdown of Ohio adults with disabilities. The general population approximately follows a normal distribution, while the other three subgroups shown exhibit skewed distributions. Ohio adults with disabilities are estimated to be older than the general population, with about 49% of adults with disabilities over the age of 55. An even more severe skew is evident among the subpopulation of adults with mobility limitations, where all but 15.5% of the population are over the age of 45. Among the ID/IDD group, estimates are less precise due to small sample sizes, but about one-in-four adults are between the ages of 25 and 34, and about 57.5% are under the age of 45. Estimates from the NCI are similar, with about 40% of adults with IDD between the ages of 18 and 34, and another one-in-three between the ages of 35 and 54 (Figure 63 in Appendices).

[13] https://www.nationalcoreindicators.org/charts/2017-18/?i=100&st=OH

Figure 9: Age Breakdown of Ohio Adults with Disabilities

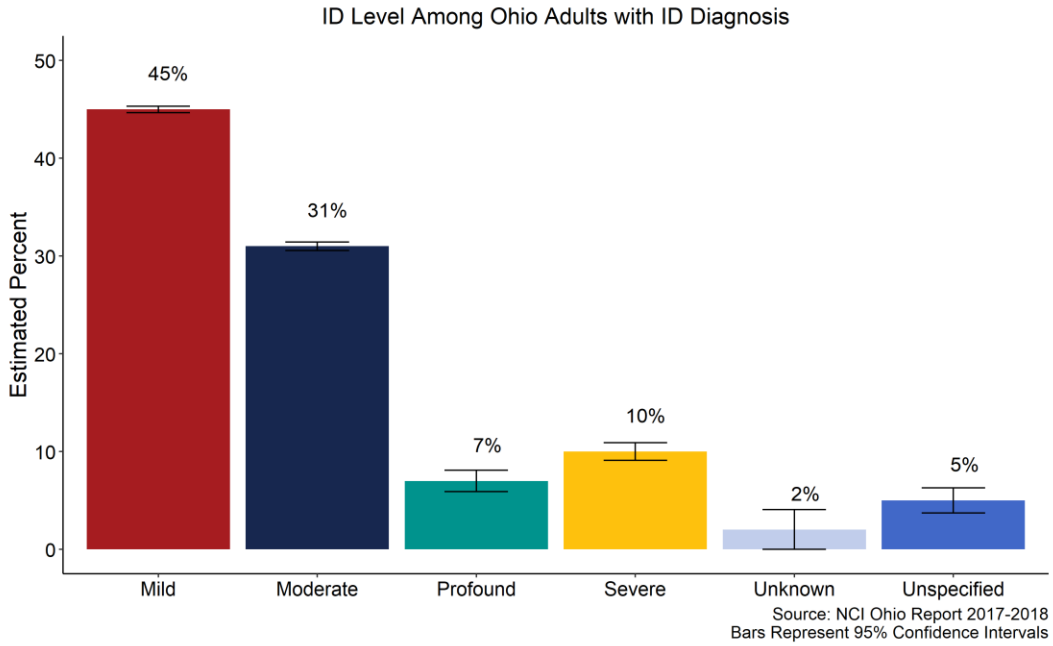


Demographics of Adults with IDD (NCI)

The NCI provides additional demographic information specific to Ohio adults with IDD. We estimate that 88% of Ohio adults with IDD have an intellectual disability diagnosis (Figure 64 in Appendices). Figure 10 shows estimates for the level of intellectual disability among those with an ID diagnosis. An estimated 45% of adults with an ID diagnosis have mild ID, with about another 31% having moderate ID. Seven percent of adults with an ID diagnosis are estimated to have profound ID, and 10% are estimated to have severe ID. The Ohio adult IDD population has slightly higher rates of mild ID than the national adult IDD population (45% vs. 41%, respectively) and slightly lower rates of severe ID than the national population (10% vs. 13%).[14]

[14] https://www.nationalcoreindicators.org/charts/2017-18/?i=107&st=OH

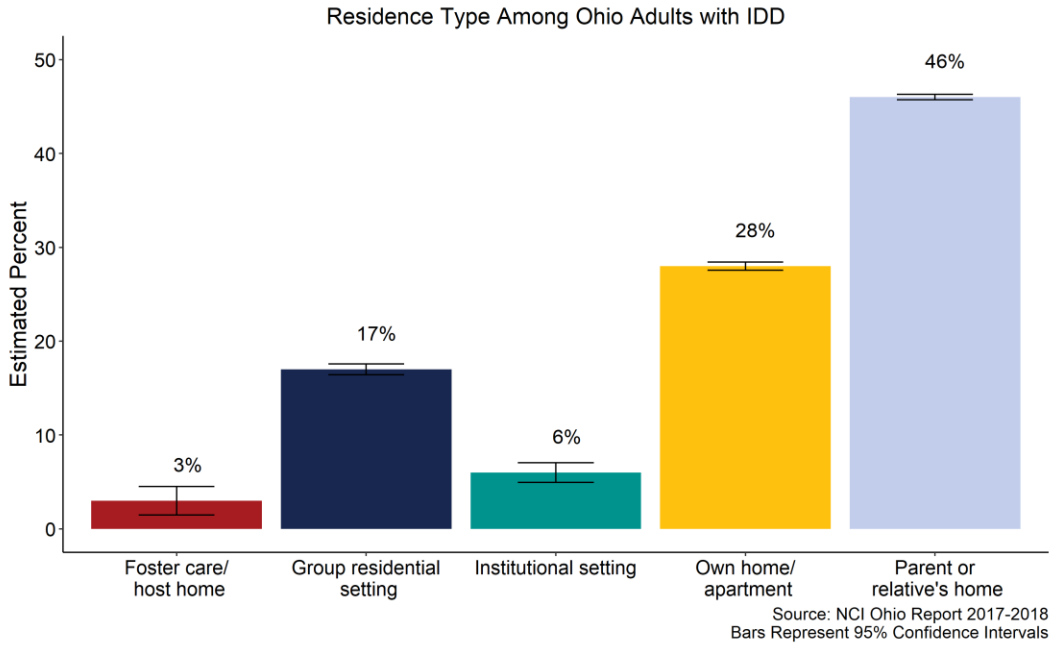
Figure 10: ID Level Among Adults with ID Diagnosis



The NCI also collects information about residence type and length of residence. Figure 11 shows that nearly half of Ohio adults with IDD live in a parent or relative's home (about 46%), and nearly three-in-ten live in their own home or apartment (about 28%). These proportions are both higher than the national averages, where 40% of adults with IDD live in a parent or relative's home and just 18% live in their own home or apartment.[15] In contrast, Ohio adults with IDD live in group residential settings at much lower rates than in other parts of the country - 17% in Ohio versus 32% nationally. Six percent of Ohio adults with IDD live in an institutional setting, and about 3% live in foster care or a host home, rates that are comparable to the national averages.

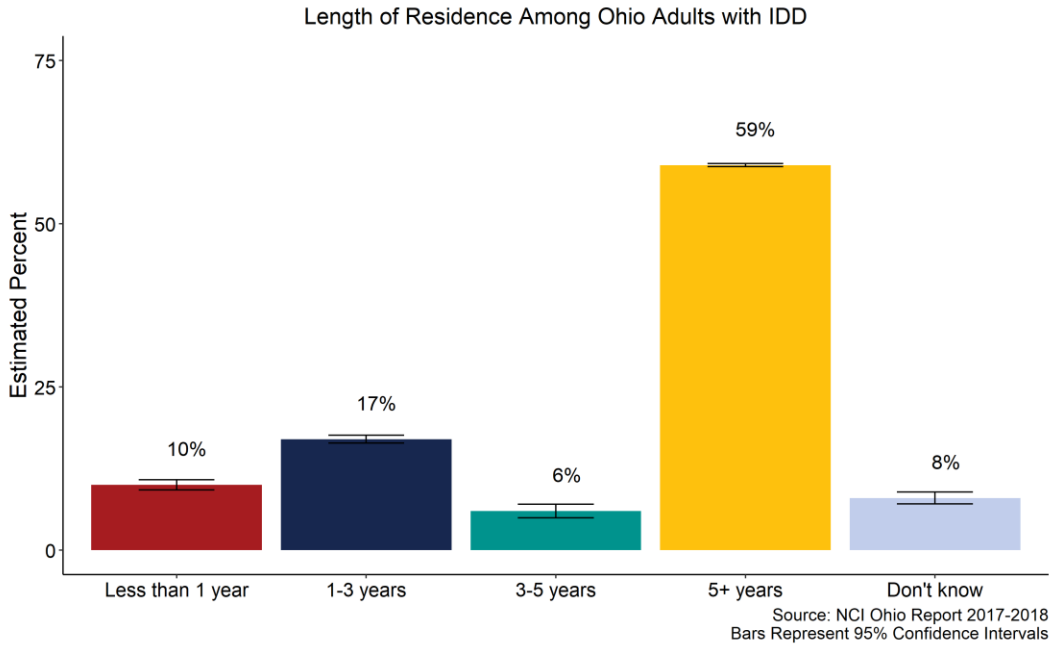
[15] https://www.nationalcoreindicators.org/charts/2017-18/?i=152&st=OH

Figure 11: Residence Type Among Ohio Adults with IDD



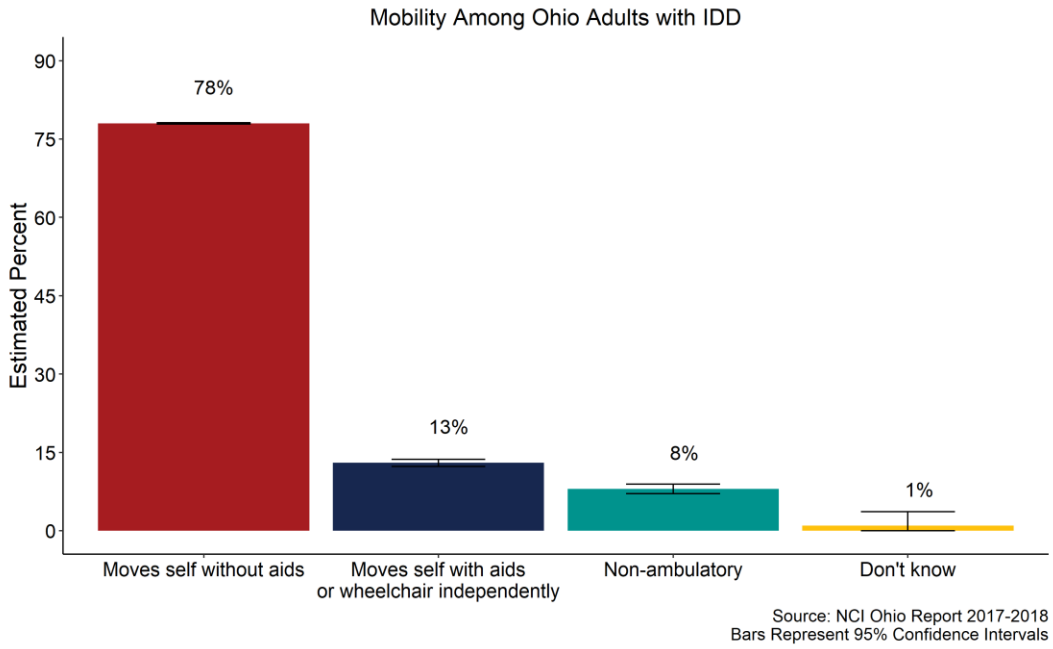
While the majority of Ohio adults with IDD are estimated to have lived in their residence for five or more years (59%), more than one-in-four (27%) lived in their residence for less than three years (Figure 12).

Figure 12: Length of Residence Among Ohio Adults with IDD



When it comes to ambulation, an estimated 78% of adults with IDD move themselves without the use of mobility aids, about 13% move themselves with aids or wheelchair independently, and another 8% are not ambulatory (Figure 13).

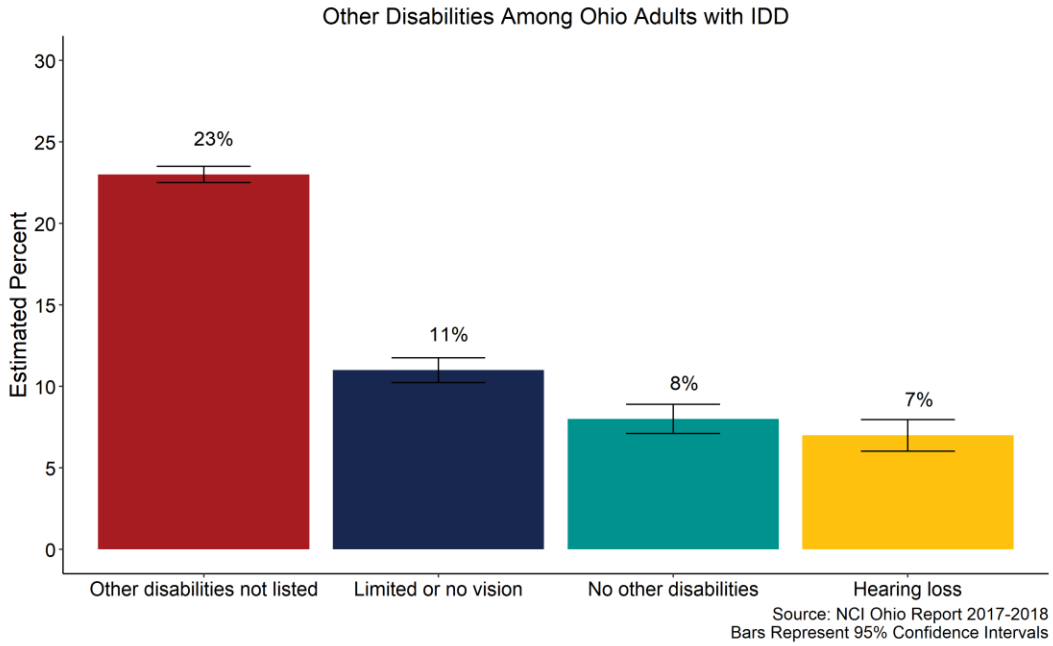
Figure 13: Mobility Among Ohio Adults with IDD



In addition to their ID/DD diagnosis, 11% of adults with IDD are estimated to have limited or no vision and 7% are estimated to have hearing loss (Figure 14). Twenty-three percent of Ohio adults with IDD reported having other disabilities (specific disabilities were not listed), which is slightly higher than the national estimates of 17%.[16]

[16] https://www.nationalcoreindicators.org/charts/2017-18/?i=182&st=OH

Figure 14: Other Disabilities Among Ohio Adults with IDD



Social Assessment

Listening Session Participant Demographics

Thirty Ohio adults with disabilities participated in our listening session conversations about healthcare experiences in Ohio. Ten participants self-identified as adults with IDD, 10 as adults with mobility limitations, and 10 as adults with sensory disabilities (including Deaf and hard of hearing and Blind low vision). Three of the 30 individuals participated in the listening session held in Spanish.

The age of participants ranged from 19 years to 70 years old with an average age of 33 years old. Participants were from most regions of Ohio, including Northwest, Northeast, Central, and Southwest. Most participants were from either Central Ohio (9 participants) or Northwest Ohio (7 participants). No participants were from Southeast Ohio.

Table 3 shows that most of the participants identified as women and Table 4 shows that most participants identified as non-Hispanic White. Additionally, through conversation in the listening sessions, a few individuals self-identified as members of the LGBTQIA+ community (note that this information was not collected from all participants, so the exact number of participants that identify as part of the LGBTQIA+ community is unknown).

Table 3: Gender Identity of Listening Session Participants

Gender Identity	Number of Participants
Women	22
Men	8

Table 4: Race/Ethnicity of Listening Session Participants

Race/Ethnicity	Number of Participants
White	22
Black	3
Hispanic	3

Across the seven groups of listening session conversations, a total of 496 quotes were coded in the analysis.

What are the Priority Health Needs of Ohio Adults with Disabilities?

The top three health topics that emerged during discussion among the listening session participants, out of 157 quotations that emerged around different health topics, were: 1) mental health, 2) healthy lifestyle, and 3) dental care. Table 5 describes the density of quotations around these top three health topics and an example of a representative quote from each topic.

Table 5: Top Three Health Topics Discussed during the Listening Sessions

Topic	Number of Quotations	Example Quote
Social Assessment	44	*"It's a very complicated system, first of all. It's very hard to find somebody that is willing to take you with dual diagnosis. And for me, I have some - not only mental health issues, I have trauma...I am a victim of child abuse and domestic violence. It sometimes does play into my mental health, if there are certain triggers, or certain scenarios. It's just very hard to find a doctor who will A) take your insurance because I have Medicaid and Medicare B) be willing to work with someone with DD, and C) can see me on a consistent basis."*
Healthy lifestyle	28	*"Healthcare for me is a basic combination of what everyone has said. It's being healthy, it's being healthy mentally, physically, emotionally, spiritually, just your overall well-being."*
Dental care	16	*"I will pick the ... [negative health care experience] I have the biggest beef with, and [it's] because Medicaid only covers one dental cleaning a year, [and] I have a dexterity problem with my left hand because of my disability. So, no matter how much I floss or try to floss, no matter how I brush or what I do...I am on medicine for epilepsy, which affects my gums...So, the dental hygienist comes in and says, 'You're not taking care of your mouth well enough.' I said, 'I'm doing the best I can.' She said, 'You need a deep root cleaning.' I said, 'No, you are going to do what my insurance covers.' She said, 'No, I can't ethically do that.' I said, 'Well if you want to do a deep root cleaning, you are going to have to find a way to make it work.' She said, 'No. Here's how we are going to make it work.' She hands me a CareCredit card application. I had to finance - because they do it in quadrants... I had to finance four cleanings, even though I try to take care of my mouth, okay. And I'm on a limited income. So, to cover my expenses plus paying payments [with] about 28% interest on a credit card, excuse me is, a bunch of bunk. I hate going to the dentist because I keep hearing the same crap over and over and over. If Medicaid would cover more than one cleaning a year, then this would not have happened or happened at all. If you can imagine...your mouth, it's connected to so many other parts of your body. So, if Medicaid would cover more than one cleaning, in the end they could be saving thousands of dollars on other health issues that could come about because someone doesn't get adequate dental care. So, you can tell how angry I am."*

Of note, while the topic of mental health emerged as a priority health topic across all listening session groups, this topic was most often discussed in the IDD and mobility limitation groups. Furthermore, healthy lifestyle was most frequently discussed in the sensory disability listening session group and dental care was most frequently discussed among the mobility limitation and IDD groups.

What are the Gaps and Barriers to Accessible Preventive Healthcare?

During the listening session conversations, we asked participants key questions around access to care, accessibility of health appointments, and financial factors related to healthcare.

For conversations around access to care, 291 quotations emerged. The top three topics that were discussed were 1) examples of being denied an accommodation or receiving an insufficient accommodation during a healthcare experience, 2) explaining situations that resulted in unmet health needs, and 3) explaining how having a disability has limited options for care. Table 6 describes the density of quotations around these top three access to care topics and an example of a representative quote from each topic.

Table 6: Top Three Access to Care Topics Discussed during the Listening Sessions

Topic	Number of Quotations	Example Quote
Denied accommodation or insufficient accommodation	42	*"My issue is I can't physically use the normal call button they have in the room. So, I have to literally ask them to get the ones that I can blow into for me to call for the nurse. But I have to fight for it and tell them where to get it before it is even brought into my room. Because they don't even know it exists, where it is, is or even how to attach it. It's a fight every time."*
Unmet health needs	35	*"I haven't had a proper physical in about 10-15 years. That's because when I go in there, I can't - they don't have equipment to help me get onto a bed for the exam."*
Limited options for care	26	*"It's also hard to find providers that take your insurance and know about your disability."*

Again, while these three topics emerged across all listening session groups, there were some notable patterns observed. First, discussions around being denied accommodations or receiving insufficient accommodations were most frequently discussed among the mobility limitation listening session groups followed closely by the sensory disability listening session groups. Next discussions around unmet health needs were most frequently discussed by participants in the Spanish and mobility limitation groups. Finally, discussions around experiences with limited options for care due to disability status was most frequently discussed by the IDD group followed closely by the mobility limitation group.

Other notable topics of conversations that emerged during the listening sessions when discussing access to care include:

- The importance of having a good relationship with a healthcare provider to maintaining good health (26 quotes)
- Transportation being a barrier to getting to health appointments (24 quotes)

- Commenting on providers lack of knowledge about accommodations and how to make them (21 quotes)
- Being denied care because a healthcare provider would not accept a person with a disability or refused treatment the individual with a disability requested (15 quotes)
- Continuity of care and establishing a long-term relationship with a provider is a facilitator to good health outcomes (11 quotes)

For conversations around accessibility, 126 quotations emerged. The top three topics that were discussed were 1) barriers around physical accessibility, 2) barriers around equipment accessibility, and 3) barriers resulting from documents or other forms of communication not being in plain language. Table 7 describes the density of quotations around these top three accessibility topics and an example of a representative quote from each topic.

Table 7: Top Three Accessibility Topics Discussed during the Listening Sessions

Topic	Number of Quotations	Example Quote
Physical accessibility barriers	32	*"Too small of rooms for power wheelchairs, everybody, everywhere, even in new facilities. It's not big enough even if they take out a chair or two. You can't turn around because you hit the table that they insist on keeping at an angle. The footstep that they have out on every single table would be pushed in to make a little more room, but they don't ever think about doing that before you enter the room. Or taking the chairs out."*
Equipment accessibility barriers	18	*"When asked about a mammogram, I was told that I could not get one because I physically cannot stand. They wouldn't even offer [alternatives] to get it done. So, they told me that they would take preventative measures, or reactive measures rather than doing the test and taking the preventative measure"*
Documents or communication not in plain language barriers	12	*"Nothing is ever in plain language."*

Of note, both physical and equipment accessibility barriers were discussed most frequently among mobility limitation listening session groups and barriers around documents or communications not being in plain language were only discussed among IDD and sensory disability groups (at a similar proportion).

For conversations around financial factors, 76 quotations emerged. The top three topics that were discussed were 1) insurance coverage being a barrier to care, 2) Medicaid insurance, and 3) cost of care barriers. Table 8 describes the density of quotations around these top three financial factor topics and an example of a representative quote from each topic.

Table 8: Top Three Financial Factor Topics Discussed during the Listening Sessions

Topic	Number of Quotations	Example Quote
Insurance coverage barrier	27	*"Well, unfortunately the insurance I have, they only have one provider allowed for dental. When you are only allowed one provider, you can't go out and find somebody else. That's the trap I'm in. I mean, I can only say so much in the dentist office before the dentist will say, you are no longer a patient of mine."*
Medicaid insurance	22	*"How many times can I say the word? Medicaid, Medicaid, Medicaid, Medicaid, Medicaid, Medicaid, Medicaid. It needs fixed!"*
Cost of care	15	*"I've had a problem with co-pays and stuff since I got my second insurance and then my eye doctor's bill went up, my copay for that went from $3 to $24. And then my dentist went from $0 to $60. So sometimes it's hard to get the money when your insurance doesn't want to pay for things, let alone when you get a secondary insurance, too."*

Barriers around insurance coverage were equally discussed among all listening session groups, with the IDD group raising this as an issue slightly more than the other groups. Similarly, cost of care was slightly more of a concern among the Spanish group.

Epidemiological Assessment

In this section we present survey-weighted estimates of the prevalence of various healthcare access and health outcomes for Ohio adults in each disability subgroup as well as for Ohio adults without disabilities. Data comes from OMAS 2019, Behavioral Risk Factor Surveillance System (BRFSS) 2020, and NCI 2017-2018. For outcomes that were present in both OMAS 2019 and BRFSS 2020, we prioritized the use of OMAS data for estimates due to its larger sample size. When presenting findings using BRFSS data, we address state-national comparisons using age-adjusted BRFSS U.S. estimates from the CDC's DHDS where available. In each section, we also present estimates from NCI for Ohio adults with IDD and note any areas of national difference using the NCI U.S. estimates.

There are a few outcomes for which estimates for the ID/IDD proxy subpopulation in the OMAS data and the IDD population from the NCI data differ substantially, which we note. This may be due to different measurement of ID/IDD (the former being survey-reported co-occurrence of cognitive and developmental disabilities and the latter being receipt of services from the state DD system), sampling frames (the former being non-institutionalized adults in the state and the latter being adults receiving case management and other services from the state DD agencies; additionally, the latter does not include data for 18 of Ohio's Southeast counties), risk-

adjustments (the former being unadjusted and the latter adjusted for a few demographic factors, discussed in the Data Sources section), response rates (the former had an American Association of Public Opinion Research (AAPOR) Response Rate #4 of 22.2%, the latter had a response rate of 1.9%), and estimation (the former using weight adjustments, including nonresponse adjustment and calibration to known population totals).

The prevalence estimates using OMAS or BRFSS data presented in this section are neither age-adjusted nor control for any other demographic factors, so they represent the crude prevalence of these outcomes among each subpopulation (however, note that NCI estimates are risk-adjusted as aforementioned). This means that we are not able to determine whether disability is the only or main driver of the prevalence of any particular outcome, as there are likely many other confounding factors. To address this limitation, in the final section of the epidemiological assessment we examine prevalence rate ratios between Ohio adults with and without disabilities that control for age, sex, race, and county (for OMAS models).

The outcomes presented in the body of the report are a selection from the more expansive set of outcomes that were evaluated, the remainder of which can be found in the Appendices. The outcomes presented in this section highlight some of the areas of health and access to care where the magnitude of prevalence is especially high or there are noteworthy differences between disability subpopulations.

Engagement with Preventive Healthcare and Healthcare Utilization

Ohio adults with disabilities seem to be engaging in preventive healthcare and healthcare utilization at rates comparable to adults without disabilities. This is the case for doctor visits, regular checkups, flu vaccines, and many cancer screenings. However, dental care is an area where prevalence rates differ substantially between adults in disability subgroups and adults without disabilities. Ohio adults without disabilities visited the dentist in the last year at rates that were approximately 20 percentage points higher than adults with cognitive or mobility limitations. Additionally, a plurality of Ohio adults with IDD received dental care just once per year, and biannual dental care rates are lower in Ohio among this population as compared to the national average. These findings indicate that, while engagement in preventative healthcare and general healthcare utilization are areas of modest equality for Ohio adults with disabilities, regular dental care is still an obstacle for this population and should be an area of focus. We discuss specific prevalence rates for preventative care and healthcare utilization next.

Engagement with Preventive Care

Generally, adults with disabilities got routine check-ups once per year. Figure 15 shows that about four-in-five adults with ID/IDD had a routine check-up in the last year, which is comparable to prevalence rates for adults without disabilities. Nearly 90% of adults with mobility limitations had a check-up within the last twelve months.

Figure 15: Last Routine Check-Up

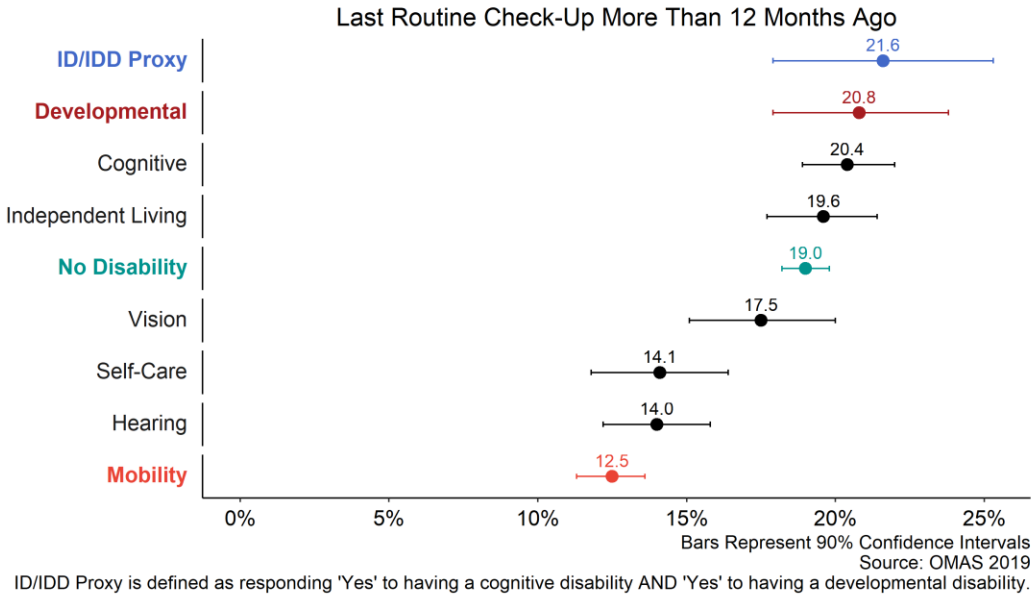


Figure 16 shows that the majority of adults with mobility limitations or cognitive limitations who were between the ages of 50 and 75 had a colonoscopy within the last ten years (about 67.3% and 64.7%, respectively). These rates are comparable to adults in this age group who do not have a disability (66.7%). There are no substantial differences for Ohioans aged 50-75 with cognitive or mobility limitations, as compared to these subpopulations nationally, when it comes to having an up-to-date colorectal cancer screening (Figure 117 in Appendices).

Figure 16: Colonoscopy Within 10 Years

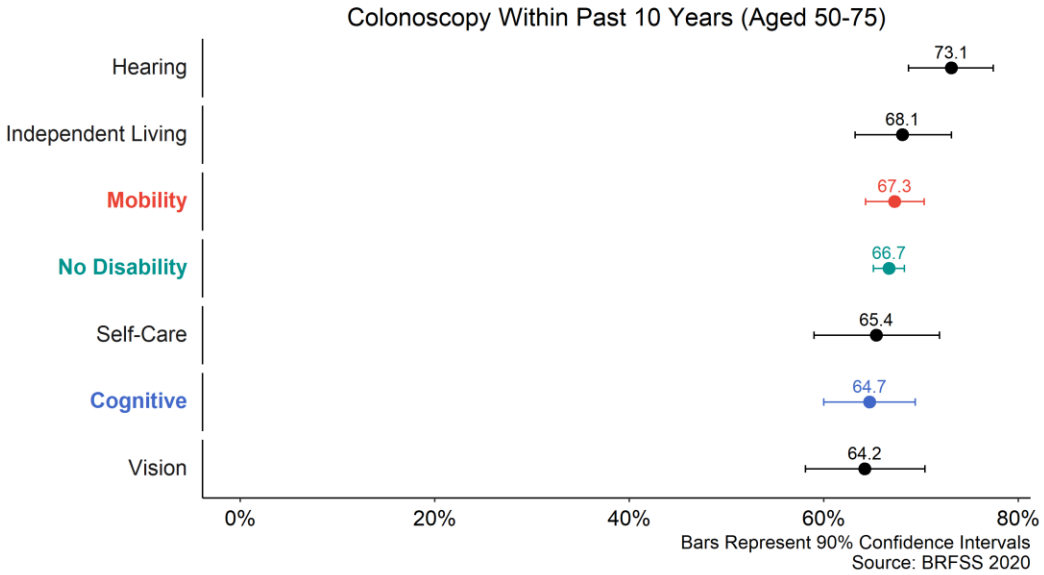


Figure 17 shows that while a majority of women between the ages of 18 and 65 who have a cognitive limitation had received a pap smear test in the last three years (an estimated 62.2%), which is comparable to estimates for women in this age range without a disability (63.1%), women with mobility limitations received pap smear tests at a much lower rate. Only about 32% of women 18-65 years old with mobility limitations had received a pap smear test in the last three years. This relatively low rate of pap smear tests among women with mobility limitations may be reflective of some of the physical and equipment accessibility challenges that listening session participants discussed. There are no substantial differences for Ohio women aged 21-65 with cognitive or mobility limitations, as compared to these subpopulations nationally, when it comes to having an up-to-date cervical cancer screening (Figure 118 in Appendices).

Figure 17: Pap Smear Within 3 Years

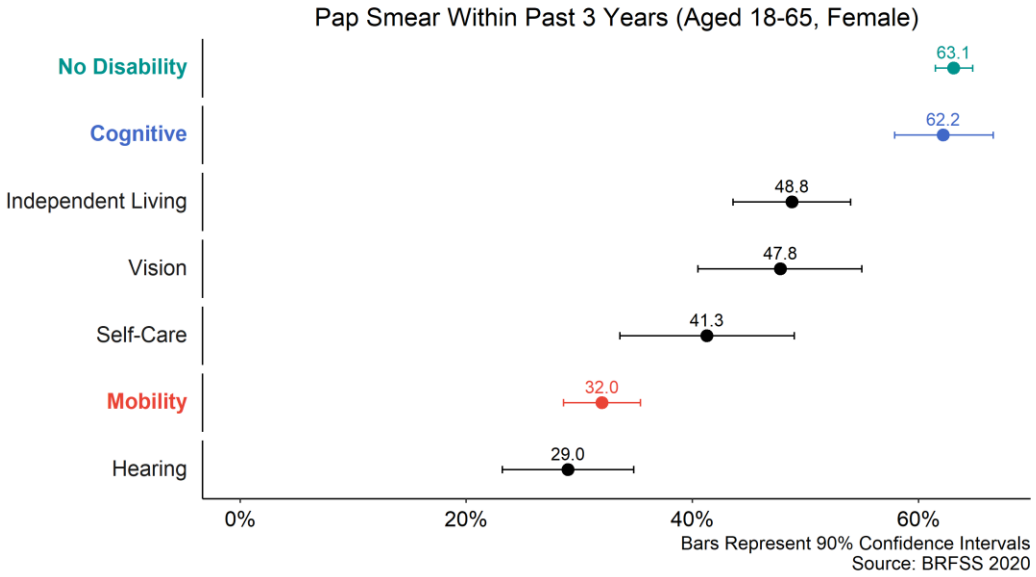
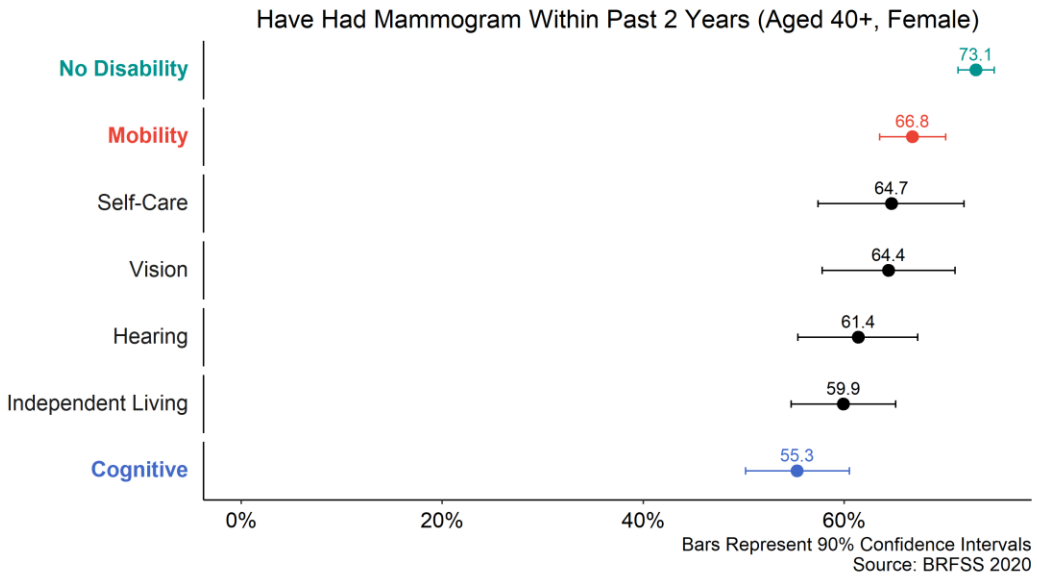


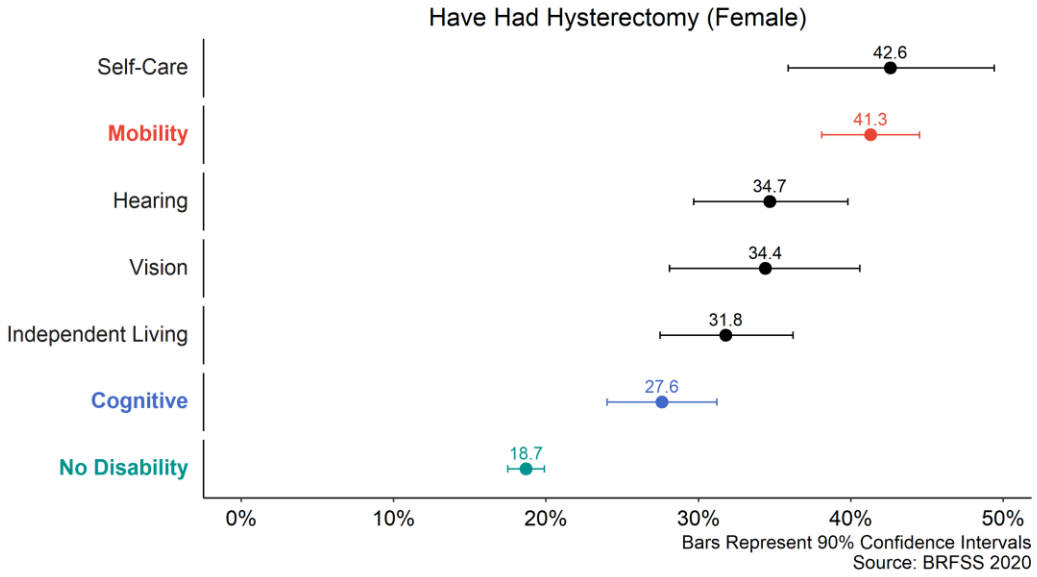
Figure 18 shows that while a majority of all women over the age of 40 had received a mammogram in the last two years, prevalence is substantially higher for women with mobility limitations than for women with cognitive limitations. An estimated 66.8% of women aged 40 or older with a mobility limitation had received a mammogram in the last two years, while only 55.3% of women in this age group with a cognitive limitation had received one. Both estimates are substantially lower than the estimated proportion of women without a disability who had received a mammogram in the last two years – 73.1%. There are no substantial differences for Ohio women aged 50-74 with cognitive or mobility limitations, as compared to these subpopulations nationally, when it comes to having a mammogram in the past two years (Figure 119 in Appendices).

Figure 18: Mammogram Within 2 Years



Rates of hysterectomy are substantially higher among women with mobility limitations or cognitive limitations than women without disabilities. Figure 19 shows that an estimated 41.3% of women with a mobility limitation and 27.6% of women with a cognitive limitation had a hysterectomy. In comparison, only about 18.7% of women without disabilities had a hysterectomy in their lifetime. Note that these estimates are not age-adjusted and therefore age-related reasons for hysterectomy may contribute to these differences. However, given the history of sterilization of women with disabilities in the United States, further research should investigate determinants of the different rates of hysterectomies among women with and without disabilities in Ohio.

Figure 19: Hysterectomy



Engagement with Preventative Care Among Adults with IDD (NCI)

The NCI surveys adults with IDD about their engagement with preventative care, including their most recent cancer screenings and exams. Figure 20-Figure 23 show estimates for the proportion of adults with IDD who received various cancer screenings or exams within the recommended time period, which varies depending on the screening or exam type.

Guidelines for breast cancer screenings vary depending on age, but generally mammograms are recommended every 1-2 years.[17] The majority of women with IDD in Ohio are meeting these guidelines – Figure 20 shows that an estimated 57% of women with IDD over the age of 40 received a mammogram within the past year, and another 20% received a mammogram within the past two years.

[17] Guidelines for mammograms for women with DD: https://dodd.ohio.gov/wps/wcm/connect/gov/cf4e6f07-516b-4990-9f70-933dbb5340b0/Health+Screening+Recommendations.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-cf4e6f07-516b-4990-9f70-933dbb5340b0-m.ENsj7
Guidelines for mammograms for women with IDD: https://shriver.umassmed.edu/wp-content/uploads/2020/07/MA-DDS-health-screening-brochure_2019_final.pdf

Figure 20: Breast Cancer Screening Among Ohio Women (Age 40+) with IDD

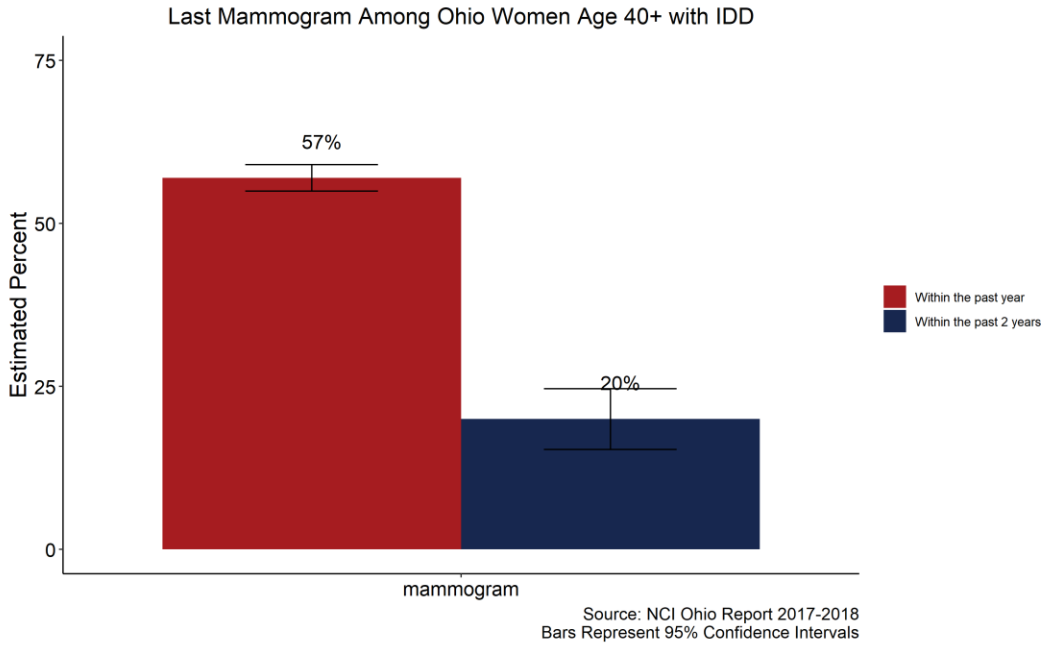


Figure 21 shows estimates for pap smear tests among women over the age of 21 with IDD. Guidelines for the frequency of pap smear tests are somewhat more complicated than other cancer screenings due to the option of a human papillomavirus (HPV) test as an alternative, but generally women between the ages of 19 and 65 are recommended to receive a pap smear test every three years.[18] While the majority of women in Ohio with IDD meet this guideline, and 42% reported receiving a pap smear test in the last year (which is higher than the national average of 35%),[19] it is noteworthy that an estimated 21% of women with IDD over the age of 21 have never received a pap smear test.[20] This estimate is lower than the national average of 27%.

[18] Guidelines for cervical cancer screening for women with IDD: https://shriver.umassmed.edu/wp-content/uploads/2020/07/MA-DDS-health-screening-brochure_2019_final.pdf
Guidelines for cervical cancer screening for women in the general population: https://www.cancer.gov/news-events/cancer-currents-blog/2020/cervical-cancer-screening-hpv-test-guideline#:~:text=ACS%20recommends%20cervical%20cancer%20screening,Pap%20test%20every%203%20years.
[19] https://www.nationalcoreindicators.org/charts/2017-18/?i=69&st=OH
[20] Ohio's NCI sample for last pap test had at least 25% missing data; therefore, this estimate should be interpreted with caution as it may not accurately represent the population.

Figure 21: Cervical Cancer Screening Among Ohio Women (21+) with IDD

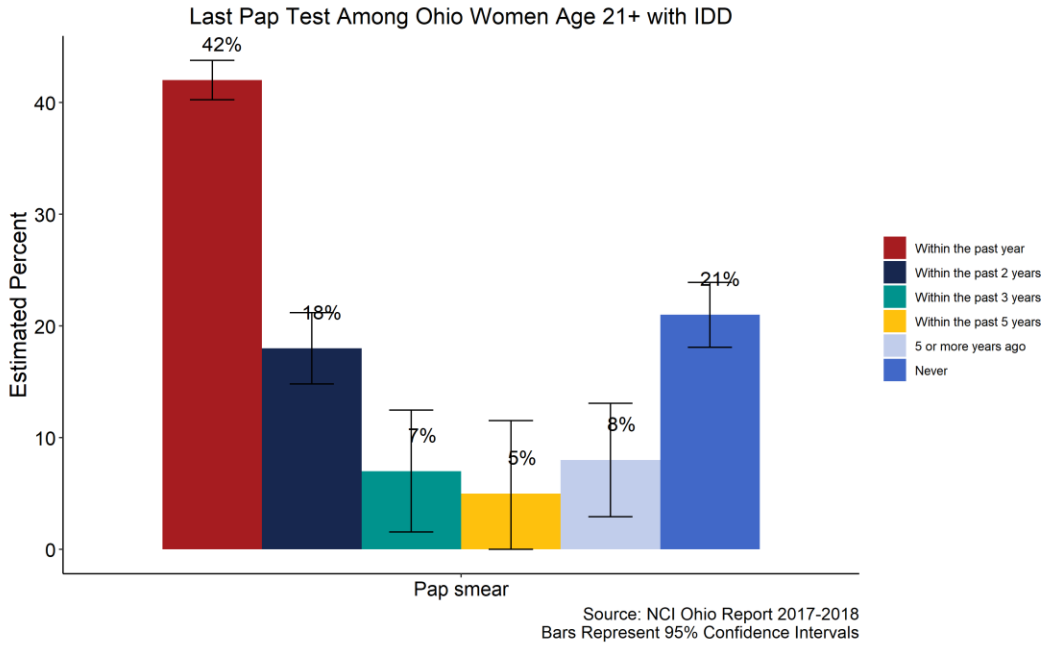


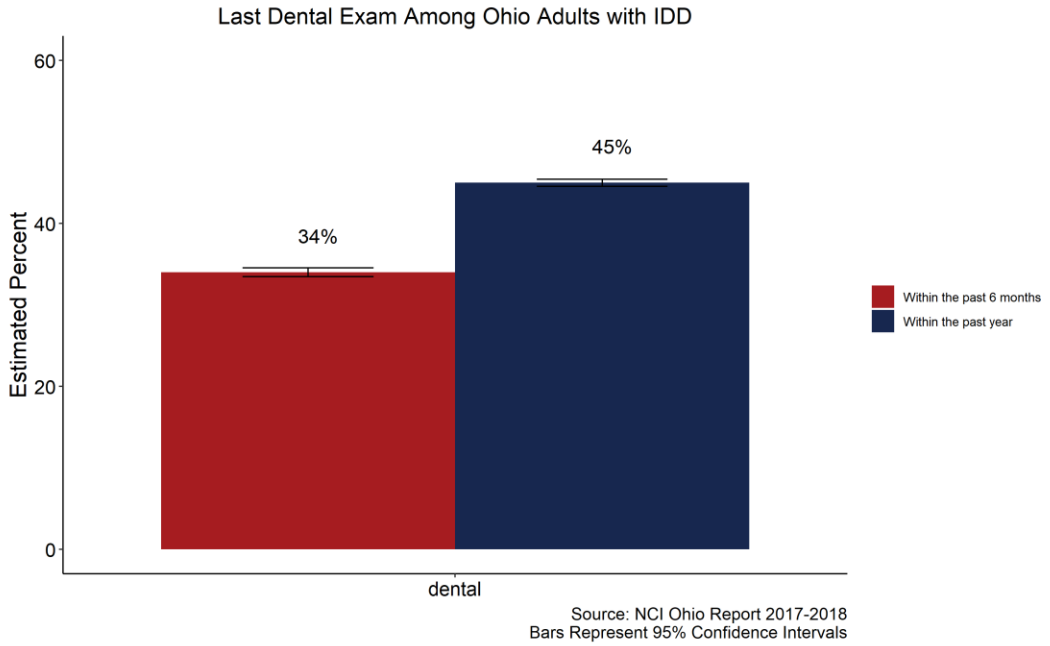
Figure 22 shows that about one-in-three (34%) Ohio adults with IDD had their last dental exam within the past 6 months, which is substantially lower than the national average (50%).[21] Another 45% of Ohio adults with IDD had their last dental exam within the past year, which is substantially higher than the national average (31%). These estimates indicate that Ohio adults with IDD are receiving biannual dental care at rates much lower than the rest of the country, and instead are receiving a dental exam just once per year.[22] This does, however, meet health guidelines for the frequency of dental care.[23]

[21] https://www.nationalcoreindicators.org/charts/2017-18/?i=66&st=OH

[22] Ohio's NCI sample for last dental exam had at least 25% missing data; therefore, this estimate should be interpreted with caution as it may not accurately represent the population.

[23] Guidelines for dental exams for adults in the general population: https://www.cdc.gov/oralhealth/basics/adult-oral-health/tips.html

Figure 22: Dental Assessments Among Ohio Adults with IDD



Rates of colorectal cancer screenings, physical exams, and flu vaccinations are fairly high in the Ohio IDD population. Figure 23 shows that an estimated 88% of adults with IDD over the age of 50 received some type of colorectal cancer screening (includes Fecal Occult Blood Testing, sigmoidoscopy, and colonoscopy) within the past ten years.[24] An estimated 88%[25] of all adults with IDD completed an annual physical exam in the past year.[26] About 70%[27] of Ohio adults with IDD received a flu vaccine in the last year, [28] although this rate is slightly lower than the national average for adults with IDD (74%).[29] Engagement with preventative care for vision and

[24] Guidelines for the regularity of colorectal cancer screenings for adults with DD: https://dodd.ohio.gov/wps/wcm/connect/gov/cf4e6f07-516b-4990-9f70-933dbb5340b0/Health+Screening+Recommendations.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-cf4e6f07-516b-4990-9f70-933dbb5340b0-m.ENsj7

[25] Ohio's NCI sample for last physical exam had at least 25% missing data; therefore, this estimate should be interpreted with caution as it may not accurately represent the population.

[26] Guidelines for the regularity of physical exams in the general population: https://health.clevelandclinic.org/why-you-need-an-annual-physical-and-what-to-expect/

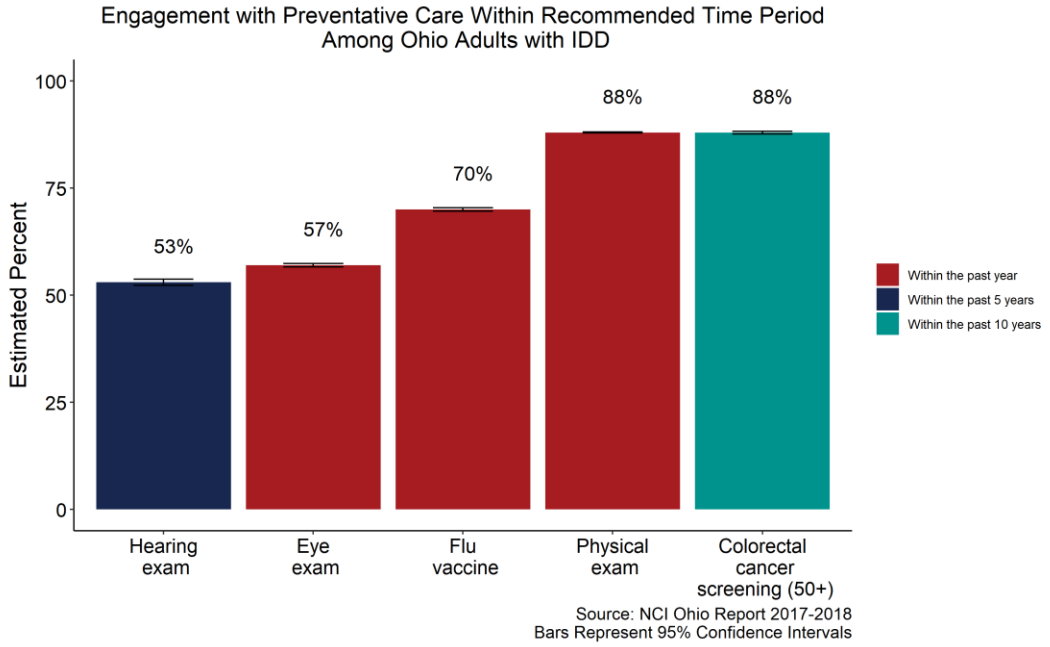
[27] Ohio's NCI sample for last flu vaccine had at least 25% missing data; therefore, this estimate should be interpreted with caution as it may not accurately represent the population.

[28] Guidelines for influenza vaccine for adults with DD: https://dodd.ohio.gov/wps/wcm/connect/gov/cf4e6f07-516b-4990-9f70-933dbb5340b0/Health+Screening+Recommendations.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-cf4e6f07-516b-4990-9f70-933dbb5340b0-m.ENsj7

[29] https://www.nationalcoreindicators.org/charts/2017-18/?i=72&st=OH

hearing is somewhat lower – 57% of adults with IDD received an eye exam in the last year[30] and 53%[31] received a hearing exam in the last five years.[32]

Figure 23: Engagement with Other Preventative Care Among Ohio Adults with IDD



Health Care Utilization

Similar to the pattern shown in Figure 15 pertaining to the time since an individual's last check up, adults with ID/IDD are estimated to visit the doctor about as frequently as adults without disabilities (17.2% vs. 17.1% had not done so in the last year, respectively). Adults with mobility limitations are estimated to visit the doctor somewhat more frequently, with only 6% of adults with mobility limitations having had their last doctor visit more than twelve months ago (Figure 24).

[30] Guidelines for vision screenings for adults with DD: https://dodd.ohio.gov/wps/wcm/connect/gov/cf4e6f07-516b-4990-9f70-933dbb5340b0/Health+Screening+Recommendations.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-cf4e6f07-516b-4990-9f70-933dbb5340b0-m.ENsj7

[31] Ohio's NCI samples for last eye exam and last hearing exam had at least 25% missing data; therefore, these estimates should be interpreted with caution as they may not accurately represent the population.

[32] While guidelines for the general population are for a hearing screening every 10 years under the age of 50 and every 3 years after the age of 50 (Hearing Screening (asha.org)), the Ohio DODD recommends annual screenings for adults with DD (https://dodd.ohio.gov/wps/wcm/connect/gov/cf4e6f07-516b-4990-9f70-933dbb5340b0/Health+Screening+Recommendations.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_M1HGGIK0N0JO00QO9DDDDM3000-cf4e6f07-516b-4990-9f70-933dbb5340b0-m.ENsj7). NCI only collected information about hearing assessments within 5 years.

Figure 24: Last Doctor Visit

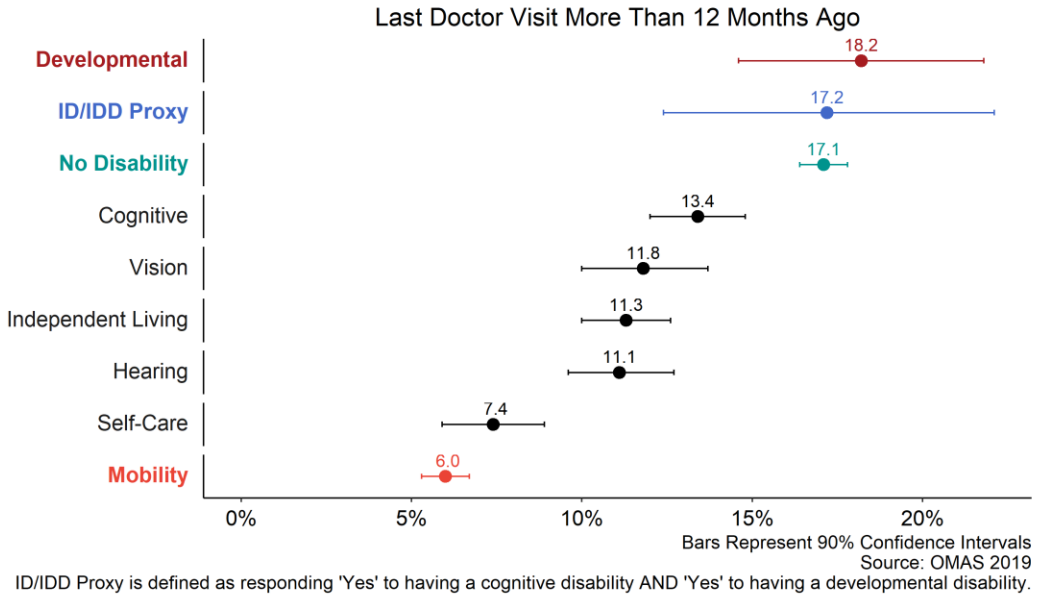
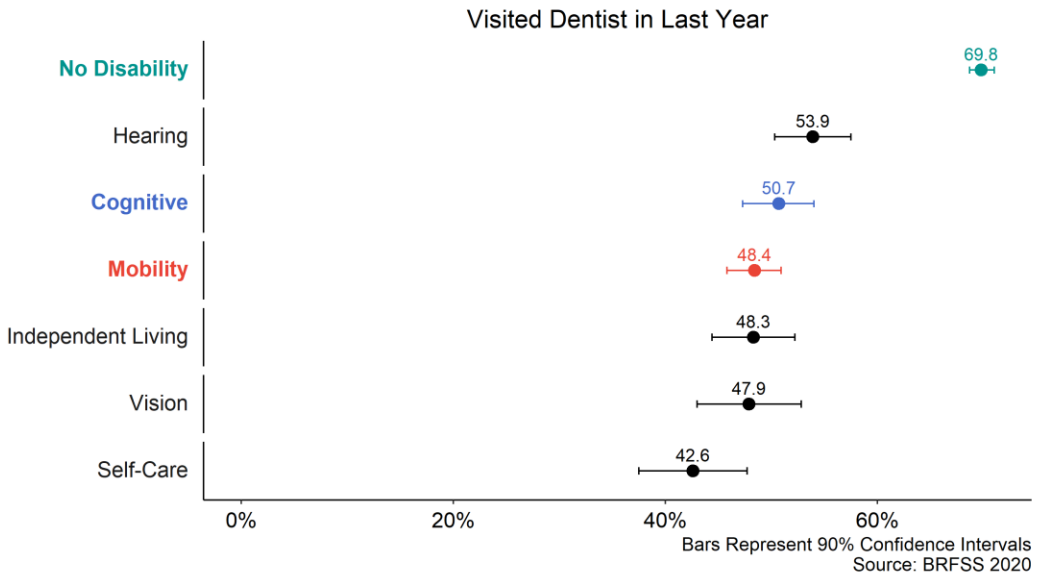


Figure 25 shows that adults with disabilities visit the dentist less frequently than adults without disabilities. Specifically, 50.7% of adults with cognitive limitations and 48.4% of adults with mobility limitations had visited a dentist in the last year, as compared to an estimated 69.8% of adults without disabilities. There are few substantial differences between disability subgroups, so engagement with dental care seems to be somewhat limited across the board for adults with disabilities. There are no substantial differences for Ohioans with cognitive or mobility limitations, as compared to these subpopulations nationally, when it comes to visiting the dentist (Figure 120 in Appendices).

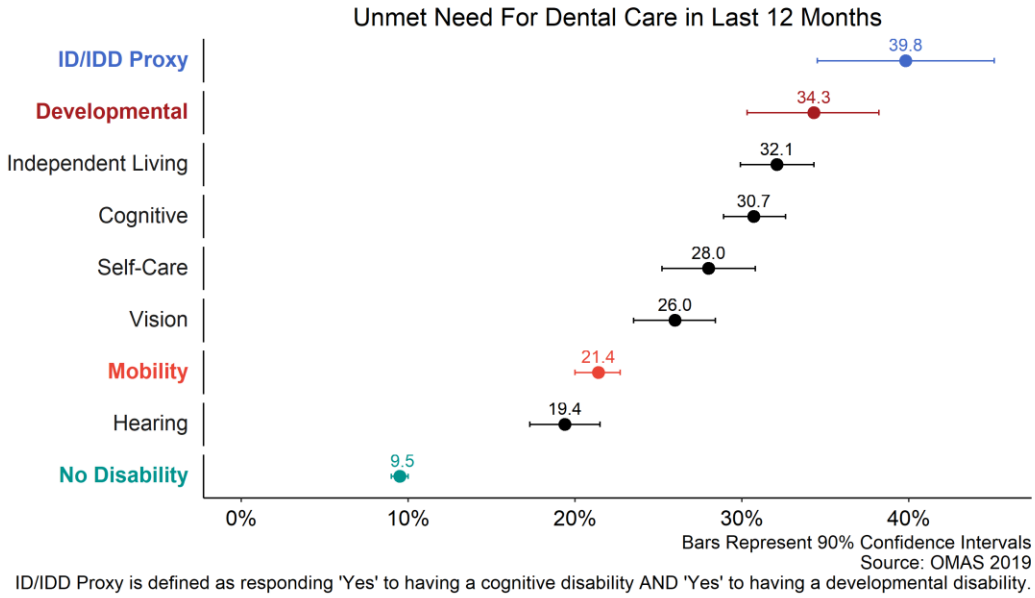
Figure 25: Visited Dentist in Last Year



Access to Care

Unmet needs for dental care are relatively high among the adult population in Ohio with disabilities. We estimate that nearly four-in-ten adults with ID/IDD (39.8%) and about one-in-five adults with mobility limitations (21.4%) needed dental care in the last twelve months but could not get it (Figure 26). In comparison, just under one-in-ten adults without a disability (9.5%) had an unmet need for dental care in the last year. Access to care is an area of particular concern for Ohio adults with IDD – we estimate that nearly four-in-ten have unmet needs for dental care and mental health treatment and more than half delayed or avoided needed care in the last year. While adults with mobility limitations also have unmet healthcare needs at rates higher than adults without disabilities, the adults with IDD stand out as the disability subpopulation that with the most unmet healthcare needs. Expected cost of care is an obstacle faced both by adults with and without disabilities, and lack of transportation resulted in delayed or avoided care for many Ohio adults with disabilities. Adults with IDD have some of the lowest rates of having a personal doctor or nurse, while adults with mobility limitations have the highest rate, which may have downstream implications for timely care, referrals, connections with health resources and necessary accommodations. We discuss a selection of access to care outcomes below.

Figure 26: Unmet Need for Dental Care



Unmet needs for mental health care are also high among the Ohio adult population with a disability, and this is most prominent among the ID/IDD subpopulation (Figure 27). About four-in-ten adults with ID/IDD (41.9%) needed mental or emotional health care or counseling services in the last year but were not able to receive this care. We estimate that 11.8% of adults with mobility limitations had an unmet need for mental healthcare in the last twelve months, as compared to just 4.1% of adults without a disability.

Figure 27: Unmet Need for Mental Health Care

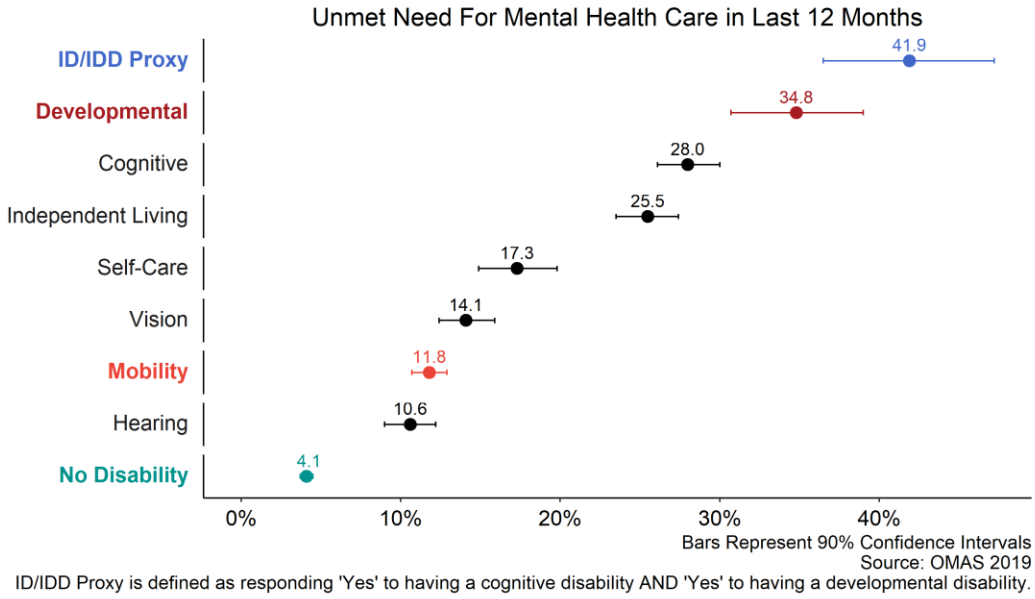
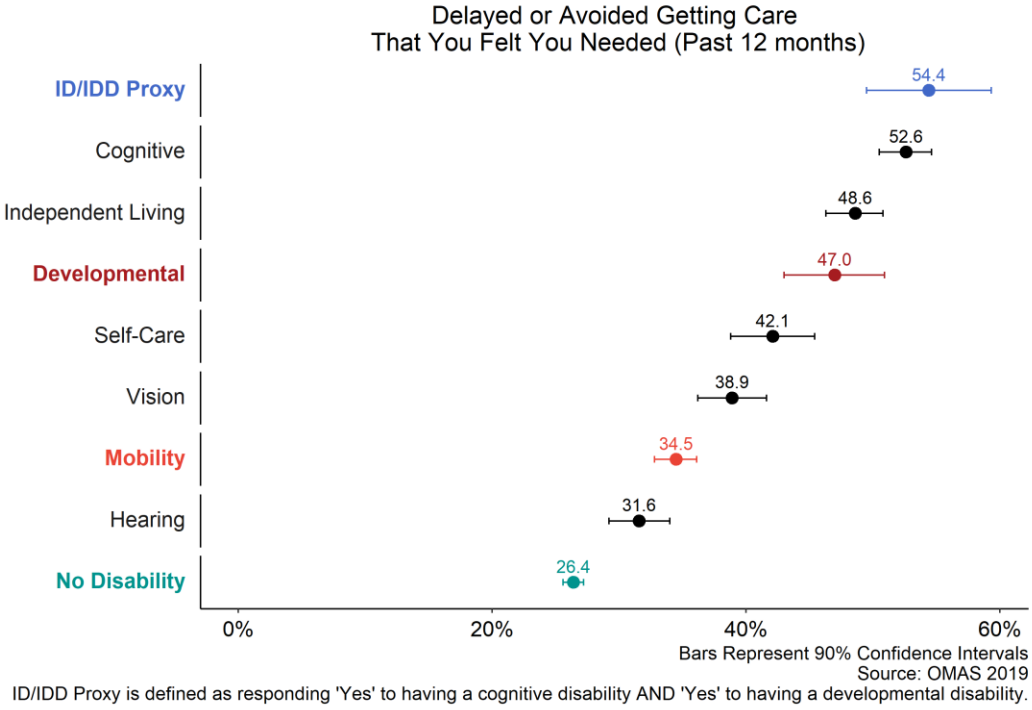


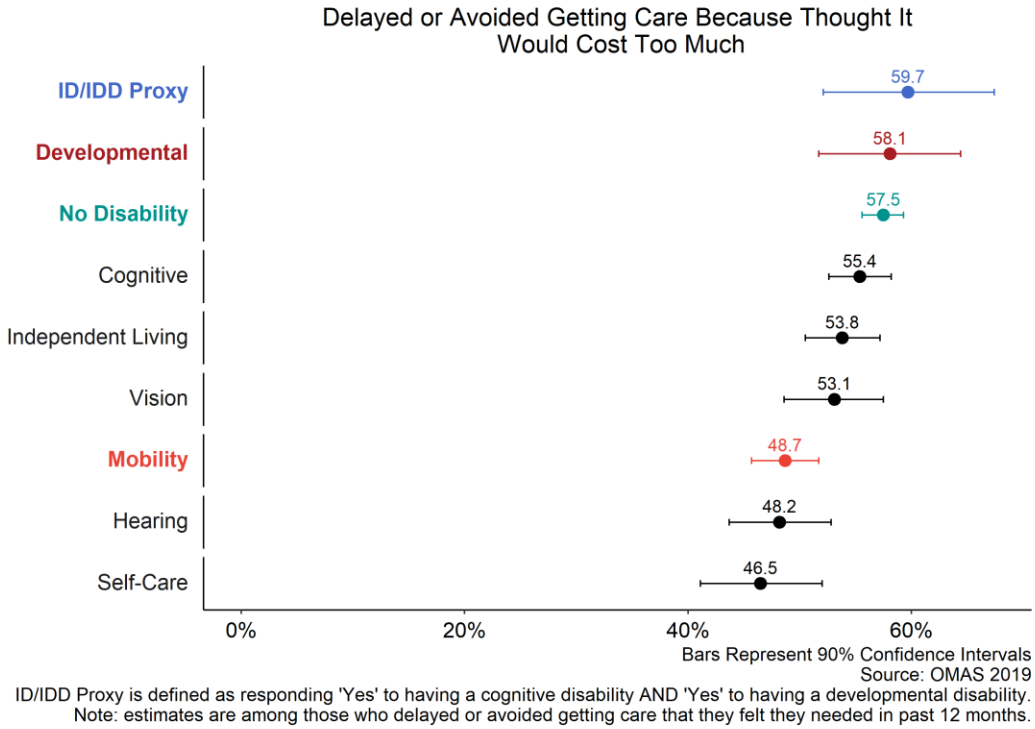
Figure 28 shows that more than half of adults with ID/IDD delayed or avoided getting care that they felt they needed in the last twelve months (an estimated 54.4%). This is more than double the prevalence for adults without a disability (26.4%). Just over one-in-three adults with mobility limitations delayed or avoided getting care they needed (34.5%), while about one-in-four adults without disabilities had to delay or avoid care. These estimates indicate a substantial access to care issue for adults with ID/IDD in particular.

Figure 28: Delayed or Avoided Getting Care



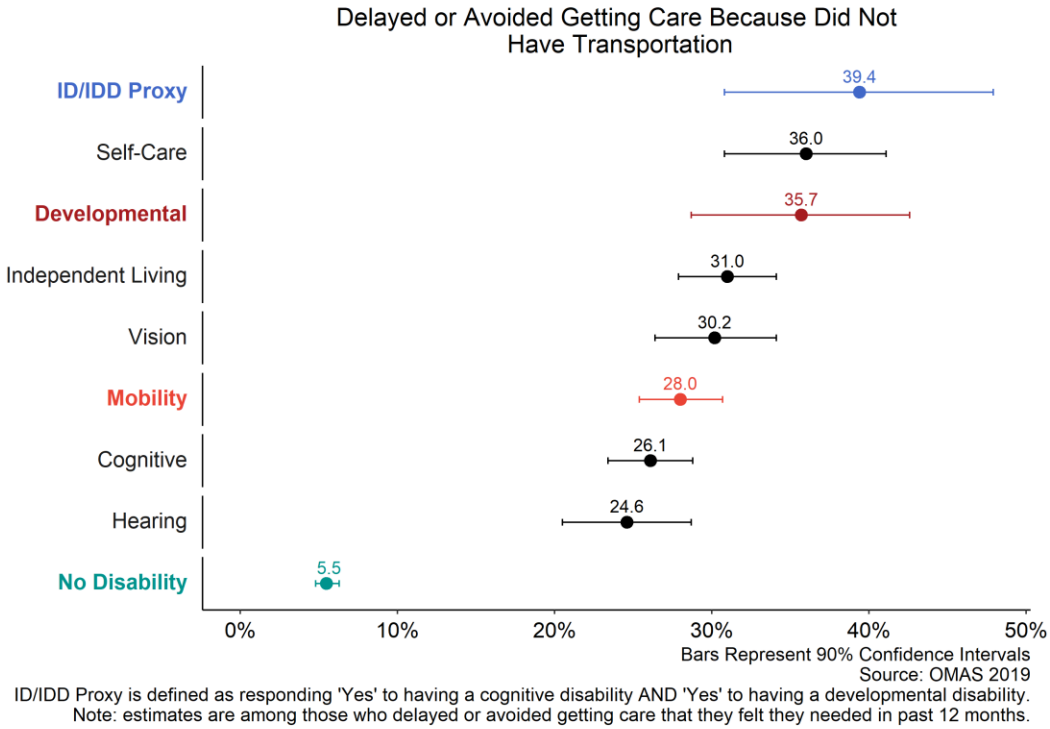
Respondents who indicated that they had delayed or avoided care that they felt they needed in the last twelve months were asked follow-up questions about the reasons for this. Figure 29 shows that across all subpopulations, the expected cost of care is a main driver behind delaying or avoiding care. Nearly six-in-ten adults with IDD (59.7%) and nearly five-in-ten adults with mobility limitations (48.7%) who had delayed or avoided care in the last year reported that they did so because they thought the care would cost too much. These estimates are not substantially different from estimates for the adult population without a disability, which indicates that the cost of healthcare is an issue for many Ohioans.

Figure 29: Delayed or Avoided Getting Care Because of Cost



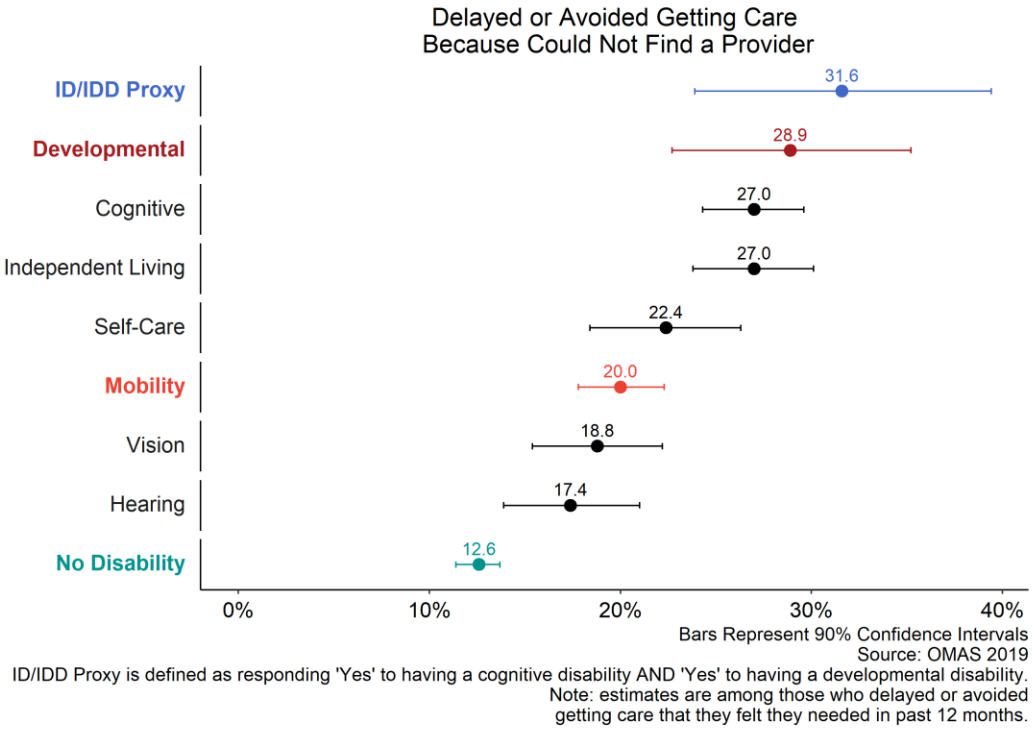
Transportation access is another prominent barrier to accessing care for adults with disabilities. Figure 30 shows that an estimated 39.4% of adults with ID/IDD and an estimated 28% of adults with mobility limitations who delayed or avoided care in the last year did so because they did not have transportation. In comparison, only about 5.5% of adults without disabilities cited lack of transportation as a reason for having to delay or avoid medical care.

Figure 30: Delayed or Avoided Getting Care Because Did Not Have Transportation



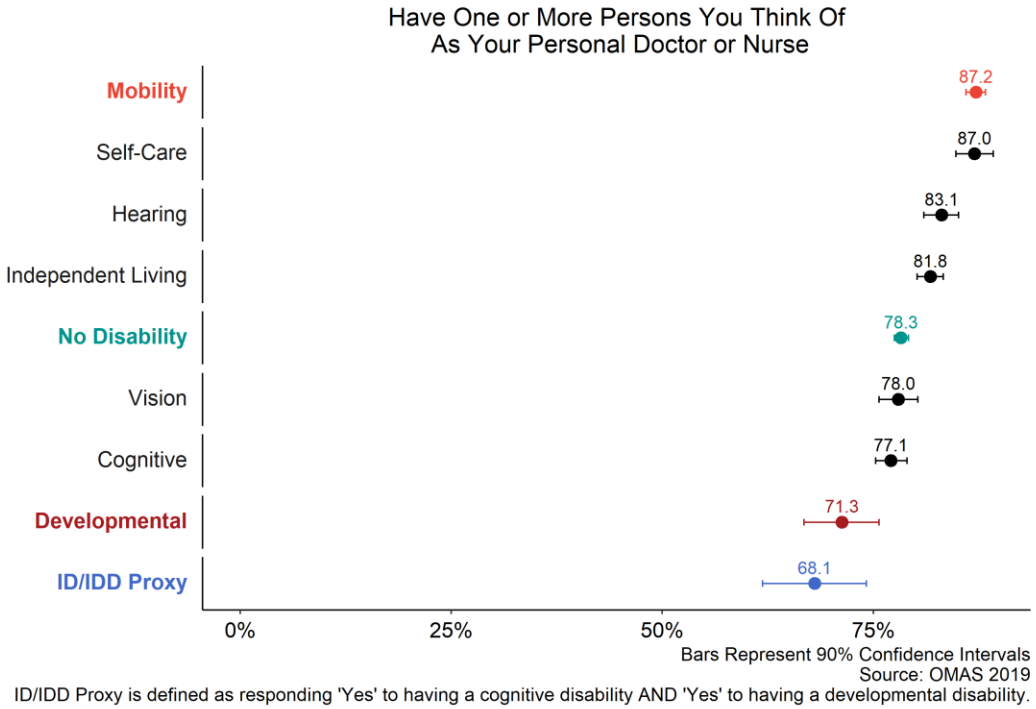
In addition to cost and transportation barriers, inability to find a provider is an obstacle that caused Ohio adults with disabilities to delay or avoid getting needed care in the last 12 months (Figure 31). Among adults who delayed or avoided care in the last year, an estimated 31.6% with ID/IDD and 20% with mobility limitations did so because they could not find a provider, as compared to just 12.6% of adults without disabilities. While the survey does not collect further information about the reasons why an individual could not find a provider, we often heard in listening sessions that participants with disabilities struggled to find providers who provided necessary accommodations, treated patients with their health needs, or accepted their insurance as well as general comments on feeling that their disability status limits options for care.

Figure 31: Delay or Avoid Getting Care Because Could Not Find a Provider



One of the findings that emerged from the listening sessions conducted with participants with disabilities was that having a good, personal relationship with a provider improved a person's care experience. We estimate that the majority of adults with disabilities in Ohio have one or more persons who they think of as their personal doctor or nurse – someone who knows them well and is familiar with their health history (Figure 32). About 87.2% of adults with mobility limitations have a healthcare professional that they think of as their personal doctor or nurse, which is a higher prevalence than among adults without a disability (78.3%). Adults with ID/IDD have some of the lowest relative rates of having a personal doctor/nurse, with about 68.1% indicating this. While having a healthcare professional that you view as your personal doctor or nurse does not necessarily indicate a good relationship with that care provider, in light of our qualitative findings, it is promising that most adults with disabilities have a personal doctor/nurse.

Figure 32: Have a Personal Doctor/Nurse



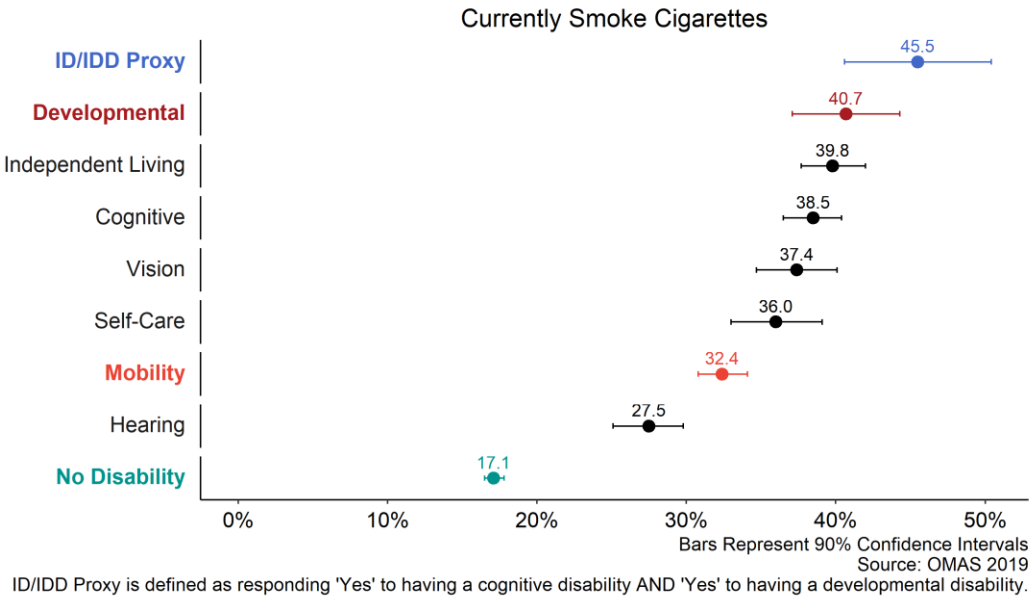
Practice of Healthy Lifestyle Behaviors

When it comes to substance use, Ohio adults with ID/IDD, in particular, reported smoking cigarettes and using marijuana/cannabis at rates substantially higher than many other disability subpopulations and adults without disabilities (OMAS), although it is worth noting that rates of nicotine and tobacco use were much lower in the NCI for this population. Adults with mobility limitations also reported smoking cigarettes at relatively high rates. Additionally, rates of exercise in the last 30 days are estimated to be 20-35 percentage points lower among adults with cognitive and mobility limitations than adults without disabilities. For the Ohio ID/IDD subpopulation in particular, regular participation in strength exercises is low in absolute terms as well as relative to national estimates for this group. While the majority of Ohio adults with ID/IDD were estimated to engage in moderate physical activity one time per week, rates of more frequent physical activity were much lower. These findings indicate that Ohioans with disabilities, but especially those with ID/IDD, are falling behind other subpopulations when it comes to practicing healthy lifestyle behaviors. Additional education, resources, and supports could potentially have a substantial impact on the healthy lifestyle behaviors of Ohioans with disabilities. We present estimates for the prevalence of substance use and healthy lifestyle behaviors next.

Figure 33 shows that smoking cigarettes is relatively common among adults with disabilities in Ohio. Nearly one-in-two (45.5%) adults with ID/IDD and nearly one-in-three (32.4%) adults with mobility limitations were estimated to be current smokers, as compared to 17.1% of adults

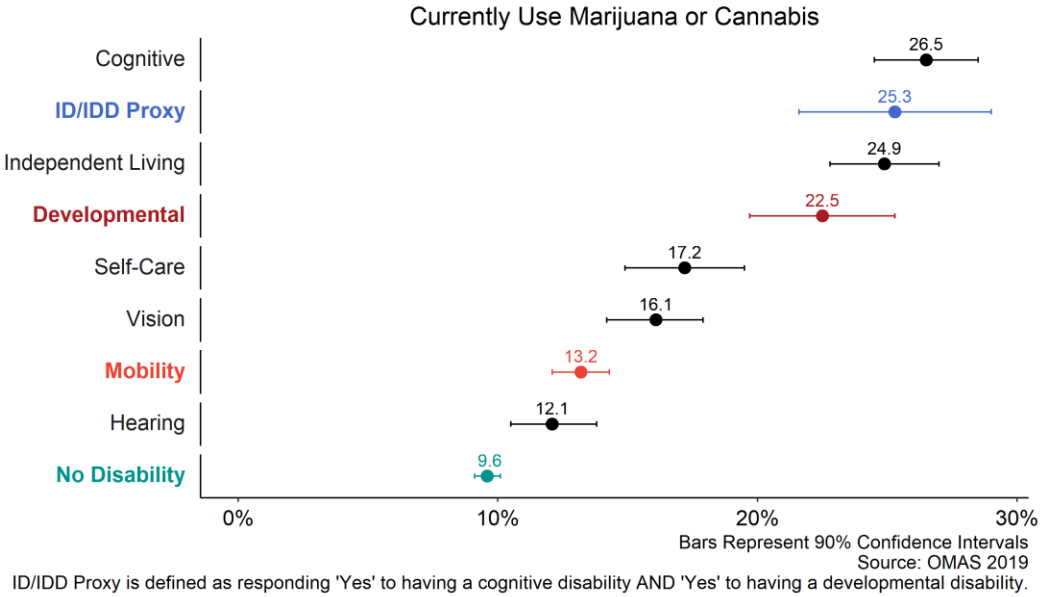
without disabilities. However, from the NCI, we estimate that only 13% of adults with IDD use nicotine or tobacco products (Figure 37).

Figure 33: Cigarette Smoking



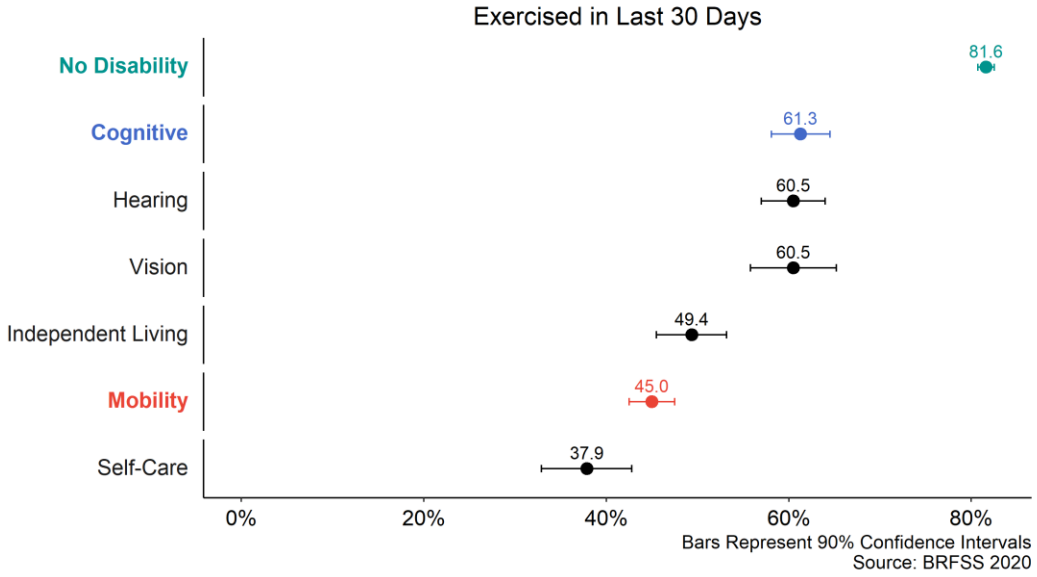
Marijuana and cannabis use is more common among adults with disabilities than adults without disabilities (Figure 34). About one-in-four adults with ID/IDD (25.3%) and about one-in-eight adults with mobility limitations (13.2%) reported marijuana or cannabis use in the last 30 days, as compared to 9.6% of adults without disabilities.

Figure 34: Marijuana or Cannabis Use



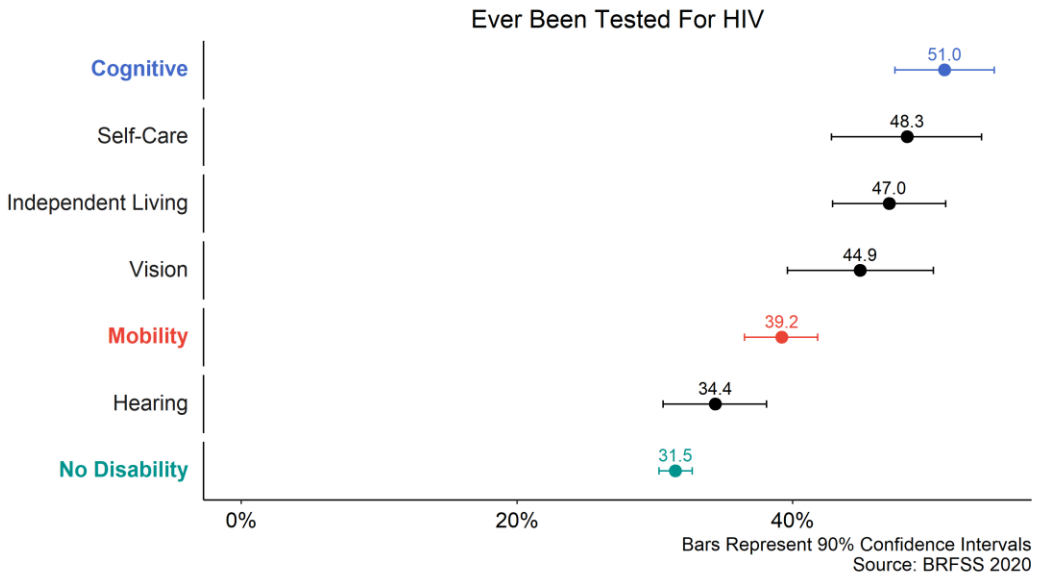
There is substantial variation in the extent to which adults in Ohio report regular exercise (Figure 35). While an estimated 81.6% of adults without disabilities reported having participated in a physical activity or exercise (such as running, calisthenics, golf, gardening, or walking for exercise) during the last month, only 61.3% of adults with cognitive limitations and 45% of adults with mobility limitations reported doing these activities. There are no substantial differences for Ohioans with cognitive or mobility limitations, as compared to these subpopulations nationally, when it comes to meeting physical activity guidelines (Figure 121 in Appendices).

Figure 35: Exercise



Adults with disabilities in Ohio were tested for human immunodeficiency virus (HIV) at rates higher than adults without disabilities (Figure 36). We estimate that just over half (51%) of adults with a cognitive limitation have ever been tested for HIV, and about four-in-ten (39.2%) of adults with a mobility limitation have ever been tested. In comparison, about three-in-ten (31.5%) of adults without disabilities have ever been tested for HIV.

Figure 36: Tested for HIV

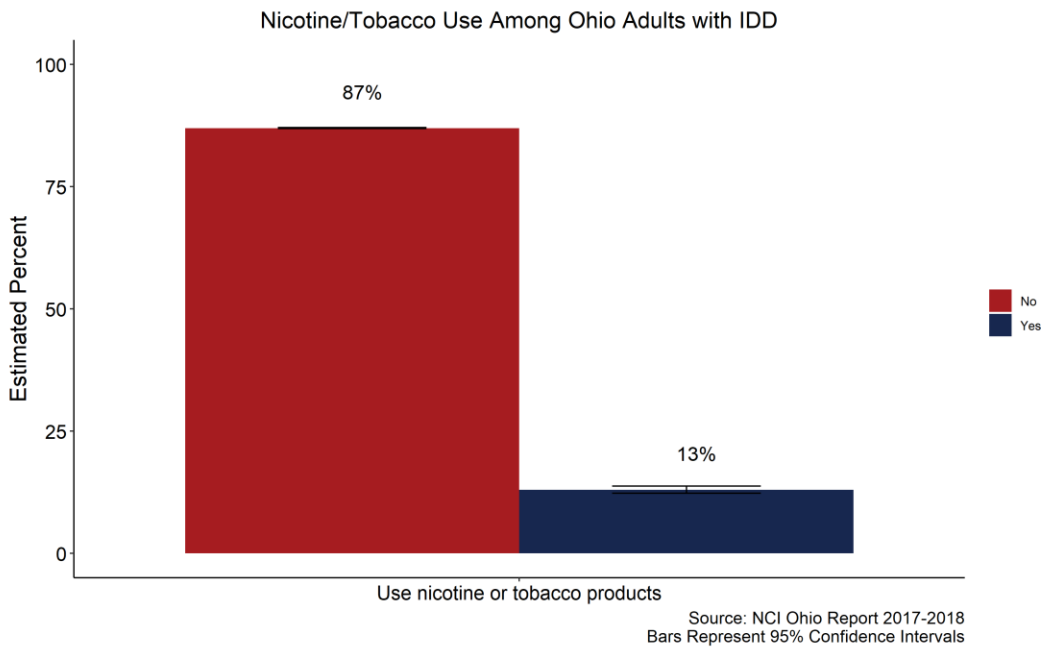


Healthy Lifestyle Behaviors Among Adults with IDD (NCI)

As aforementioned, NCI found that about 13% of Ohio adults with IDD used nicotine or tobacco products (Figure 37), which is substantially lower than OMAS estimates for smoking cigarettes of 45.5% and smokeless tobacco use of 7.2% (Figure 33 and Figure 80 in Appendices, respectively). The NCI estimate for Ohio adults with IDD was higher than the NCI national average, where 7% of adults with IDD use nicotine or tobacco products.[33]

[33] https://www.nationalcoreindicators.org/charts/2017-18/?i=77&st=OH

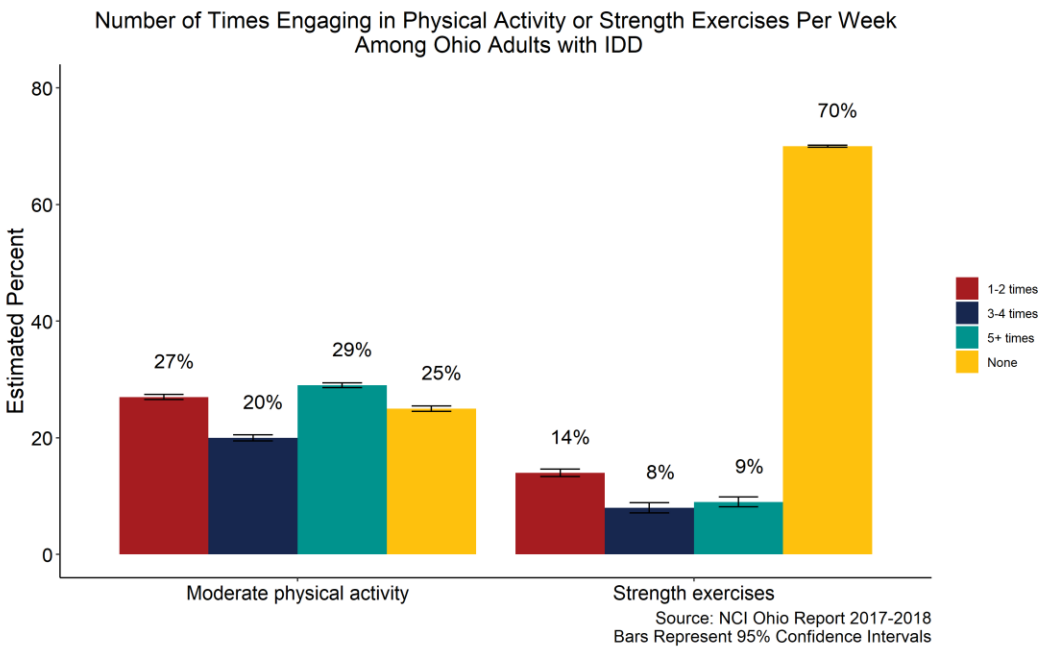
Figure 37: Nicotine/Tobacco Use Among Ohio Adults with IDD



When it comes to exercise, adults with IDD reported engaging in moderate physical activity fairly regularly, but rarely engaging in strength exercises. According to NCI, about three-quarters (76%) of adults with IDD reported engaging in moderate physical activity at least once per week, with nearly three-in-ten (29%) doing so five or more times per week (Figure 38). However, adults with IDD did not report engaging in strength exercises with the same frequency – an estimated 70% reported not doing any regular strength exercises (which is higher than the national average of 64%), and only about 14% reported doing these exercises 1-2 times per week (which is lower than the national average of 18%).[34]

[34] https://www.nationalcoreindicators.org/charts/2017-18/?i=200&st=OH

Figure 38: Frequency of Engaging in Physical Activity & Strength Exercises Among Ohio Adults with IDD



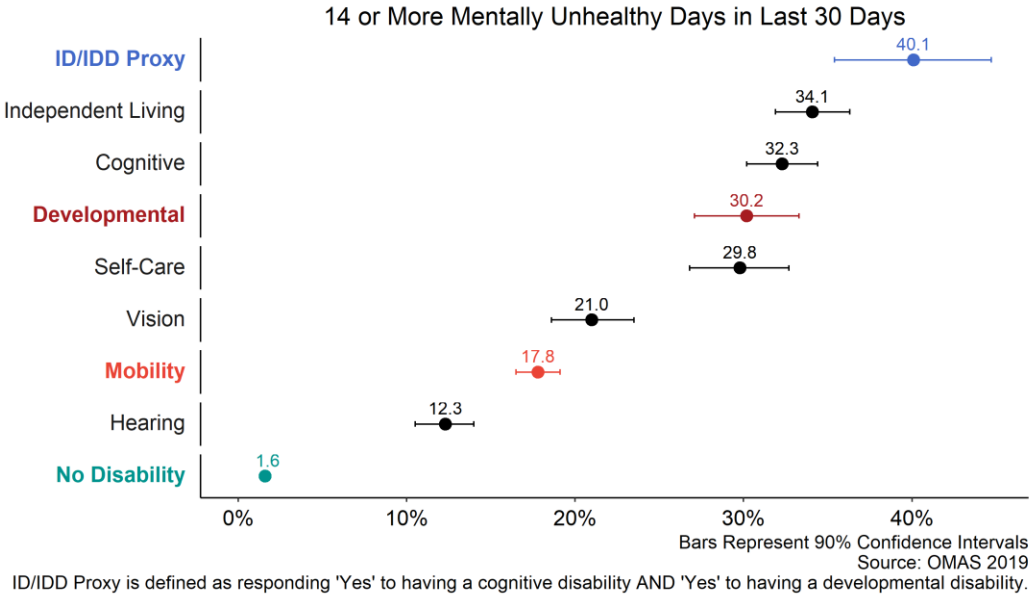
Health Outcomes and Chronic Conditions

The prevalence of poor mental health outcomes among Ohioans with disabilities, and Ohio adults with IDD in particular, is one of the most alarming findings of our needs assessment. These conditions range from loneliness and isolation to diagnosed depression. In addition, when it comes to 14 or more mentally unhealthy days in a month, Ohio adults with cognitive and mobility limitations fare substantially worse than their counterparts in the rest of the country. These findings may be related to some of our findings about physical health, where Ohio adults with disabilities also fare poorly. The majority of adults with mobility limitations and ID/DD rated their health as fair or poor, a sizable portion reported at least 14 physically unhealthy days in a month, and nearly two-thirds of adults with ID/IDD are considered obese or overweight. Finally, rates of chronic conditions are substantially higher among Ohio adults with disabilities compared to national rates, with arthritis standing out in particular. Rates of arthritis in the ID/IDD and mobility limitation populations were more than two times higher than in Ohio adults without disabilities. Compared to national averages, Ohio had higher rates of arthritis among the cognitive and mobility limitations subpopulations. Rates of hypertension were quite high among Ohio adults with ID/IDD and mobility limitations, although NCI rates among the IDD population are much lower than those from OMAS. Mental and physical health are areas of concern for the Ohio adult disability population and there is clearly more to learn about how to ensure better health outcomes for these Ohioans. We present estimates for a variety of health outcomes below.

Mental Health

Figures 39-41 illustrates that poor mental health is a substantial concern for adults with disabilities in Ohio, and particularly for adults with ID/IDD. Approximately four-in-ten (40.1%) adults with ID/IDD and 17.8% of adults with mobility limitations had at least 14 mentally unhealthy days in the last 30 days (Figure 39). In comparison, only 1.6% of adults without disabilities indicated having mentally unhealthy days for at least half of the previous month. There are substantial differences for Ohioans with cognitive and mobility limitations, as compared to these subpopulations nationally, when it comes to having at least 14 mentally unhealthy days in the past 30 days (Figure 122 in Appendix). From the 2019 Disability and Health Data System (DHDS) age-adjusted estimates, we find that Ohioans with cognitive or mobility limitations have higher rates of mentally unhealthy days than these same disability groups in the broader United States.

Figure 39: Mentally Unhealthy Days



Rates of depression are alarmingly high among Ohio adults with disabilities (Figure 40). Nearly seven-in-ten adults with a cognitive limitation (67.2%) and about four-in-ten adults with a mobility limitation (40.2%) reported having been diagnosed with depression at some point as compared to 14.9% of adults without disabilities. Ohio adult depression rates are comparable to U.S. averages for adults with cognitive or mobility limitations (Figure 123 in Appendices).

Figure 40: Depression

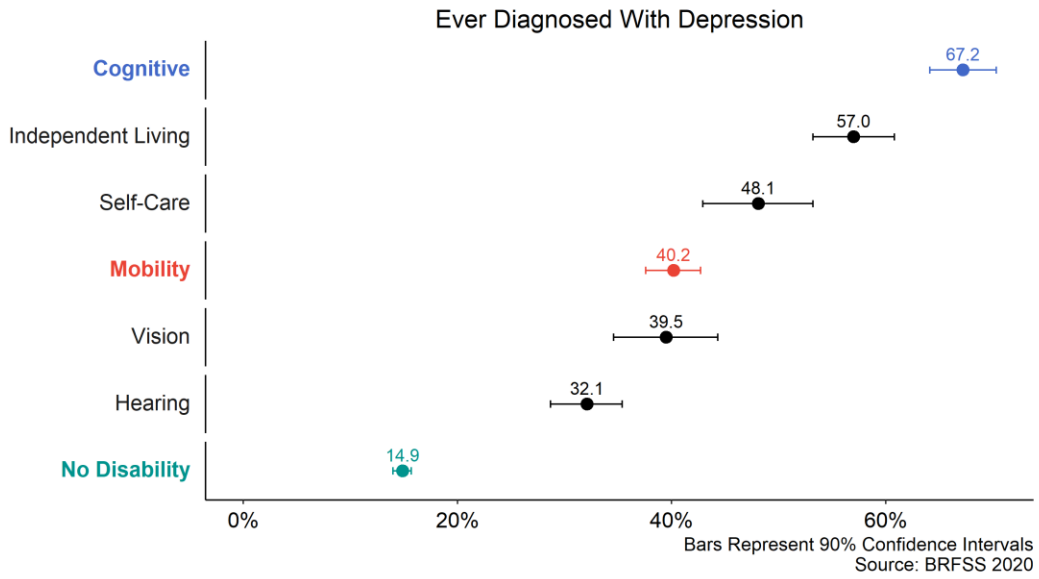
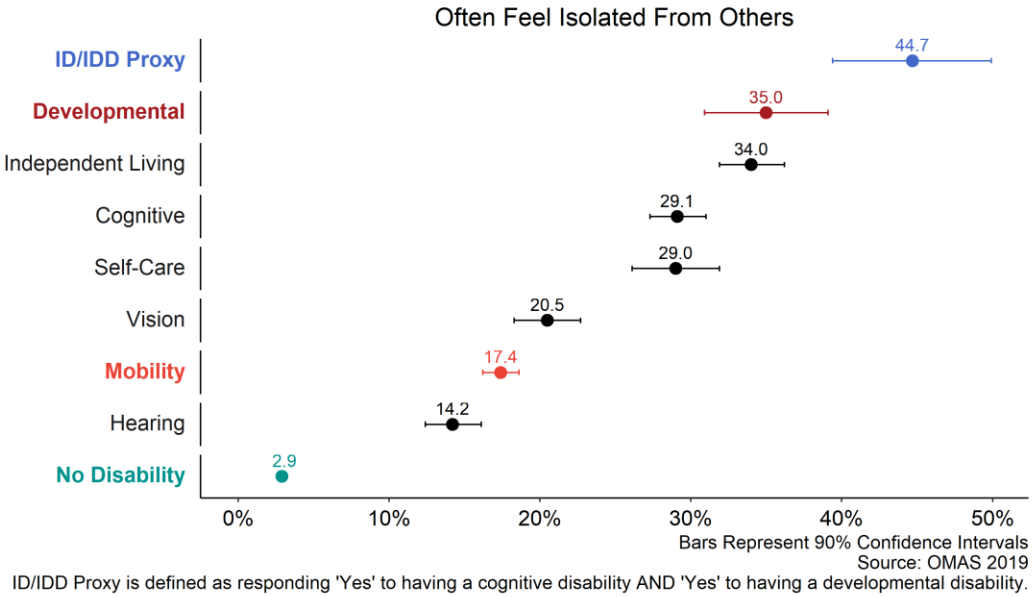


Figure 41 shows estimates for one of the items from the University of California, Los Angeles (UCLA) 3-Item Loneliness Scale.[35] An estimated 44.7% of adults with ID/IDD and 17.4% of adults with mobility limitations reported often feeling isolated from others as compared to only about 2.9% of adults without disabilities. Similar patterns emerged for the other two items in the UCLA Loneliness Scale, including often feeling that you lack companionship and often feeling left out (see Figure 83 and Figure 84 in the Appendices).

[35] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2394670/

Figure 41: Often Feel Isolated from Others

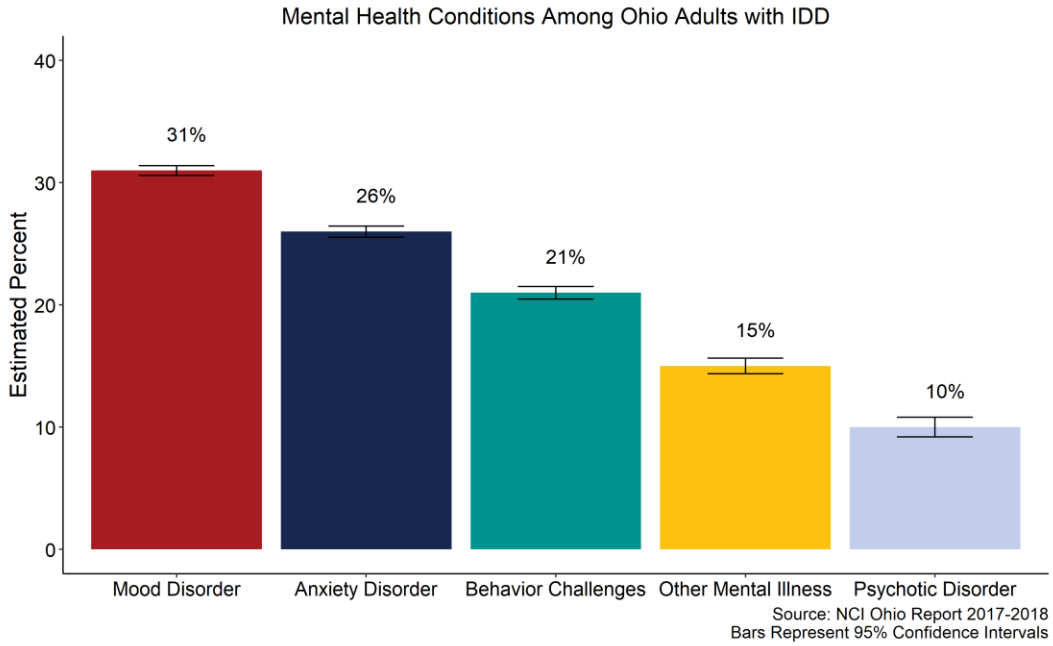


Mental Health Among Adults with IDD (NCI)

Co-occurring mental health conditions are fairly common among Ohio adults with IDD (Figure 42). According to NCI data, about three-in-ten adults with IDD have a mood disorder (31%), about one-in-four have an anxiety disorder (26%), and about one-in-five have behavior challenges (21%). Estimates for the prevalence of mood and anxiety disorders among Ohio adults with IDD are comparable to the national estimates, but there is a lower prevalence of behavior challenges among adults with IDD in Ohio as compared to the rest of the country (28%).[36] An estimated 10% of adults with IDD have a psychotic disorder, and an estimated 15% report having some other type of mental illness.

[36] https://www.nationalcoreindicators.org/charts/2017-18/?i=110&st=OH

Figure 42: Mental Health Conditions Among Ohio Adults with IDD



Physical Health

Large differences in physical health outcomes were found between Ohio adults with and without disabilities. More than half of all adults with mobility limitations (62.8%) or ID/IDD (57.5%) indicated that their health was "fair" or "poor," as compared to just 8.8% of adults without disabilities (Figure 43). Using a slightly different scale, estimates of fair or poor health were somewhat lower in the NCI (Figure 87 in Appendices). According to NCI data, only 3% of adults with IDD rate their health as "poor," and another 26% rate their health as "fairly good." Nearly half (48%) of adults with IDD rate their health as "very good."

Figure 43: Fair/Poor Self-Rated Health

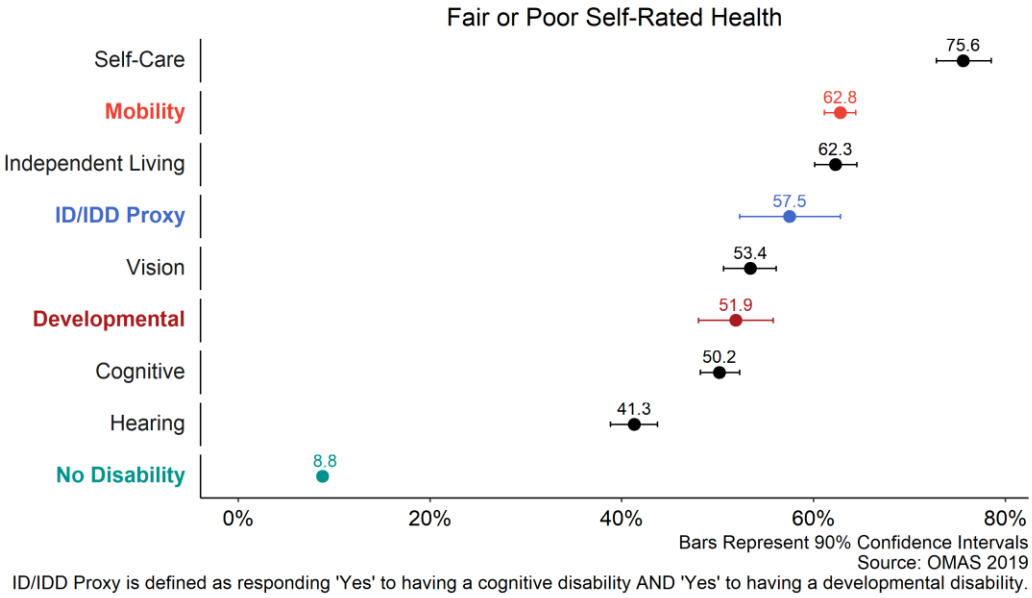
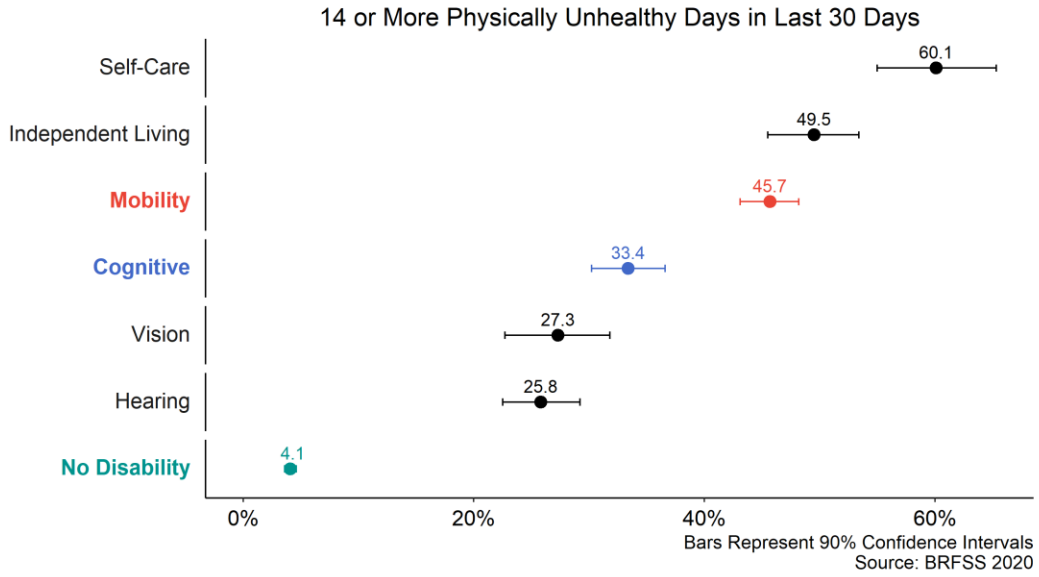


Figure 44 shows that 45.7% of adults with mobility limitations and 33.4% of adults with cognitive limitations had at least 14 physically unhealthy days in the last 30 days. In comparison, only 4.1% of adults without disabilities indicated this frequency of poor physical health. There were no substantial differences in reported physically unhealthy days between Ohio adults with cognitive or mobility limitations and national averages (Figure 124 in Appendices).

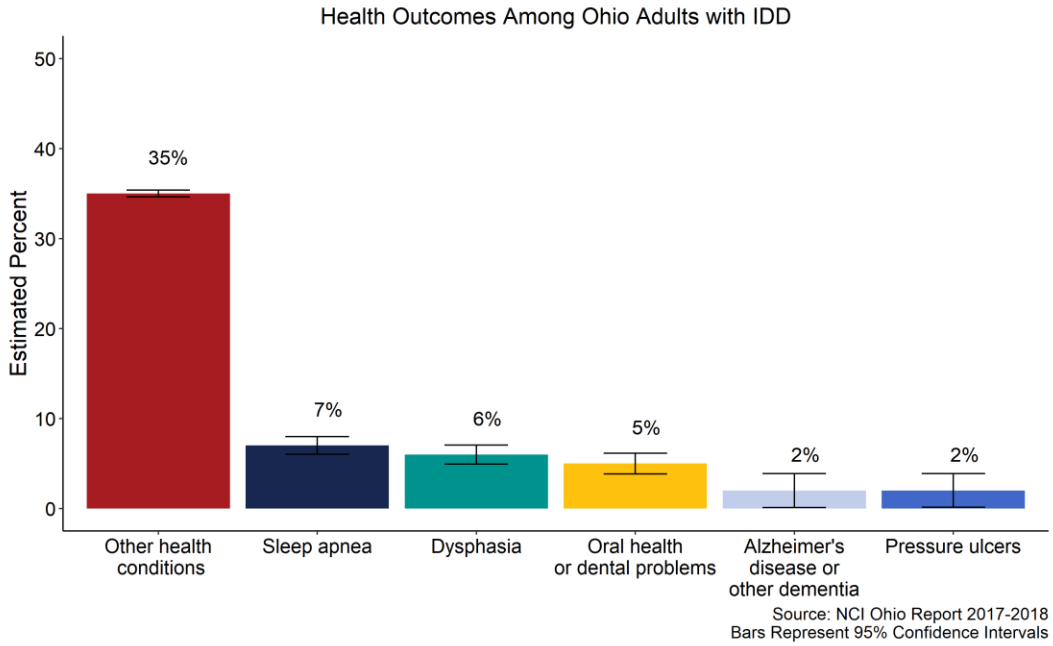
Figure 44: Physically Unhealthy Days



Health Outcomes Among Adults with IDD (NCI)

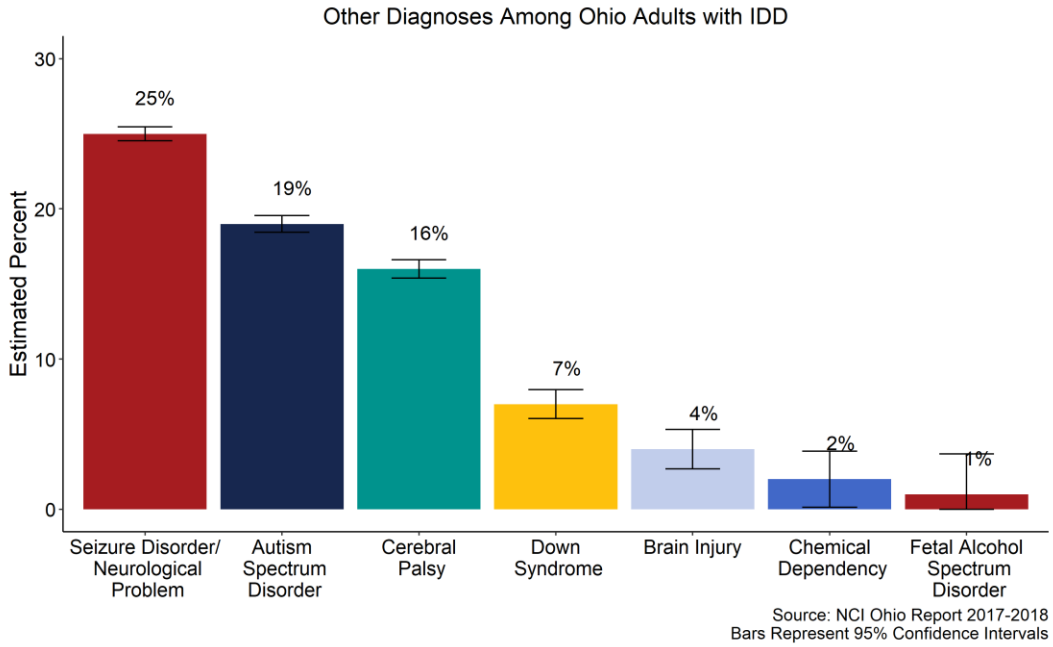
The NCI surveys adults with IDD about various other health conditions. Reported prevalence of sleep apnea, dysphasia, oral health/dental problems, Alzheimer's disease/other dementia, and pressure ulcers, were all fairly low (Figure 45). However, more than one-in-three (35%) of adults with IDD reported that they had other health conditions beyond those listed, which indicates that this may not be a particularly comprehensive list of the health conditions facing adults with IDD in Ohio.

Figure 45: Health Outcomes Among Ohio Adults with IDD



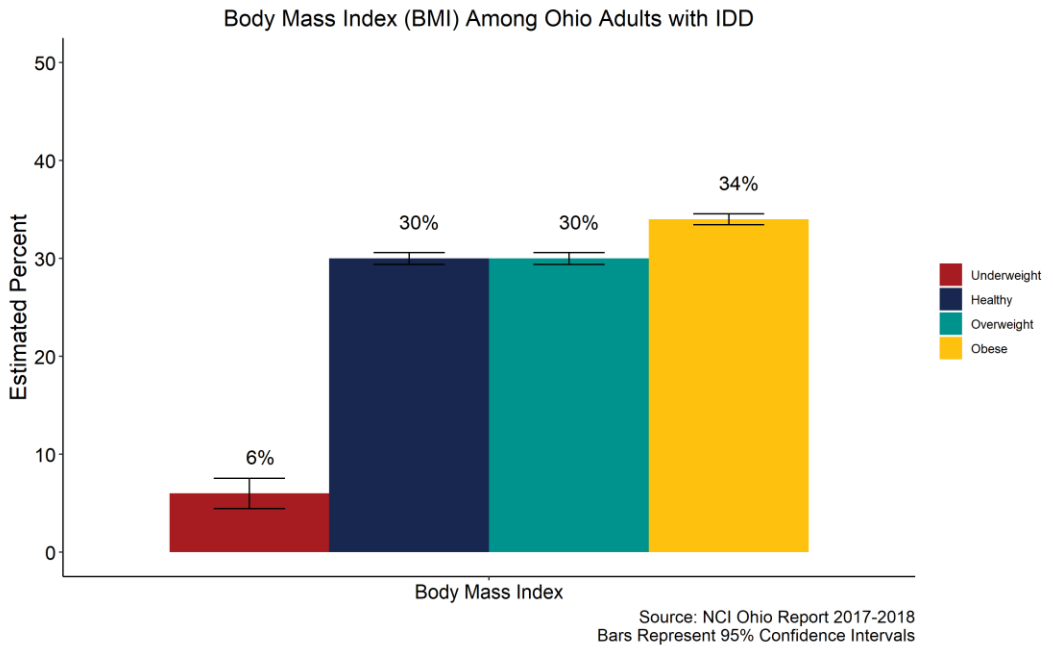
Adults with IDD reported many other co-occurring diagnoses (Figure 46). From the NCI, we estimate that about one-in-four (25%) adults with IDD have a seizure disorder or a neurological problem nearly one-in-five (19%) have autism spectrum disorder, 16% of have cerebral palsy, 7% have Down syndrome, and 4% have a brain injury.

Figure 46: Other Diagnoses Among Ohio Adults with IDD



Finally, using the body mass index (BMI) from the NCI, we estimate that nearly two-thirds (64%) of adults with IDD were either overweight or obese (Figure 47).[37]

Figure 47: Body Mass Index Among Ohio Adults with IDD

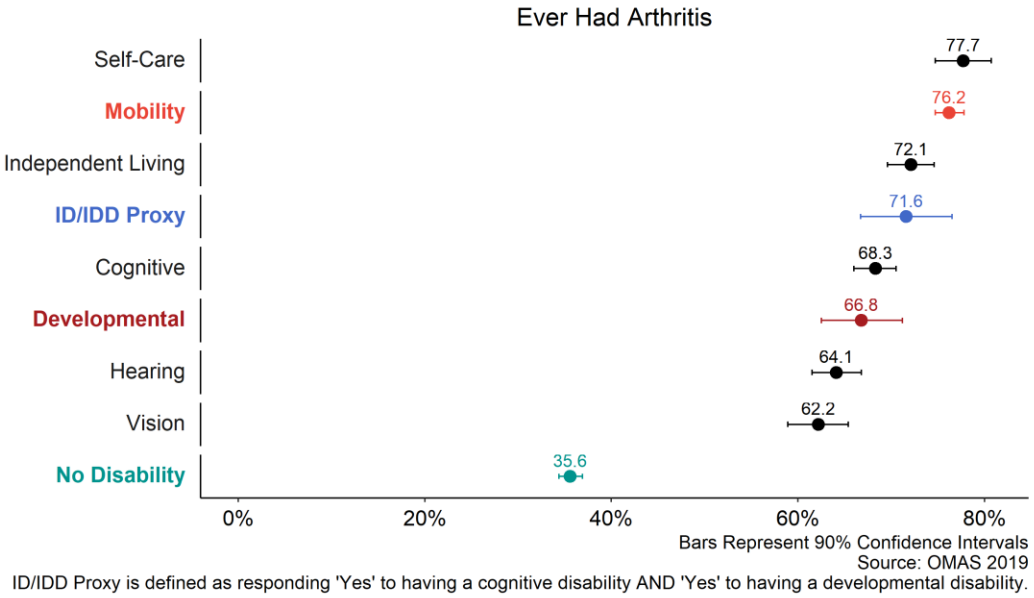


Chronic Conditions

The most prevalent chronic condition among adults with disabilities in Ohio was arthritis (Figure 48). We estimate that just over three-quarters (76.2%) of all adults with mobility limitations, and about seven-in-ten (71.6%) adults with ID/IDD, have ever had arthritis. In comparison, only a little over one-in-three (35.6%) of adults without disabilities had ever had arthritis. There are substantial differences for Ohioans with cognitive or mobility limitations, as compared to these subpopulations nationally, when it comes to the prevalence of arthritis (Figure 125 in Appendices). From the 2019 DHDS age-adjusted estimates we find that Ohioans with cognitive or mobility limitations have higher rates of arthritis than these same disability groups in the broader United States.

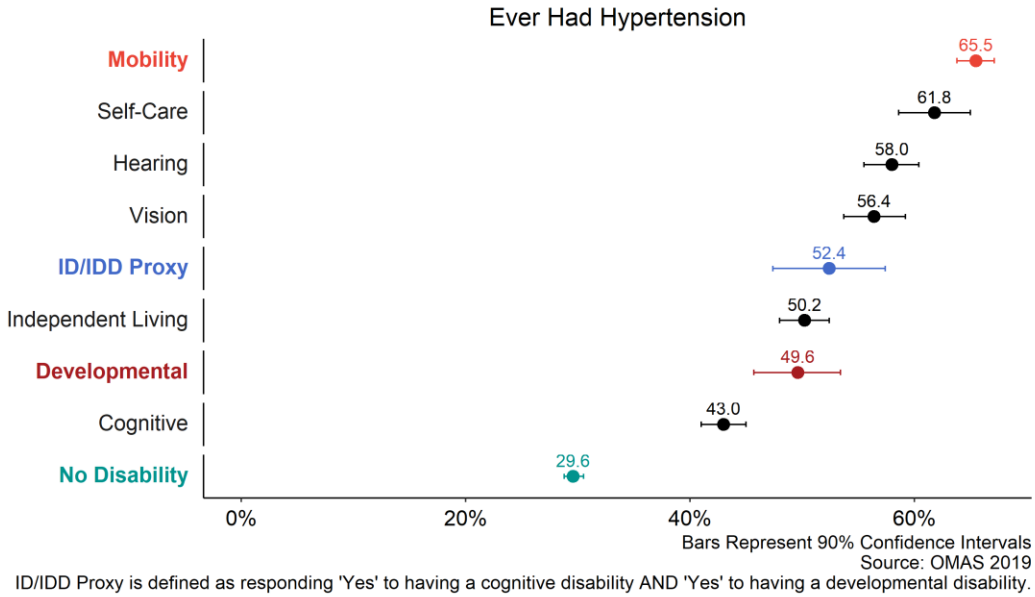
[37] Ohio's NCI sample for BMI had at least 25% missing data; therefore, this estimate should be interpreted with caution as it may not accurately represent the population.

Figure 48: Arthritis



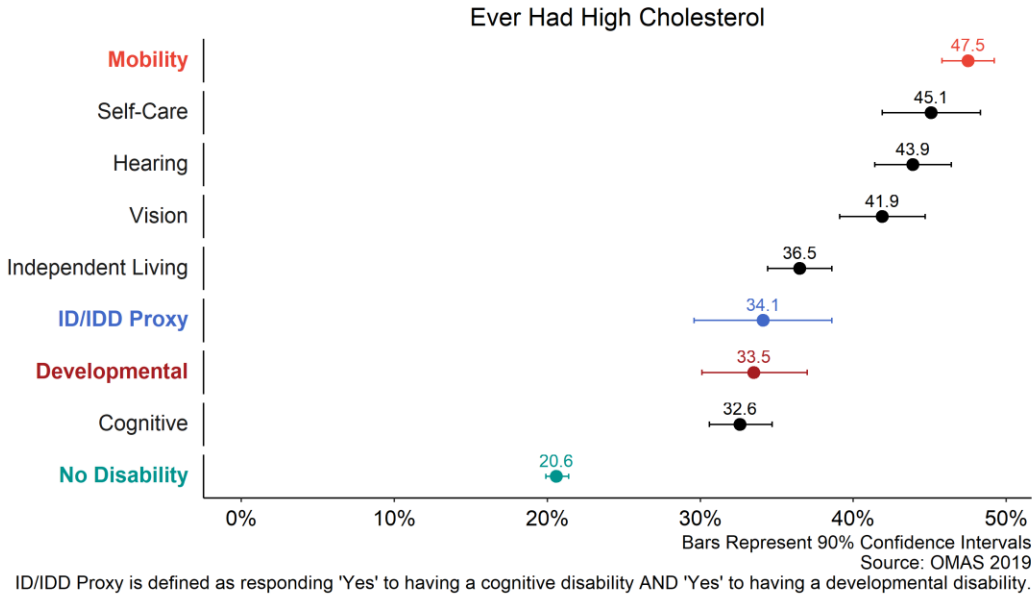
Hypertension is the next most common chronic condition among adults with disabilities in Ohio. Figure 49 shows that a majority of adults with mobility limitations (65.5%) and with ID/IDD (52.4%) were estimated to have ever had hypertension. In comparison, about 29.6% of adults without disabilities had ever had hypertension. The OMAS estimates of hypertension among the ID/IDD population are substantially higher than those from the NCI, which estimate that just 20% of adults with IDD had hypertension (Figure 51).

Figure 49: Hypertension



The third most common chronic condition among adults with disabilities in Ohio is high cholesterol. We estimate that 47.5% of adults with mobility limitations and 34.1% of adults with ID/IDD have ever had high cholesterol, as compared to 20.6% of adults without disabilities (Figure 50). There are no substantial differences for Ohioans with cognitive or mobility limitations, as compared to these subpopulations nationally, when it comes to the prevalence of hypertension (Figure 126 in Appendices). The OMAS estimates of high cholesterol among the ID/IDD population are substantially higher than those from the NCI, which estimate that just 17% of adults with IDD have high cholesterol (Figure 51).

Figure 50: High Cholesterol

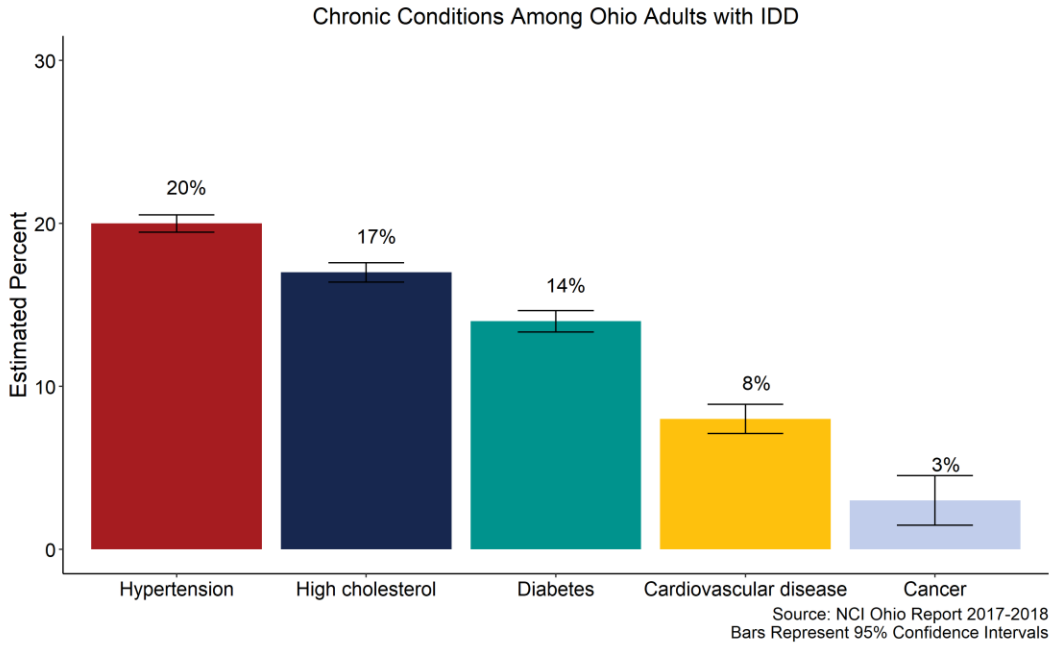


Chronic Conditions Among Adults with IDD (NCI)

NCI estimates of the prevalence of chronic conditions among adults with IDD are generally much lower than OMAS estimates. From the NCI, we estimate that 20% of Ohio adults with IDD have high blood pressure (hypertension), 17% have high cholesterol, 14% have diabetes (which is slightly higher than the national average of 11%),[38] 8% have cardiovascular disease, and 3% have cancer (Figure 51). In comparison, in the OMAS we estimate that about 22.1% of adults with ID/IDD have diabetes (Figure 94 in Appendices).

[38] https://www.nationalcoreindicators.org/charts/2017-18/?i=124&st=OH

Figure 51: Chronic Conditions Among Adults with IDD



Health Disparities for Ohio Adults with Disabilities

In order to quantify the magnitude of health disparities between Ohio adults with and without disabilities and control for other demographic factors that may contribute to these outcomes, we model the relationship between various health outcomes and the presence of any disability. Model specifications are discussed in the section titled "Model specifications" and model results for each health outcome can be found in the section titled "Model Results," both of which can be found in the Appendices. Figure 52-Figure 60 show prevalence rate ratios ("disparity ratios") for adults with disabilities as compared to adults without disabilities, controlling for age, race, and sex. Models using OMAS 2019 survey data also control for county type, which is a federal designation of the geographic features of a county, and categorizes counties as either metropolitan, suburban, rural non-Appalachian, or rural Appalachian.[39] The point labels represent the disparity ratio for each model and will be discussed when assessing the size of disparities for each outcome.

Disparity ratios are grouped by survey (OMAS 2019 and BRFSS 2020) and the magnitude of the disparity. Disparities are categorized as no disparity, small, moderate, or large. These categorizations are determined by the substantive interpretation of the magnitude of the ratio and also informed by the distribution of the disparity ratios calculated.[40] Outcomes for which

[39] Designations were originally set by the Ohio Department of Health in 1997 for the 1998 Ohio Family Health Survey (OFHS) and were slightly adjusted in 2004 and again in 2010, in accordance with a federal re-designation of Ashtabula and Trumbull counties as Appalachian.

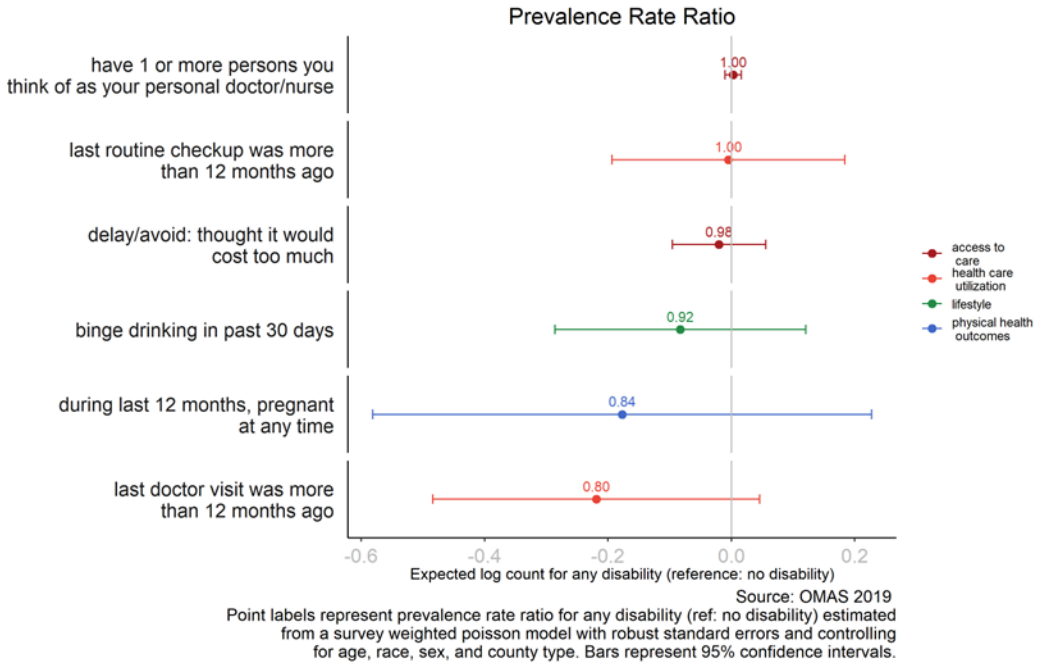
[40] Across both surveys, the smallest disparity ratio is 0.74; first quartile is 0.98; median is 1.71; mean is 2.48; third quartile is 2.97; largest ratio is 13.29.

there are no statistically significant differences between adults with and without disabilities at a significance level (α) of 0.05 are shown in Figure 52 and Figure 53. Outcomes with a statistically significant prevalence rate ratio of 2 or less are categorized as "small" disparities and are shown in Figure 54, Figure 55, and Figure 56. Outcomes with a statistically significant prevalence rate ratio between 2 and 4 are categorized as "moderate" disparities and are shown in Figure 57 and Figure 58. Outcomes with a statistically significant prevalence rate ratio greater than 4 are categorized as "large" disparities and are shown in Figure 59 and Figure 60.

No disparities

There are a handful of health outcomes for which there are no statistically significant differences between adults with and without disabilities at a significance level (α) of 0.05 controlling for age, race, sex, and county type (for OMAS only). As shown in Figure 52, we estimate that adults with disabilities have similar prevalence rates to adults without disabilities for having a personal doctor/nurse, the time since their last routine checkup, delaying or avoiding care because of cost, binge drinking, pregnancy in the last year, and the time since their last doctor's visit. Although not shown below due to exceptionally large confidence intervals, we also do not find any statistically significant differences in rates of ever having had a stroke or unmet needs for drug/alcohol treatment.[41]

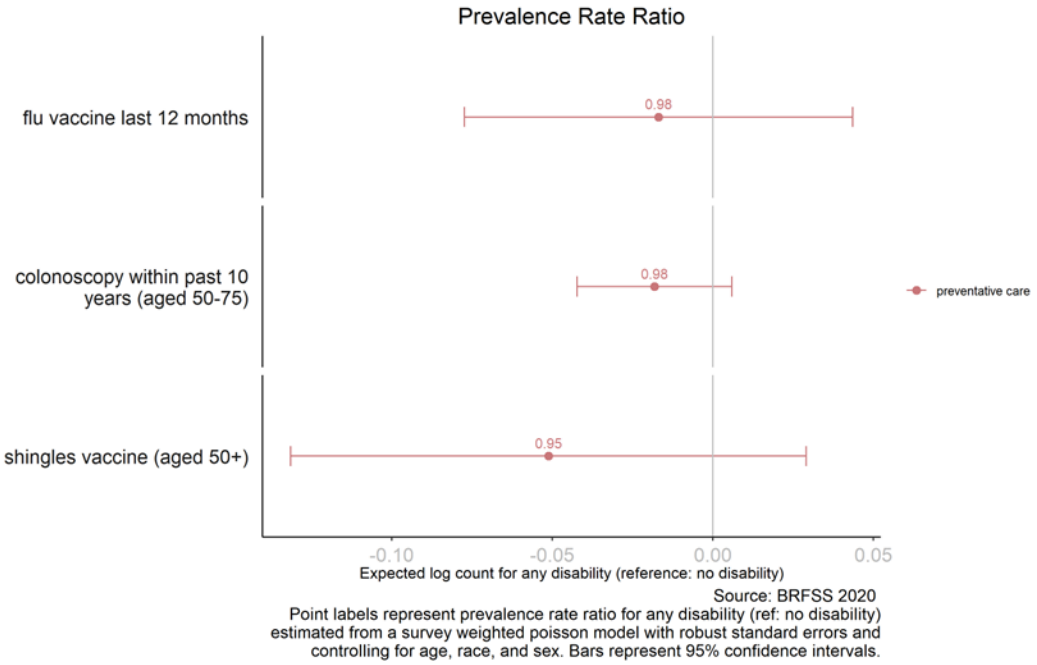
Figure 52: No Disparities Between Ohio Adults with and without Disabilities (OMAS)



[41] Refer to Table 44 and Table 16 in the Appendices for prevalence rate ratios for ever having had a stroke and unmet need for drug/alcohol treatment, respectively.

Figure 53 shows health outcomes from the BRFSS where there are no statistically significant differences between adults with and without disabilities at a significance level of 0.05 controlling for age, race, and sex: having received a flu vaccine in the last twelve months, had a colonoscopy within the past 10 years (among adults aged 50-75), and had a shingles vaccine (among adults over the age of 50).

Figure 53: No Disparities Between Ohio Adults with and without Disabilities (BRFSS)



Small Disparities

Figure 54 shows some health outcomes, lifestyle behaviors, and chronic conditions from the 2019 OMAS where there are small disparities for adults with disabilities. Adults with disabilities are estimated to have slightly lower rates of having health insurance (0.98 times as likely), taking diabetic pills if they have diabetes (0.90 times as likely), or having experienced an injury from a fall that resulted in a visit to a doctor (0.89 times as likely). Adults with disabilities had higher rates of high cholesterol (1.53 times as likely), hypertension (1.47 times as likely), using smokeless tobacco products (1.52 times as likely), and having delayed or avoided care because a provider was not available when they needed to go in the last year (1.33 times as likely).

Figure 54: Small Disparities (1) Between Ohio Adults with and without Disabilities (OMAS)

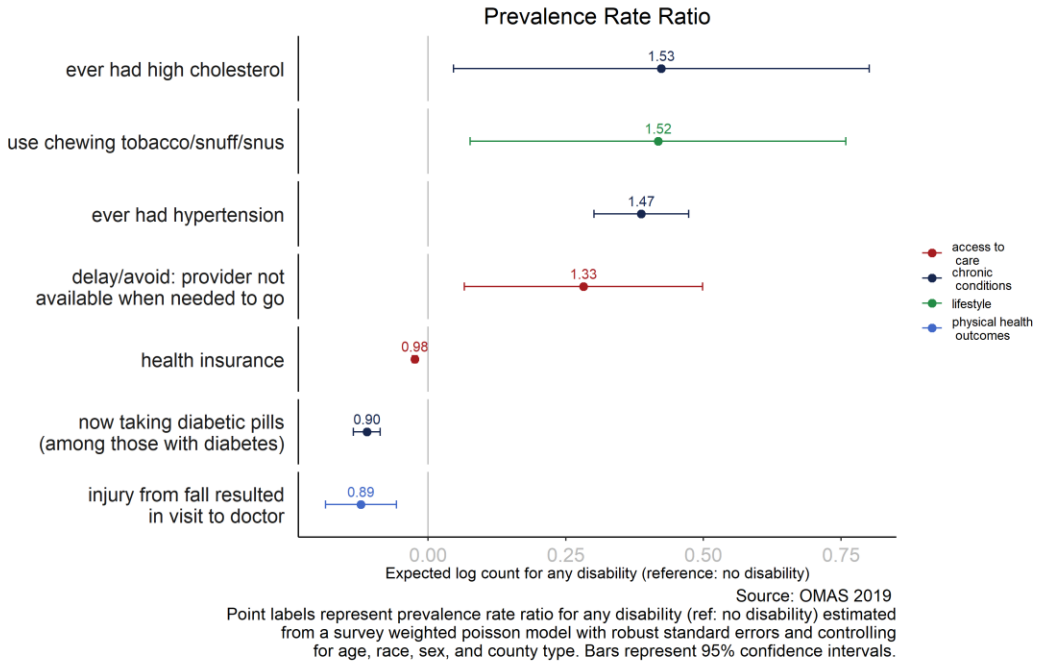


Figure 55 shows areas of health and healthcare from the 2020 BRFSS where we estimate that there are minimal disparities between adults with and without disabilities. These include lifestyle behaviors, such as having exercised in the last 30 days (0.74 times as likely), sleeping at least seven hours per night on average (0.79 times as likely), attempting to quit smoking (among current smokers) in the last year (1.18 times as likely), and having ever been tested for HIV (1.5 times as likely). There are also relatively small disparities in cancer screenings, such as having received a pap smear test within the past three years among women aged 18-65 (0.87 times as likely), having received a mammogram within the past two years among women over the age of 40 (0.86 times as likely), and having received a prostate-specific antigen (PSA) test within the last two years among men over the age of 40 (0.90 times as likely). Finally, there are small disparities for rates of having visited the dentist in the last year (0.74 times as likely), being a healthy weight (0.81 times as likely), having ever had a hysterectomy among women (1.4 times as likely), and having ever had cancer, excluding skin cancer (1.6 times as likely).

Figure 55: Small Disparities Between Ohio Adults with and without Disabilities (BRFSS)

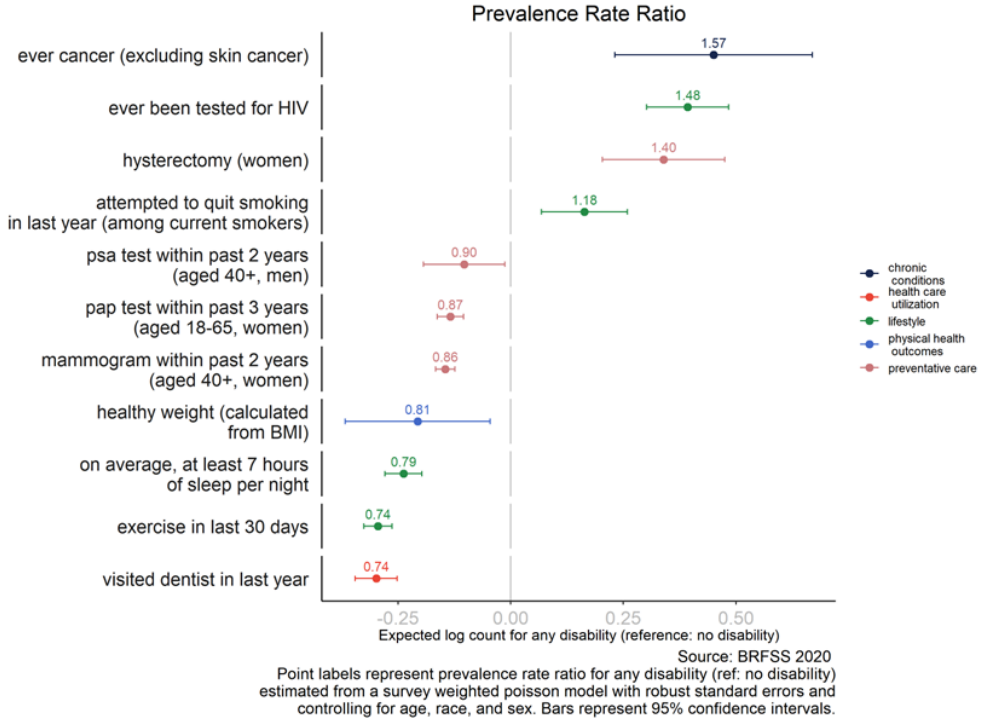
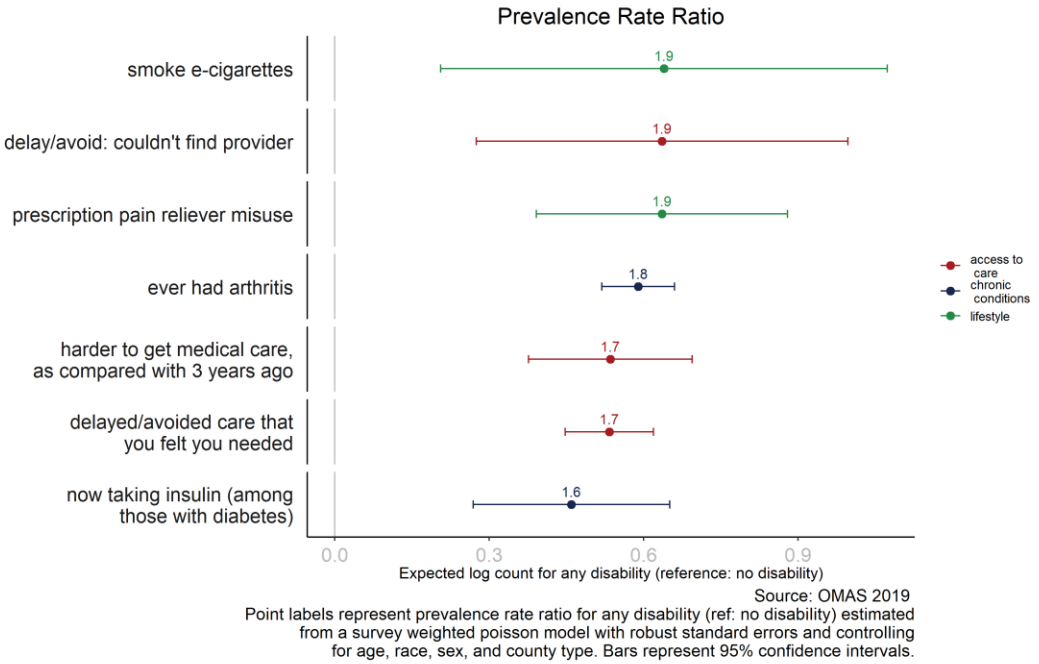


Figure 56 shows additional outcomes from the 2019 OMAS pertaining to access to care, chronic conditions, and lifestyle behaviors, where there are small disparities between adults with and without disabilities. Adults with disabilities have a higher prevalence of substance use when it comes to smoking e-cigarettes (1.9 times as likely) and misuse of prescription pain relievers (1.9 times as likely). Adults with disabilities also have higher rates of arthritis (1.8 times as likely) and of taking insulin among diabetics (1.6 times as likely). Finally, adults with disabilities report more barriers to accessing healthcare – they were 1.7 times as likely to delay or avoid care they felt they needed in the last year, 1.9 times as likely to do so because they could not find a provider, and 1.7 times as likely to report that it was currently harder to find medical care than three years ago.

Figure 56: Small Disparities (2) Between Ohio Adults with and without Disabilities (OMAS)



Moderate Disparities

Figure 57 shows moderate health disparities in the magnitude of two-to-three times the rate for adults with disabilities. Regarding access to care, adults with disabilities have higher rates of being covered by Medicaid (2.8 times as likely), having "other" unmet health care needs (2.8 times as likely), and having unmet dental care needs (2.7 times as likely). Heart health is also an area of sizable disparities. Adults with disabilities were 2.9 times as likely to have had coronary heart disease and 2.8 times as likely to have ever had a heart attack. Adults with disabilities also have higher rates of other chronic conditions, such as asthma (2.1 times as likely) and diabetes (2.1 times as likely). Marijuana/cannabis use and cigarette smoking rates are relatively higher among adults with disabilities (2.2 times and 2.1 times as likely, respectively). Finally, adults with disabilities have moderately higher rates of having been injured due to a fall in the last year (3.0 times as likely) and often feeling like they lack companionship (3.0 times as likely).

Figure 57: Moderate Disparities Between Ohio Adults with and without Disabilities (OMAS)

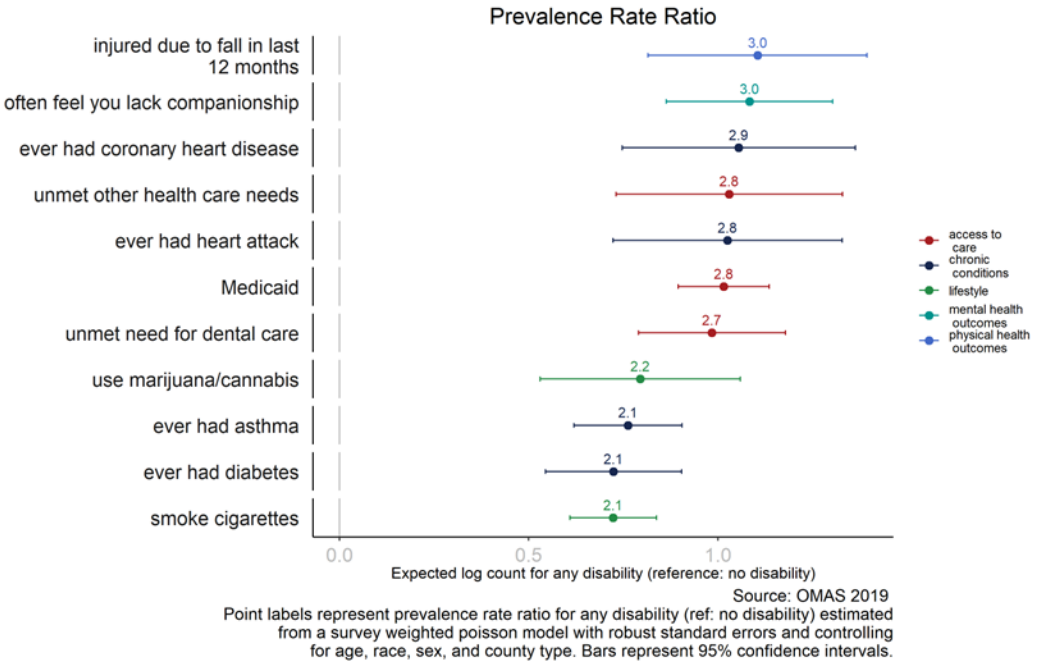
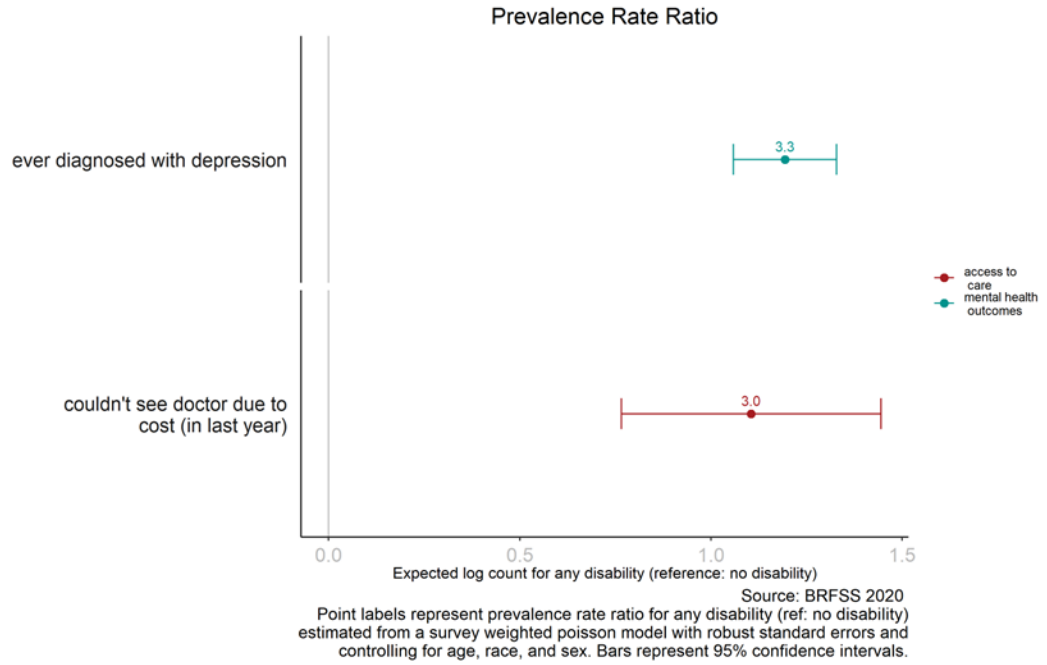


Figure 58 illustrates areas of modest disparity from BRFSS between Ohio adults with and without disabilities. Compared to peers without disabilities, Ohioans with disabilities were 3.3 times as likely to have ever been diagnosed with depression and 3.0 times as likely to report not being able to see a doctor due to cost in the last year.

Figure 58: Moderate Disparities Between Ohio Adults with and without Disabilities (BRFSS)



Large Disparities

Figure 59 shows the two largest disparities in health outcomes for adults with disabilities from the 2020 BRFSS data. Adults with disabilities in Ohio were 7.1 times as likely to report 14 or more physically unhealthy days in the last 30 days and 4.4 times as likely to have ever had chronic obstructive pulmonary disease (COPD).

Figure 59: Large Disparities Between Ohio Adults with and without Disabilities (BRFSS)

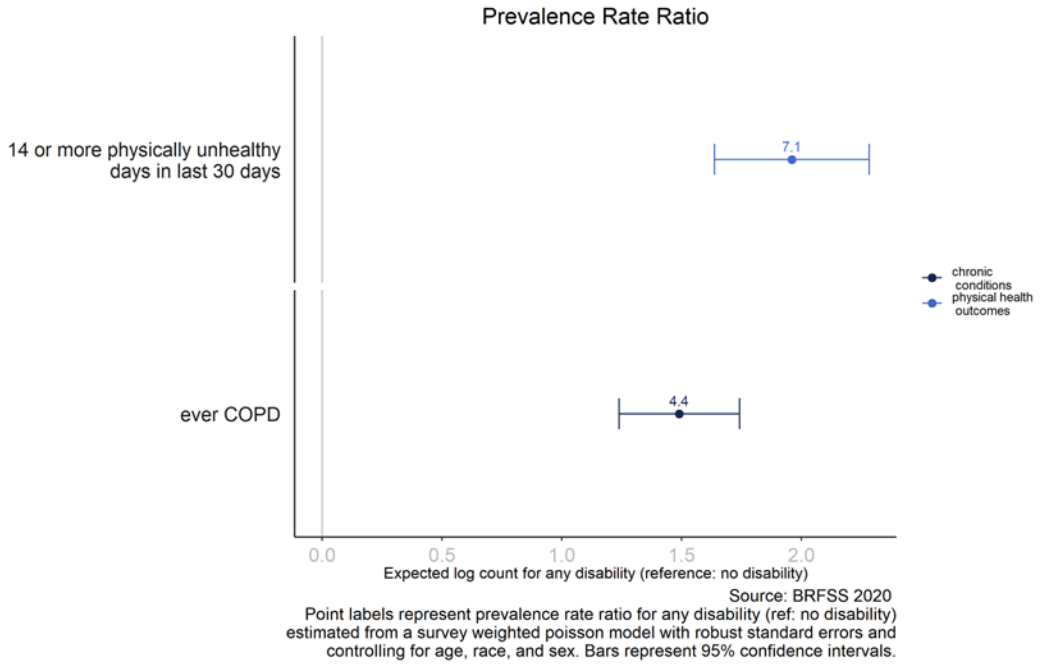
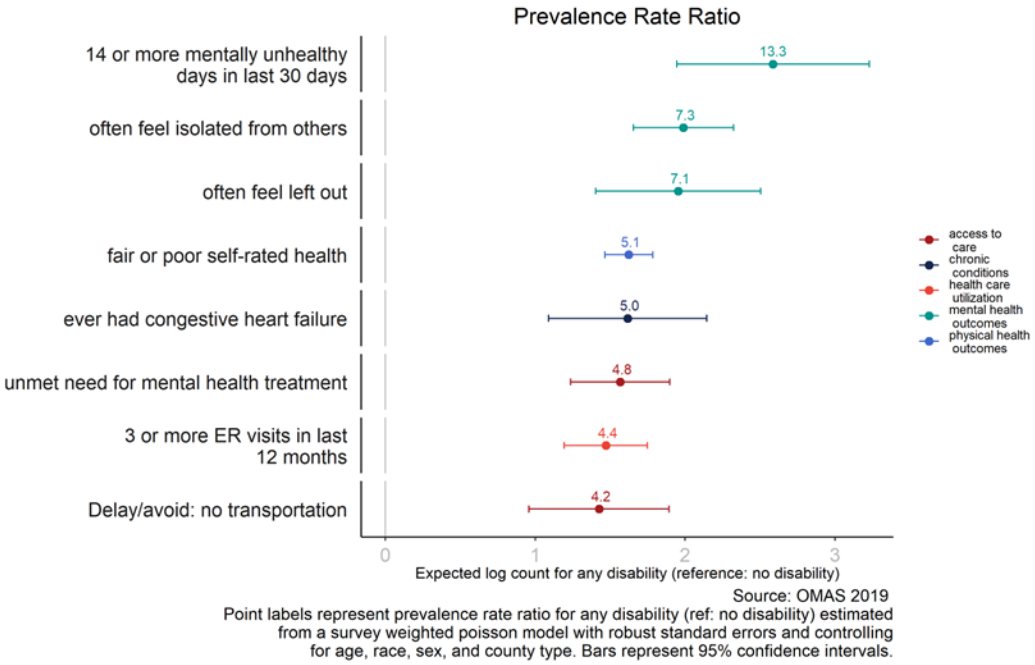


Figure 60 shows the largest disparities in health outcomes for adults with disabilities from the 2019 OMAS data. It is noteworthy that the top three disparities pertain to mental health outcomes and another outcome pertains to access to mental health care. Ohio adults with disabilities have much higher rates of reporting 14 or more mentally unhealthy days in the last 30 days (13.3 times as likely), often feeling isolated from others (7.3 times as likely), and often feeling left out (7.1 times as likely). The magnitude of these disparities is particularly alarming when considering that adults with disabilities were 4.8 times as likely to have unmet mental or emotional healthcare needs.

Other sizable disparities are estimated for physical health, including fair or poor self-rated health (5.1 times as likely) and congestive heart failure (5.0 times as likely). These findings, in combination with the disparities shown in the BRFSS in Figure 59 and in OMAS in Figure 57, indicate that physical health, and specifically heart health, is an area where there are substantial disparities between adults with and without disabilities. Finally, we estimate that adults with disabilities had higher rates of three or more emergency room visits in the last twelve months (4.4 times as likely) and having delayed or avoided medical care they needed because they did not have transportation (4.2 times as likely).

Figure 60: Large Disparities Between Ohio Adults with and without Disabilities (OMAS)



Prevalence by Race/Ethnicity

Health inequities are compounded when people with disabilities also belong to other historically marginalized and underserved communities, such as those based on race, ethnicity, or place of living (Courtney-Long et al., 2017; Dembo et al., 2022; Magaña et al., 2016). Therefore, we select the health indicators and outcomes with the largest disparities for adults with disabilities (Figure 59 & Figure 60) and compare unadjusted prevalence estimates for adult Black, Indigenous, and People of Color (BIPOC) with disabilities and White adults with disabilities. BIPOC is a derived category created by collapsing four race/ethnicity groups in OMAS (Black, Hispanic, Asian, and Other) and using a calculated race variable for White and Non-White in BRFSS.[42] We aggregate multiple race/ethnicity groups due to small sample sizes. We opt for a comparison of unadjusted prevalence estimates for this subpopulation analysis due to the complexity of interpreting coefficients as prevalence rate ratios for an interaction term in a Poisson model. The primary limitation of this choice is that while we discuss differences across race/ethnicity groups in this section, we are not accounting for other covariates that may be influencing these health outcomes. We therefore moderate any conclusions about race/ethnicity being the primary driver of differences discussed below but highlight these findings as indication of need for further analysis into the interactive effect of disability and race/ethnicity on health care access and health outcomes.

[42] In BRFSS, the Non-White category is an aggregation of Black, American Indian or Alaskan Native, Asian, Native Hawaiian, Other, Multiracial, and Hispanic

We found that, compared to White Ohioans with disabilities (20.3%), BIPOC adults with disabilities were substantially more likely to delay or avoid care because they did not have transportation (33.7%) (Figure 99 in Appendices). Additionally, BIPOC adults with disabilities were more likely than White adults with disabilities to report "fair" or "poor" health (50.1% vs. 45.0%) (Figure 100 in Appendices), and slightly more likely to report they often feel left out (19.4% vs. 15.5% for White adults with disabilities) (Figure 101 in Appendices). BIPOC adults with disabilities were also slightly more likely have three or more emergency room visits in the last 12 months (15.7%) compared to White adults with disabilities (12.0%) (Figure 102 in Appendices).

Of note, BIPOC adults with disabilities were less likely to have ever had Chronic Obstructive Pulmonary Disease (COPD) (14.5%) compared to White adults with disabilities (21.3%) (Figure 103 in Appendices).

Finally, we observed no substantial differences by race/ethnicity for having 14 or more physically unhealthy days in the last 30 days, 14 or more mentally unhealthy days in the last 30 days, having an unmet need for mental health treatment, often feeling isolated from others, nor ever having congestive heart failure (Figure 104-Figure 108 in Appendices).

Prevalence by Geographic Location

In light of the geographic clustering of social vulnerability in the Southern and Southeastern parts of the state (see the section on the CDC's Social Vulnerability Index and Figure 4 & Figure 5), in addition to high disability prevalence rates in these counties, there is analytical grounds for a subpopulation analysis of health outcomes by geographic location. In this section we explore differences in the unadjusted prevalence estimates for adults with disabilities living in each of the four county types classified in the OMAS. We again focus on outcomes with the largest disparities between adults with and without disability for brevity (Figure 60). [43] Counties are classified as metropolitan, suburban, rural non-Appalachian, and rural Appalachian. While the first three county types are fairly evenly distributed throughout the state, the Southern and Eastern border counties of Ohio are almost exclusively categorized as rural Appalachian.

Interestingly, we generally do not find that adults with disabilities living in Southeastern counties of Ohio (rural Appalachian) are faring much worse than their counterparts in other parts of the state, at least when examining unadjusted prevalence rates. The one outcome for which this subpopulation is doing relatively poorly is for self-rated health - we found that adults with disabilities who live in rural Appalachian counties were more likely to rate their health as "fair" or "poor" (52.4%) compared to adults living in metropolitan (45.8%), suburban (41.7%), or rural non-Appalachian (43.8%) counties (Figure 109 in Appendices).

In fact, where there are substantial differences in health outcomes by geography, it tends to be adults with disabilities living in metropolitan areas that are relatively worse off than adults with

[43] Public use BRFSS data does not include county-level information, so we are unable to estimate prevalence by county type for the outcomes with large disparities in Figure 59.

disabilities living in other parts of the state. This is particularly evident when it comes to mental health. Adults with disabilities living in metropolitan counties were more likely to report often feeling isolated from others (21.1%) as compared to adults with disabilities living in rural Appalachian (16.9%), rural non-Appalachian (16.3%), or suburban (16.0%) counties (Figure 111 in Appendices). This subpopulation also reported often feeling left out (17.3%) and having 14 or more mentally unhealthy days in the last 30 days (19.7%) at higher rates than adults with disabilities living in suburban counties (13.0% and 15.7%, respectively) (Figure 112 & Figure 114 in Appendices). These findings are particularly concerning considering that adults with disabilities living in metropolitan counties were more likely to report an unmet need for mental health treatment (19.7%) compared to adults living in rural Appalachian (14.3%), suburban (13.6%) or rural non-Appalachian (13.2%) counties (Figure 27 in Appendices). Additionally, adults with disabilities living in metropolitan counties were more likely to have visited the ER at least three times in the last 12 months (13.9%) as compared to adults with disabilities living in suburban counties (10.8%) (Figure 113 in Appendices).

Finally, we found no substantial differences by geographic location for the prevalence of ever having congestive heart failure, nor for delaying or avoiding care in the last year because of lack of transportation (Figure 115 & Figure 116 in Appendices).

Behavioral and Environmental Assessment

What are the Behavioral, Attitudinal, and Environmental Factors Associated with Health Disparities for Ohio Adults with Disabilities?

During the listening session conversations, we asked participants about their experiences with healthcare providers and with healthcare facility staff to assess behavioral and attitudinal factors.

In conversations around experiences with healthcare providers, 397 quotations emerged. The top three topics that were discussed were 1) examples of a healthcare provider demonstrating bias/ableism, 2) the lack of healthcare providers being familiar with or understanding of disability as being a barrier to care, and 3) experiences of not feeling listened to by healthcare providers. Table 9 describes the density of quotations around these top three experiences with healthcare provider topics and an example of a representative quote from each topic.

Table 9: Top Three Experiences with Healthcare Provider Topics Discussed during the Listening Sessions

Topic	Number of Quotations	Example Quote
Provider bias/ableism	43	*"I also have had a psychiatrist who when I tried to use my communication device in his office, he said 'no iPads in my office.' I said, 'it's a communication device.' He said, 'you're communicating just fine to me.' I was floored and frustrated. Don't tell me how I can or can't communicate, especially with barely knowing me."*
Lack of familiarity or understanding of disability	42	*"I walk into the exam room and he says, 'I have no idea about your disability whatsoever. I have no idea what your syndrome is.' And he is a primary care physician."*
Doesn't feel listened to by provider	41	*"And they seemed to forget, oh, just because you have a disability doesn't mean you can't [also] have something else wrong, like a friend of mine had cerebral palsy. They ignored her pain…that was different than normal…aches and pains. And it turns out it was cancer. They just don't think…that you can have more wrong with you, like anybody else."*

These three topic areas were discussed at nearly equal rates across all listening session groups.

Other notable topics of conversations that emerged during the listening sessions when discussing experiences with healthcare providers include:

- Discussion of general bad experiences with healthcare providers (38 quotes)
- Citing disrespectful treatment from healthcare providers (31 quotes)
- Discussion on how a healthcare provider did not involve the patient with a disability in care decisions and speaking instead to a caregiver/guardian/aide (28 quotes)
- Discussion around healthcare providers who lack the necessary knowledge and skills to treat people with disabilities (14 quotes)
- Discussion around action by a healthcare provider that led to a health problem not being diagnosed leading to delays in proper care by ignoring symptoms, not listening to the patient, denying a test, etc. (10 quotes)

Additionally, participants discussed the following facilitators as being important to having a positive experience with healthcare providers:

- Feeling listened to as a facilitator for good care (12 quotes)

- Providers who have a good familiarity and understanding of people with disabilities as a facilitator for good care (12 quotes)
- The importance of healthcare providers taking time to understand the patient's medical history as facilitator for good care (10 quotes)

For conversations around experiences with healthcare facility staff, 38 quotations emerged. The top two topics that were discussed were 1) experiences of disrespectful treatment from staff and 2) examples of staff demonstrating bias/ableism. Table 10 describes the density of quotations around these top two experiences with healthcare facility staff topics and an example of a representative quote from each topic.

Table 10: Top Two Experiences with Healthcare Facility Staff Topics Discussed during the Listening Sessions

Topic	Number of Quotations	Example Quote
Staff disrespectful treatment	14	*"I just don't like when they have to be rude to you in the doctor's office."*
Staff bias/ableism	9	*"They also seem to expect you to bring your own care provider to help you get up on the table, and then they are shocked that you travel without one! Yeah, we're capable of being out on our own and independent, thanks."*

While all listening session groups discussed experiences of disrespectful treatment with staff, only the Spanish group and, to a lesser extent, the mobility limitation group discussed experiences of staff bias/ableism.

Additionally, we assessed various environmental/contextual factors that may contribute to healthcare disparities for Ohioans with disabilities. First, we asked participants about their experiences with transportation to healthcare appointments in Ohio. Across all listening session groups, participants cited transportation as being a barrier in general and specifically that transportation services to healthcare appointments are unreliable. The conversation around transportation with these participants aligns with the findings of the recent Ohio Developmental Disabilities Council report on transportation accessibility for Ohioans with disabilities (Whalen Smith et al., 2021).

As another environmental/contextual factor, the COVID-19 pandemic has also impacted the quality-of-care Ohioans with disabilities receive. When discussing the pandemic, participants most frequently discussed being denied accommodations, experiences of providers lacking knowledge about accommodations, reporting general bad experiences with providers, and having unmet health needs as a result of the COVID-19 pandemic.

Furthermore, from reviewing patterns within the listening session data, the types of healthcare providers that participants described as problematic most often were 1) emergency room (ER)/hospital providers, 2) other specialists outside of primary/preventive care, and 3) mental health providers, followed closely by 4) dental providers.

For ER/hospital providers, the most frequent topics during the listening session conversations were experiences of not feeling listened to, reporting general bad experiences with these providers, being denied accommodations, negative encounters with these provider types during COVID-19, having unmet health needs, not involving the patient with a disability in care decisions, provider/staff actions that resulted in delays in proper diagnosis, provider bias/ableism, staff bias/ableism, lack of familiarity/understanding of disability, lack of knowledge about accommodations, disrespectful treatment by providers, disrespectful treatment by staff, unnecessary procedures or medications given, and discussing the need for self-advocacy in this setting. Of note, participants described interactions with ER/hospital providers most often in the context of overall bad experiences and experiences of staff bias/ableism as well as where provider/staff actions led to a delay in proper diagnosis.

For other specialists outside of primary/preventive care, the most frequent topics of discussion during the listening session conversations were experiences of not feeling listened to, reporting general bad experiences with these providers, being denied accommodations, equipment accessibility as a barrier, provider bias/ableism, cost of care as a barrier, lack of familiarity/understanding of disability, physical accessibility as a barrier, negative encounters with these provider types during COVID-19, being denied care, lack of knowledge about accommodations, and disrespectful treatment by providers. Of note, participants cited equipment accessibility as a barrier most often in the context of describing interactions with other specialists.

For mental health providers, the most frequent topics of discussion during the listening session conversations were experiences of being denied accommodations, not feeling listened to, disrespectful treatment by providers, not being permitted to use communication devices, limited options for care, provider bias/ableism, reporting general bad experiences with these providers, lack of familiarity/understanding of disability, and barriers with insurance coverage. Of note, not being permitted to use communication devices was only discussed in the context of mental health providers.

For dental providers, the most frequent topics discussed during the listening sessions were experiences of barriers with insurance coverage, cost of care barriers, equipment accessibility as a barrier, being denied accommodations, having unmet health needs, being denied care, lack of familiarity/understanding of disability, provider bias/ableism, and disrespectful treatment by providers.

Another pattern that emerged was that discussion about primary care providers was usually associated with positive experiences. Specifically, participants discussed experiences with primary care providers that were general good experiences, citing good relationships with their

primary care providers, examples of being provided accommodations, examples of being provided good healthcare, examples of feeling listened to, citing the benefits of continuity of care, citing positive interactions with their provider when discussing health topics, and examples of involving the patient with a disability directly in care decisions.

As noted previously, top environmental/contextual concerns impacting access to healthcare were physical accessibility and equipment accessibility barriers.

Finally, of note, the top three overall topics of conversation across the listening sessions involve attitudes and behaviors of healthcare providers. The most frequently discussed topics were

(1) examples of provider bias/ableism (43 quotes),

(2) being denied accommodations or receiving insufficient accommodations (42 quotes), and

(3) lack of provider familiarity/understanding of disability (42 quotes).

Educational Assessment

What Predisposing, Reinforcing, and Enabling Factors Could be Leveraged to Address Health Disparities for Ohio Adults with Disabilities?

When asked about suggestions to improve healthcare for Ohioans with disabilities, participants most often cited the need to improve training for healthcare professionals (34 quotations). Specifically, participants discussed the need for training healthcare providers 1) to be competent in the diversity of disability topics, 2) on how to provide accommodations, 3) to not make assumptions about patients with disabilities, 4) on how to treat a patient with a disability as an individual, 5) to understand how common disability is and the importance of being competent in disability topics, 6) on how to speak directly to a patient with a disability and to ask about their needs, 7) on how to listen to a patient with a disability as an expert in their own experience, 8) on the importance of understanding the medical history of a patient with a disability, and 9) on how to communicate and interact with the diversity of patients with disabilities.

Additionally, beyond training healthcare providers, participants frequently discussed the need for healthcare providers to treat people with disabilities as individuals. One participant stated:

> *"Ask us what we need, we will tell you. I'm willing to listen. I would tell medical students to see people with disabilities as human beings also, because we are human beings, you know. Treat us the way you would want to be treated when you go into a medical office or medical facility."*

Finally, another factor that was discussed by participants that contributes to better healthcare experiences and outcomes for people with disabilities was the need for self-advocacy (25 quotations) and asserting autonomy and involvement in health appointments (18 quotations). One participant stated:

"It's very important to know your rights and to know what's in the ADA and know what you need to fight for and what you need to do to stand up for yourself. Because there's always going to be that time when your parents and your good medical professionals that you have aren't always going to be there."

Administrative and Policy Assessment

Health Promotion Programs, Policies, and Services

When asked about current health programs or resources in Ohio that are accessible to people with disabilities, by far the most frequently discussed type of accessible program or resource discussed was exercise/physical activity (19 quotes).

Based on conversations with our key informants (our Disability and Health Partnership members), the top priorities that need to be addressed to improve healthcare capacity for Ohioans with disabilities include training healthcare providers, including mental health providers, on how to competently care for people with disabilities and addressing transportation issues in Ohio, given the findings from the Ohio DD Council transportation report and this assessment.

Discussion

Healthcare Disparities

We conclude that Ohio adults with disabilities experience large disparities in the areas of mental health, physical health, chronic conditions, access to care, and unmet health needs compared to Ohioans without disabilities. These findings are supported by our secondary data analysis, listening sessions with people with disabilities, and conversations with key informants. The largest health disparities were related to mental health. Controlling for age, race, and sex (and county type where available), Ohio adults with disabilities were approximately 13 times as likely to report 14 or more mentally unhealthy days in the past month, 7 times as likely to report often feeling isolated from others and feeling left out, 5 times as likely to report having an unmet need for mental health treatment, 3 times as likely to report having ever been diagnosed with depression, and 3 times as likely to report often feeling they lack companionship. These quantitative findings were consistent with our key informant interviews and listening sessions with Ohioans with disabilities who cited mental health as a priority health concern.

Large disparities in physical health were also found. Adjusting for other demographic factors, Ohio adults with disabilities were approximately 7 times as likely to report 14 or more physically unhealthy days in the last month and 5 times as likely to report “fair” or “poor” self-rated health. Ohio adults with disabilities were approximately 5 times as likely to report ever having congestive heart failure, 4 times as likely to report ever having chronic obstructive pulmonary disease, 3 times as likely to report ever having a heart attack and ever having coronary heart disease, 2 times as likely to report ever having diabetes, and 2 times as likely to report ever having asthma.

Disparities were also found for access to care where, controlling for age, race, and sex (and county type where available), Ohio adults with disabilities were approximately 4 times as likely to report delaying or avoiding care due to lack of transportation and 3 times as likely to report not being able to see a doctor due to cost in the last year. Ohio adults with disabilities also reported higher rates of unmet needs for care being about 3 times as likely to report unmet need for dental care and for other healthcare needs, as well as nearly 5 times as likely to report unmet needs for mental health treatment, as mentioned above. Finally, Ohio adults with disabilities were approximately 4 times as likely to visit emergency rooms (ER) for care than adults without disabilities (3 or more ER visits in the last year. These results were also supported from our listening sessions with Ohioans with disabilities who reported problems with access to care, including transportation and cost of care, negative experiences with the ER, and unmet healthcare needs, particularly for dental care. Additionally, results from the listening sessions may provide insight to disparities observed in access to care and healthcare utilization in the secondary data analysis. For example, from the NCI survey we estimated that only 34% of Ohio adults with intellectual and developmental disabilities (IDD) had their last dental exam

within the past 6 months compared to the national average of 50%. From our listening sessions, we learned that, for some Ohioans with disabilities, their insurance only covers one dental cleaning a year, which may explain in part why Ohio adults with disabilities are receiving biannual dental exams at a lower rate than the national average. Additionally, participants discussed the physical inaccessibility of clinics as being a barrier. For example, one participant told us:

> *"I'm going …back to the dental. I have got denied because - I actually went in there to see a dentist, and they said, 'well, …we can't accommodate you because the room is not big enough, and the chair is not big enough for you.' They apologized to me and then I had to go back home because, you know, they didn't feel it was safe enough for me to transfer to this chair. So, yeah, I have not seen a dentist in a long time either because they are not accessible."*

These healthcare disparities across mental health, physical health, chronic conditions, access to care, and unmet health needs are in line with national findings as discussed in the Introduction as well as national estimates across health indicators on national surveys. Furthermore, there are several health indicators and outcomes where Ohio adults with disabilities fared worse than adults with disabilities nationally. Specifically, Ohio adults with IDD were found to receive fewer colonoscopies, engage in less physical activity (specifically strength training), use more nicotine or tobacco products, and have a higher prevalence of mood disorders, anxiety disorders, and diabetes compared to national averages for the IDD subpopulation. Ohio adults with cognitive and mobility limitations were more likely to report 14 or more mentally unhealthy days in the past 30 days and ever having had arthritis than national averages for these subpopulations.

Furthermore, a plethora of current research confirms that people with disabilities experience preventable inequities in health outcomes (Havercamp and Scott, 2015; Krahn et al., 2015; Yee et al., 2018). These disability-related health inequities are compounded when people with disabilities also belong to other historically marginalized and underserved communities, such as those based on race, ethnicity, or place of living (Courtney-Long et al., 2017; Dembo et al., 2022; Magaña et al., 2016). In our assessment, we found some differences in unadjusted prevalence rates for adults with disability by race/ethnicity. We found that for four of the ten health outcomes with the largest disparities between adults with and without disabilities, Black, Indigenous, and People of Color (BIPOC) adults with disabilities fared worse than White adults with disabilities. Specifically, BIPOC adults with disabilities reported a higher unadjusted prevalence for each of the following indicators compared to White adults with disabilities:

- Delaying or avoiding care because did not have transportation
- Reporting "fair" or "poor" health
- Often feeling left out
- 3 or more ER visits in last 12 months

While this subpopulation analysis cannot pinpoint race/ethnicity as the primary driver of the estimated differences in prevalence for these four outcomes, as we did not adjust for other confounders, these findings indicate that in some areas, adults with disabilities from different racial/ethnic groups are differentially experiencing healthcare access and facing health challenges. The impacts of the intersectionality of race/ethnicity and disability status are well documented in the literature and underscore these findings. For example, data from the BRFSS over the years has consistently demonstrated that, nationally, BIPOC adults with disabilities are more likely to report negative health outcomes than White adults with disabilities (Blick et al., 2015). Similar findings have also been reported from the National Health Interview Survey and National Diabetes Statistics Report, and across multiple peer-reviewed journal articles (Blick et al., 2015). Importantly, people with disabilities are more likely than their peers without disabilities to have other marginalized identities based on race, ethnicity, and other identities (CDC, 2020; Horner-Johnson, 2021; Peterson-Besse et al., 2014). Intersectional research finds even greater risk for poorer overall health, lack of health insurance, fewer visits to a healthcare provider, and greater risk of early mortality from preventable diseases at the intersection of disability and race (Bauer et al., 2014; Gulley et al., 2014; Kaye, 2019). Given these alarming findings, interventions that target improving the health and access to healthcare for people with disabilities should specifically target BIPOC individuals with disabilities and other multiple marginalized identities.

Additionally, we found some differences in unadjusted prevalence rates for adults with disability by geographic location in the state. Interestingly, the most substantial geographic differences for the eight outcomes we examined exist between adults with disabilities living in metropolitan counties and adults with disabilities living in other parts of the state. For five of the eight health outcomes from the Ohio Medicaid Assessment Survey (OMAS) with the largest disparities between adults with and without disabilities, we found that adults with disabilities living in metropolitan counties fared worse than many of their counterparts in other counties. This is most evident for mental health outcomes. Specifically, adults with disabilities from metropolitan counties have higher unadjusted prevalence rates of the following indicators, compared to adults living in other county types:

- Unmet need for mental health treatment (as compared to suburban, rural non-Appalachian, and rural Appalachian counties)
- Often feel isolated from others (as compared to suburban, rural non-Appalachian, and rural Appalachian counties)
- Often feel left out (as compared to suburban counties)
- Having 14 or more mentally unhealthy days in the last 30 days (as compared to suburban counties)

Adults with disabilities living in metropolitan counties also had higher rates of three or more ER visits in the last year as compared to adults with disabilities in suburban counties. Collectively, these findings indicate that adults with disabilities living in metropolitan areas are in need of increased support and resources, with a particular focus on mental healthcare.

Additionally, adults with disabilities living in rural Appalachia were more likely to rate their health as "fair" or "poor" as compared to adults with disabilities in other regions of the state. From the CDC's Social Vulnerability Index (SVI), we have shown that Appalachian counties in Southeast Ohio have some of the highest prevalence rates of people with disabilities and are also among the most vulnerable counties in the state (as determined by the SVI) in terms of socioeconomic status, household composition and disability, minority status and language, and housing type and transportation. Despite finding few differences in the unadjusted prevalence rates of health and healthcare outcomes in the OMAS for adults with disabilities in rural Appalachian counties as compared to adults with disabilities in other areas of the state, the relatively high prevalence of people with disabilities and substantial social and economic barriers facing the residents of Southeastern Ohio merit increased attention to and resources for individuals with disabilities in these counties. Specifically, interventions that seek to improve the health and access to healthcare for people with disabilities should target Appalachian counties, and particularly counties along the Southeast border of Ohio.

Finally, there were several substantial differences of note for indicators where Ohio adults with IDD and mobility limitations fared worse compared to adults without disabilities in terms of unadjusted prevalence estimates. For Ohio adults with IDD, the most substantial differences observed (differences of 30% or greater compared to adults without disabilities) were:

- Ever diagnosed with depression (52.3% difference)
- Fair or poor self-rated health (48.7% difference)
- Often feel isolated from others (41.8% difference)
- 14 or more mentally unhealthy days in the past 30 days (38.5% difference)
- Unmet need for mental healthcare (37.8% difference)
- Ever diagnosed with arthritis (36% difference)
- Often feel left out (34% difference)
- Delayed or avoided care because no transportation (33.9% difference)
- Unmet need for dental care (30.3% difference)

For Ohio adults with mobility limitations, the most substantial differences observed (differences of 30% or greater compared to adults without disabilities) were:

- Fair or poor self-rated health (54% difference)
- 14 or more physically unhealthy days in the past 30 days (41.6% difference)
- Ever diagnosed with arthritis (40.6% difference)
- Exercised in the last 30 days: (36.6% difference)
- Hypertension (35.9% difference)
- Pap smear within past 3 years: (31.1% difference)

Areas where we found low or no disparity for Ohio adults with disabilities compared to adults without disabilities were for overall measures of engagement in preventive healthcare, including a range of cancer screenings (colonoscopy, PSA test, pap smear test, mammogram) and vaccinations (flu, shingles), as well as some measures of healthcare utilization, including doctor visits and regular check-ups.

Identified Gaps and Barriers to Care

People with disabilities face barriers to quality health care for several reasons. First, the resources for adults with disabilities are sparse and limited (Ervin et al., 2014). Unlike pediatric patients, adults with IDD lack focused healthcare resources for comprehensive medical and specialized care (Ervin et al., 2014). Second, communication barriers contribute to poor quality care as people with disabilities are less likely to understand and feel understood by their healthcare provider (Drum et al., 2005). Our findings from conversations with Ohioans with disabilities support these explanations. We found that many participants did not know of health resources or programs available in their community, had negative or difficult experiences with healthcare providers other than their primary care physician, and faced communication barriers, including a lack of plain language materials.

The top healthcare concerns reported by participants in our listening sessions were healthcare provider bias/ableism and healthcare provider lack of familiarity or understanding of disability. The top reported gaps and barriers to care included being denied accommodations or receiving insufficient accommodations, physical accessibility barriers, and insurance coverage barriers.

Importantly, the top healthcare concerns reported in our listening session described above were related to behavioral and attitudinal factors on the part of healthcare providers: specifically, bias/ableism, lack of familiarity or understanding of disability, and people with disabilities not feeling listened to by healthcare providers.

The key environmental and contextual factors contributing to healthcare barriers were transportation barriers, physical accessibility, equipment accessibility, and healthcare providers not being equipped with necessary knowledge, attitudes, and skills to competently care for people with disabilities.

These reported concerns, barriers, behavioral and attitudinal factors, and environmental and contextual factors help to frame and explain the substantial health disparities experienced by Ohio adults with disabilities. For example, the finding that women with mobility limitations were less likely to have up to date cervical cancer screenings than people without disabilities may have to do with the finding of physical and equipment inaccessibility as barriers.

Both key informants and listening session participants highlighted the need for training healthcare providers to provide disability competent care including how to provide

accommodations, and not make assumptions about disability. Two participants illustrate this point:

> *"I would say to doctors, upcoming doctors they need to be taught - taught that people with disabilities are just like everyone else. They have different challenges and barriers that they have to overcome. They can be overcome if they are provided the appropriate accommodations and appropriate opportunities."*

> *"You know, something that I've experienced as a blind person - not everybody knows how to lead you. You would think in a healthcare setting where they are coming in contact with all kinds of different people, with all kinds of different disabilities, … [this] would be something that they would teach them. I mean, physically how to lead. Some people, they want to grab you by the hand. Some people want to grab your cane. It's like they have no clue what to do…I guess with all of this stuff, they need to be taught how to help people no matter what their disability is, you know: blind, deaf, or in a wheelchair, or whatever. They just need, I don't know, sensitivity training, I guess or whatever you might want to call it."*

Based on our findings, it appears that these trainings should target providers outside of primary care, specifically inpatient and emergency medical providers, specialists, mental health providers, and dental providers. A key component of those trainings, based on our listening session conversations and supported in the literature, should be learning how to provide appropriate accommodations for patients with disabilities. Healthcare professionals do not have the formal training required to treat patients with IDD because, in part, there are no national expectations in residency training nor required accredited curriculum for medical schools (Ervin et al., 2014). This leads to a knowledge gap about people with disabilities and a decrease in their quality of care. Without disability training, healthcare providers tend to focus on a patient's primary disability rather than on promoting health and preventing secondary conditions (Anderson et al., 2013). Contributing to healthcare barriers is the fact that healthcare providers are poorly reimbursed by public insurance programs that many people with IDD have, which leads to a reluctance to treat people with IDD (Anderson et al., 2013). Physicians tend to give poorer physical exams, have a lack of appointment length time, and may focus on communicating with the caregiver rather than the patient as well (Anderson et al., 2013). In a study that used focus groups of people with disabilities and health professionals, all groups reported that health professionals need more education on people with disabilities (Morrison et al., 2008). There needs to be increased appointment times, physical access, and communication between the provider and patient (Morrison et al., 2008). People with disabilities also reported that the healthcare providers could not complete appropriate medical histories, diagnostic screenings, physical exams, and follow ups (Morrison et al., 2008). These findings reinforce the experiences shared by our listening session participants.

Listening session participants with disabilities reported that having a good relationship with their primary care physician facilitated good care. Participants shared experiences of providers who get to know them as an individual resulting in better outcomes. For example, one participant stated:

> *"I have had very good experiences, and I'm not sure why. Maybe because I have been going to the same doctor's office for about 20 years. And a lot of the staff have been there 10-15 years some they really know me. It feels personal. And when it feels personal, it just makes the overall experience feel better."*

Related to providers having a good relationship with patients with disabilities as a facilitator for good care, many participants from our listening sessions cited the very basic concept of treating people with disabilities as individuals as important in addition to the need to improve training of healthcare providers. The quotations from participants below highlight this concept:

> *"I would want them to remember that just like they have a favorite color and a favorite TV show, and a favorite type of music, I do, too. I'm just like them. Maybe if they can look at me and see their own humanity, they will treat me humanely."*

> *"We all need to be treated like a human."*

Therefore, there is great opportunity for providers to better understand patients with disabilities and establish good relationships through better training.

Given the evidence that healthcare providers are unprepared to meet the needs of patients with disabilities, a committee of people with disabilities, disability advocates, family members of people with disabilities, disability and health professionals, and interdisciplinary healthcare educators reached national consensus on a set of disability competencies for interdisciplinary healthcare professional training programs (Havercamp et al., 2021). These competencies, known as the *Core Competencies on Disability for Health Care Education*, represent six competencies with 49 sub-competencies and 10 overarching values and principles which address respect, person-centered care, and awareness of physical, attitudinal, and communication barriers in healthcare (Havercamp et al., 2021). These competencies serve as an excellent starting point and framework for improving the training and competence of interdisciplinary healthcare providers and reflect the priority training topics that our participants with disabilities say is needed in Ohio.

Limitations

As noted in the methods and footnotes throughout this report, there are limitations to this assessment and some results must be interpreted with caution. First, although impacts of COVID-19 arose in conversation during our listening sessions with people with disabilities, our secondary data does not reflect the impacts of COVID-19. All secondary data in this assessment

was collected prior to the pandemic. Therefore, this assessment largely represents health disparities for Ohioans with disabilities pre-pandemic and future assessments are needed to understand the impact of COVID-19 on health disparities. Second, because the 30 listening session participants were not randomly selected, qualitative findings are limited to the perspectives of these individuals and cannot be generalized more broadly to Ohioans with disabilities. Additionally, qualitative analysis is influenced by the subjective biases of the evaluator. To mitigate bias inherent in qualitative analysis, we used multiple independent coders, shared the results with individuals with disabilities in our Needs Assessment Work Group and DHP to see if the results made sense, and assessed the extent to which the qualitative findings were supported by the secondary data analysis and existing research and literature.

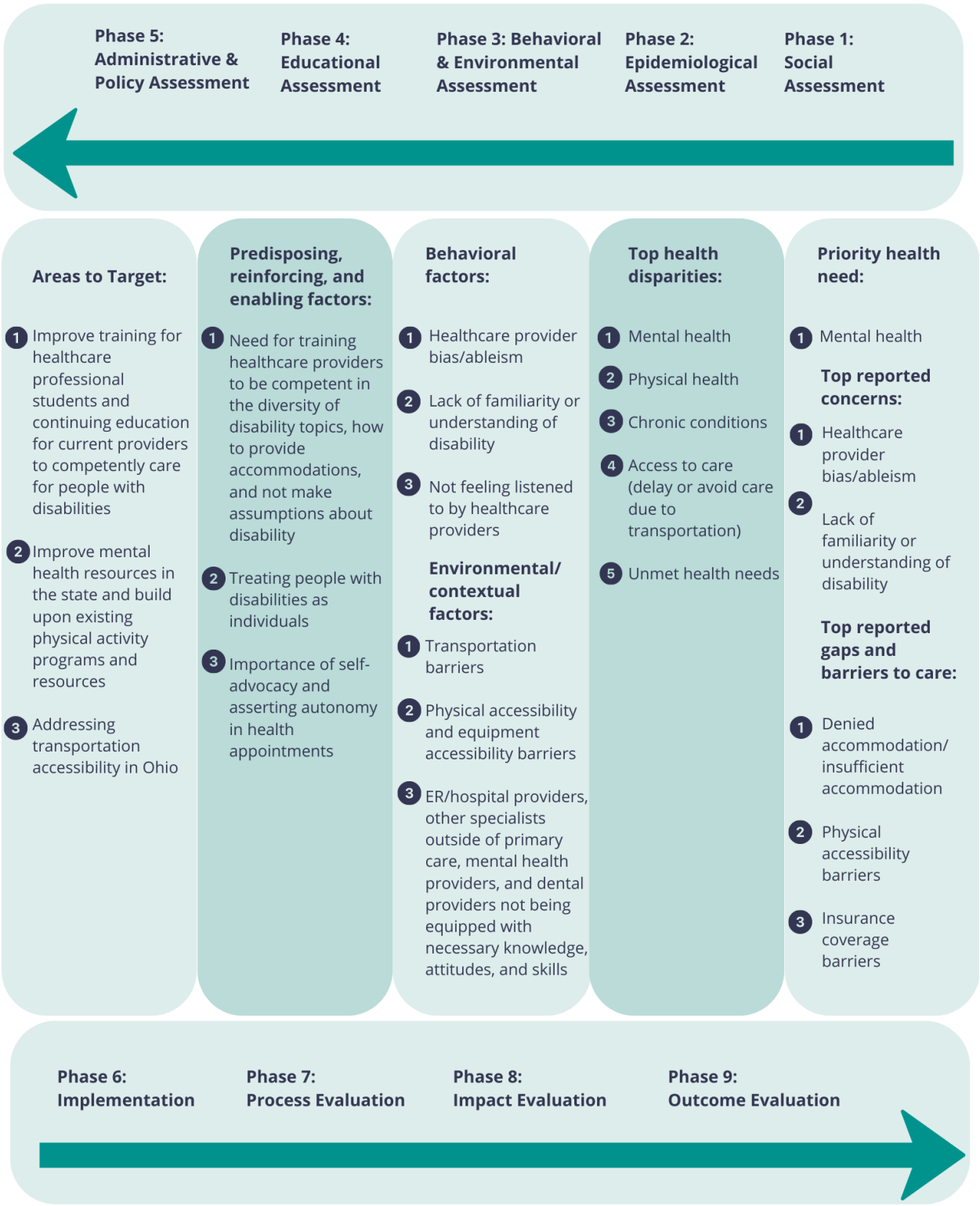
The main limitations of the secondary data analysis were 1) imperfect survey measurement of adults with intellectual and developmental disabilities; 2) sparse available data about healthcare utilization; and 3) limited and somewhat unreliable data for institutionalized Ohio adults with disabilities. First, as discussed in the Methods section, we were limited to measuring disability subgroups using the Health and Human Service (HHS) six-item set of functional limitations questions for Behavioral Risk Factor Surveillance System (BRFSS) and Ohio Medicaid Assessment Survey (OMAS) survey data, with the additional inclusion of a developmental disability question for the latter survey. This necessitated that we create a proxy measure of ID/IDD, which is likely misidentifying some individuals in the data. Second, the OMAS and BRFSS surveys, while being the most comprehensive sources of information available about state-level health outcomes and access to care in Ohio, had limited information about general healthcare utilization. The National Health Interview Survey (NHIS) collects data about a much broader variety of received care, including frequency of urgent care visits, hospitalizations, eye exams, physical therapy, mental health treatment, and home care. Unfortunately, we were unable to receive access to the NHIS data for Ohio as state-level data is not publicly available. To some extent, this leaves a gap in our knowledge about the healthcare needs of Ohioans with disabilities. Finally, the OMAS, BRFSS, and American Community Survey (ACS) Social Vulnerability Index (SVI) only sample non-institutionalized Ohioans. This means that we are largely missing information about the institutionalized Ohio adult population with disabilities. The National Core Indicators (NCI) fills in some gaps by surveying adults receiving services from the state developmental disabilities agency, which includes institutionalized Ohioans. However, the utility of the NCI estimates are limited by (a) a lack of a comparison with adults without disabilities; (b) a subset of estimates that are unreliable due high rates of missing data (greater than 25%); (c) very low response rates (1.9%) and no adjustments for nonresponse bias, which raises concern about the representativeness of the sample; and (d) exclusion of 18 counties in the Southeast of Ohio where there are some of the highest relative rates of disability. Despite these limitations, we believe that the quantitative assessment presented in this report is very comprehensive and gives an accurate view of the state of health outcomes and healthcare access as well as disparities in these domains for Ohio adults with disabilities.

PRECEDE-PROCEED Model

To identify patterns and relationships from our secondary data analysis, listening sessions, and key informant findings, we organized the key assessment results in the PRECEDE-PROCEED model (Table 11) for our health promotion program action planning.

The findings organized by the PRECEDE-PROCEED model clearly identify the behavioral and environmental/contextual factors that contribute to the observed health disparities and self-reported priority health needs, concerns, gaps, and barriers to care for Ohioans with disabilities. Furthermore, the model outlines the necessary predisposing, reinforcing factors as well as opportunities and capacity within current systems and structures that are needed to impact the behavioral and environmental/contextual barriers that contribute to poor outcomes for Ohioans with disabilities. Based on our findings, it is clear that there are actionable steps that can be taken to improve health outcomes for Ohioans with disabilities.

Table 11: PRECEDE-PROCEED Model Key Assessment Results



Action Plan

The Ohio Disability and Health Partnership (ODHP), in conjunction with our statewide partners, are tasked by the Centers for Disease Control and Prevention (CDC) to accomplish the following strategies from 2022 through 2026 after expanding our statewide partnerships and conducting a statewide needs assessment:

(1) Develop a statewide repository of accessible health tools and resources for Ohioans with disabilities

(2) Train healthcare personnel on best practices in providing accessible preventive healthcare to adults with disabilities

(3) Link adults with intellectual and/or developmental disabilities (IDD) to preventive health care and health promotion programs in their community

(4) Implement and evaluate evidence-based health promotion interventions

(5) Implement policy, system, and environmental changes

(6) Disseminate key findings and lessons learned

Based on the findings of our assessment and discussions with our Disability and Health Partnership (DHP) Key Informants and DHP Needs Assessment Work Group, we have identified the following priority action steps for each of our strategies. ODHP will work across various sectors and engage various stakeholders and state partners to implement these steps.

1. Develop a Statewide Repository of Accessible Tools and Resources

Throughout the assessment, we collected (from listening session participants and key informants) and searched for tools and resources related to accessible preventive healthcare in Ohio. As a result, we have organized numerous state and regional tools and resources to be published online in year 2 of our project (2022-2023). Based on the findings of this assessment, we will prioritize the inclusion of accessible and inclusive mental health resources and services as well as accessible transportation resources. We will work closely with our Disability Health Partnership to determine the tools and resources to be included in this online resource for Ohioans with disabilities and further refine the structure of the online resource.

2. Train Healthcare Providers

In our strategy to train healthcare providers, we will specifically aim to deliver our training and technical assistance to providers in emergency services and hospital settings, specialists, mental health providers, and dental providers. In Ohio, we will supplement the provider training that will be provided across the ten Disability and Health state programs with additional learning opportunities, tools and resources, and technical assistance for current healthcare providers that address the *Core Competencies on Disability for Health Care Education*, how to provide accommodations, how to care for a diversity of patients with disabilities, to replace incorrect assumptions about disability, and how to remove physical accessibility and equipment accessibility barriers. We will work closely with our Disability Health Partnership to develop

these supplemental training materials and select appropriate tools and resources for healthcare providers.

3. Link People with IDD to Preventive Healthcare and Health Promotion Services

When linking adults with IDD to preventive healthcare and health promotion services, we will prioritize identifying accessible mental health resources and accessible transportation services in the area for our linkage coordinator to share with the community health workers (CHWs) involved in linking people with IDD to care and services. Given the disproportionate health disparities observed in BIPOC adults with disabilities, we will target BIPOC adults with IDD in this linkage project.

4. Implement Health Promotion Interventions

The evidence-based health promotion program that will be offered by the ten states involved in the CDC Disability and Health Program is *Living Well in the Community* delivered through Centers for Independent Living. In Ohio, we plan to provide supplemental resources on mental health services and resources available through the tools and resources we develop online to the Centers for Independent Living to share with participants in the program. Given the disproportionate health disparities observed in BIPOC adults with disabilities, we will target BIPOC adults with IDD and/or ML in the recruitment of this health promotion intervention. Additionally, given some of the health disparities observed for adults with disabilities in rural Appalachian areas of the state as well as the findings that our most vulnerable counties on a variety of factors are located in Southeast Ohio, we will also target efforts in our Appalachian counties, particularly in Southeast Ohio.

5. Implement Policy, System, and Environmental Changes

Our identified Policy, System, and Environmental (PSE) change for this project is to train certified CHWs in Ohio on how to work with Ohioans with disabilities. In this training, we will prioritize the inclusion of information that addresses the *Core Competencies on Disability for Health Care Education*, how to provide accommodations, how to care for a diversity of patients with disabilities, to replace incorrect assumptions about disability, and how to remove physical accessibility and equipment accessibility barriers. Additionally, we will provide CHWs with information on accessible mental health services and resources as well as accessible transportation services in Ohio to share with their clients.

6. Disseminate Key Findings and Lessons Learned

As a result of this assessment, we will develop several plain language infographic fact sheets and policy briefs around the major findings of this report and to disseminate widely across key stakeholder groups in Ohio.

Finally, to continue ongoing assessment of the health needs of Ohioans with disabilities, ODHP staff will be actively engaged in the planning, implementation, and interpretation of a Disability Addendum for the 2022 Ohio State Health Assessment (SHA) to further build upon this statewide assessment. ODHP staff will also participate in the prioritization process from the findings of the 2022 SHA Disability Addendum for the Ohio State Health Improvement Plan

(SHIP). The partnership with the Ohio Department of Health on both the SHA and the SHIP will allow us to gather and use quality statewide health data on Ohioans with disabilities that can be sustained in future SHA's to regularly inform and guide policies, planning, and programs at the state level. The inclusion of the Disability Addendum in the SHA will reach broad audience of state leaders and key public health stakeholders in Ohio, who routinely rely on the SHA and SHIP for fiscal and program planning. We will leverage this assessment to ensure that the needs of Ohioans with disabilities are included in this planning effort.

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Appendices

Additional Prevalence Estimates

Demographics

Figure 61: Sex of Ohio Adults with IDD

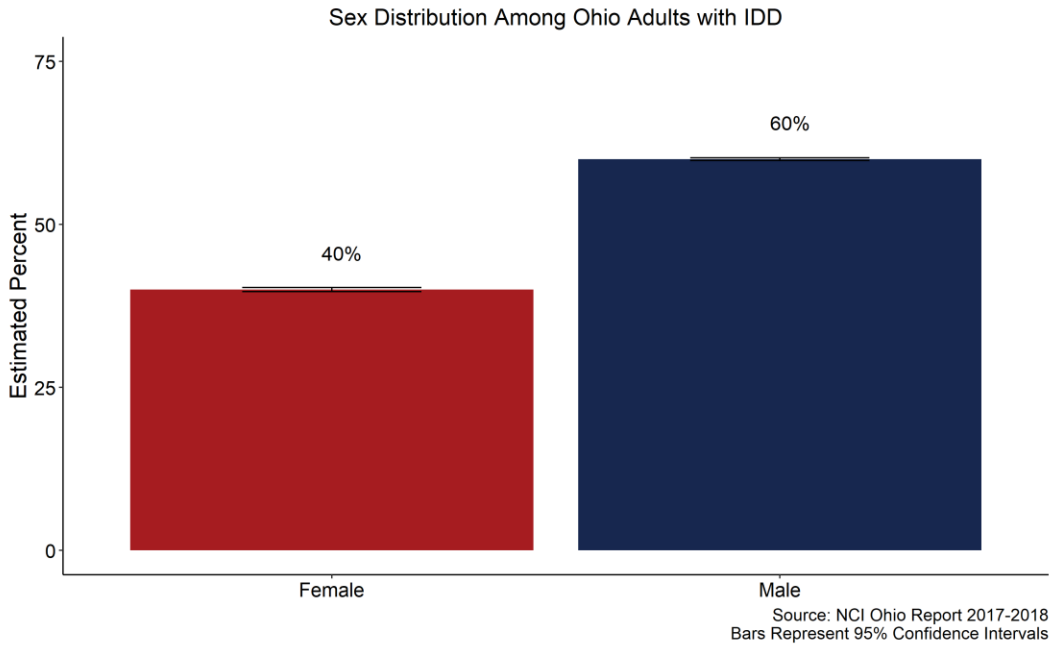


Figure 62: Race/Ethnicity of Ohio Adults with IDD

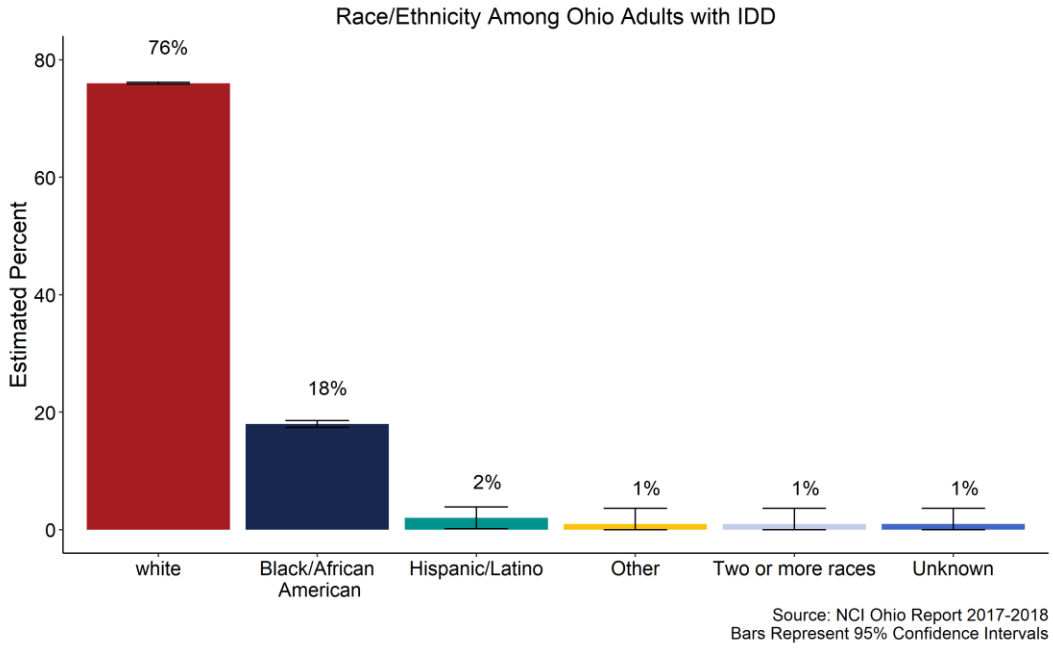


Figure 63: Age of Ohio Adults with IDD

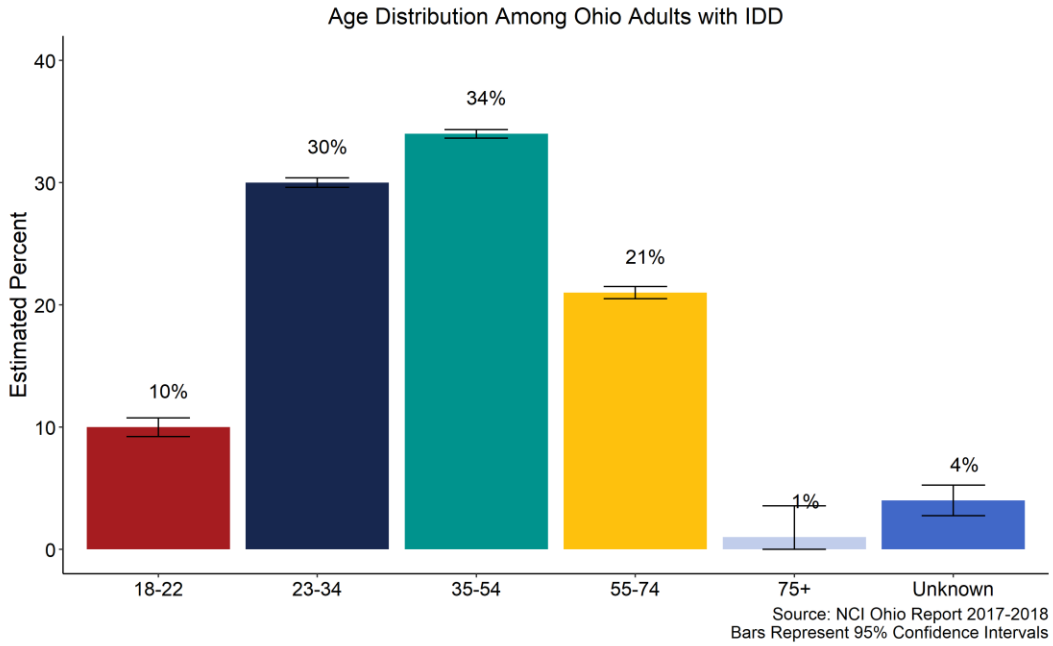
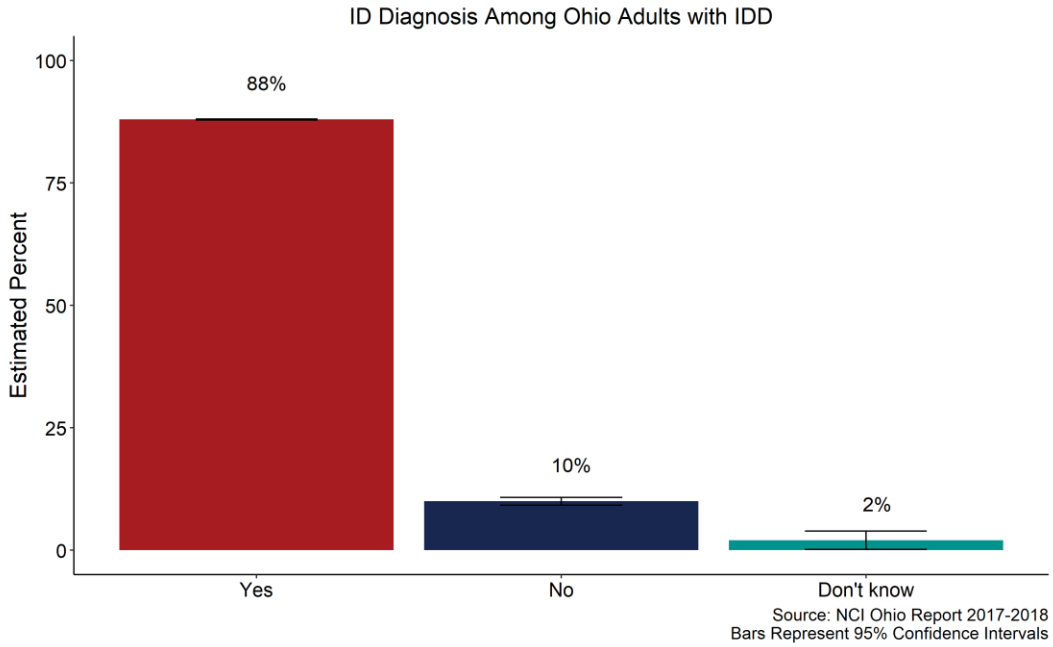


Figure 64: ID Diagnosis Among Ohio Adults with IDD



Engagement with Preventative Health Care

Figure 65: PSA Test Within 2 Years

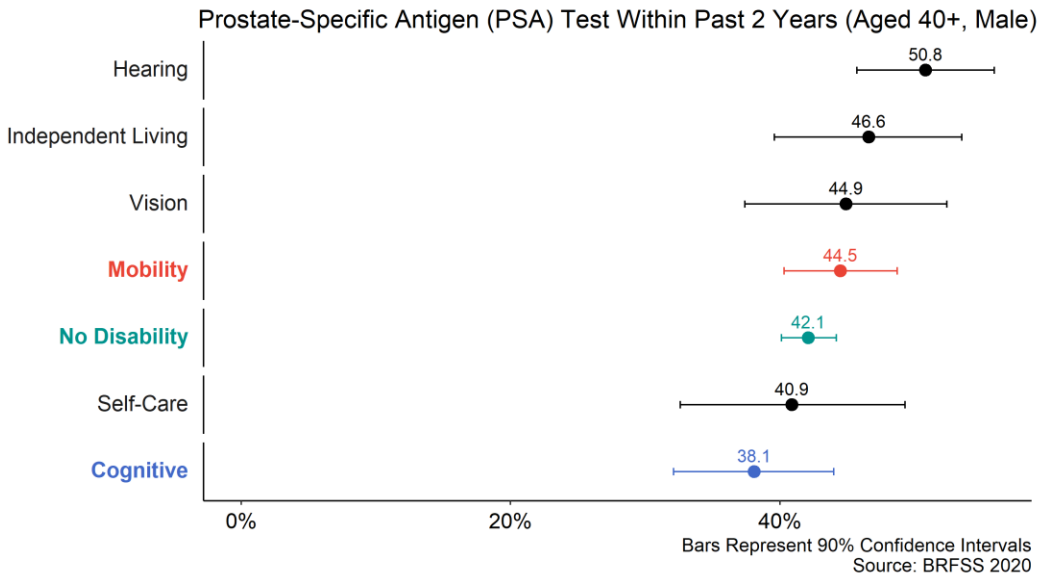


Figure 66: Flu Vaccine

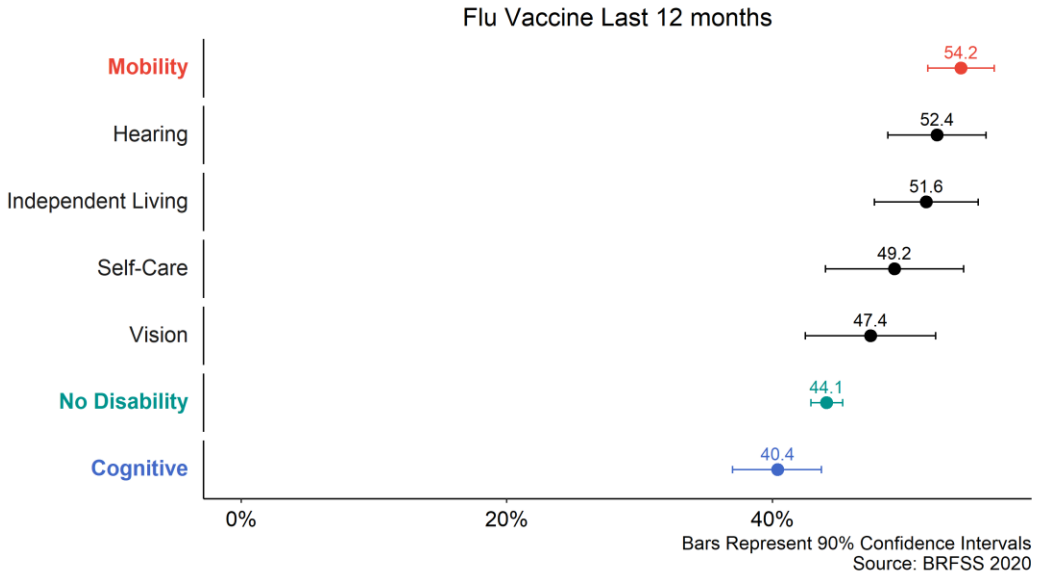
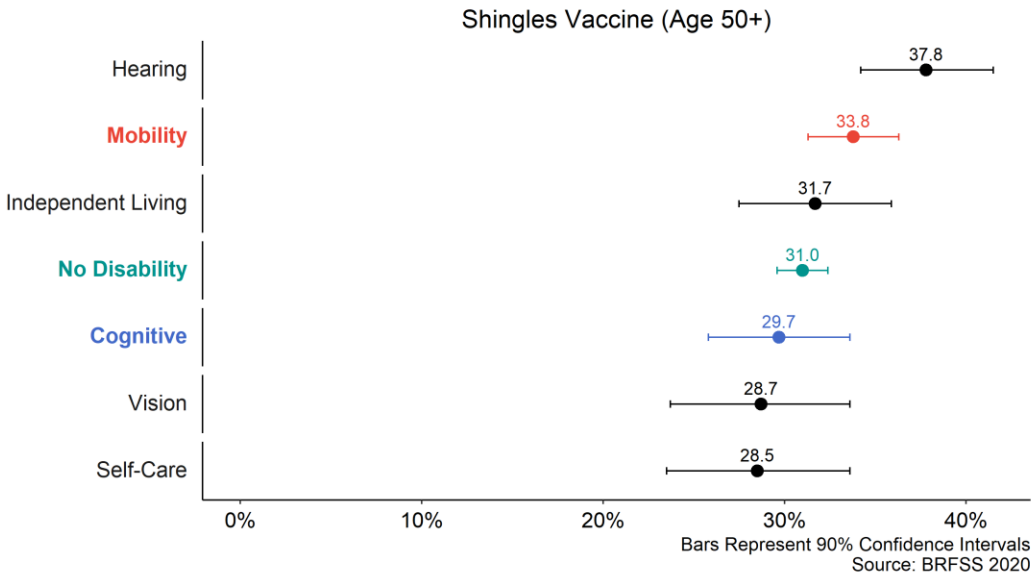
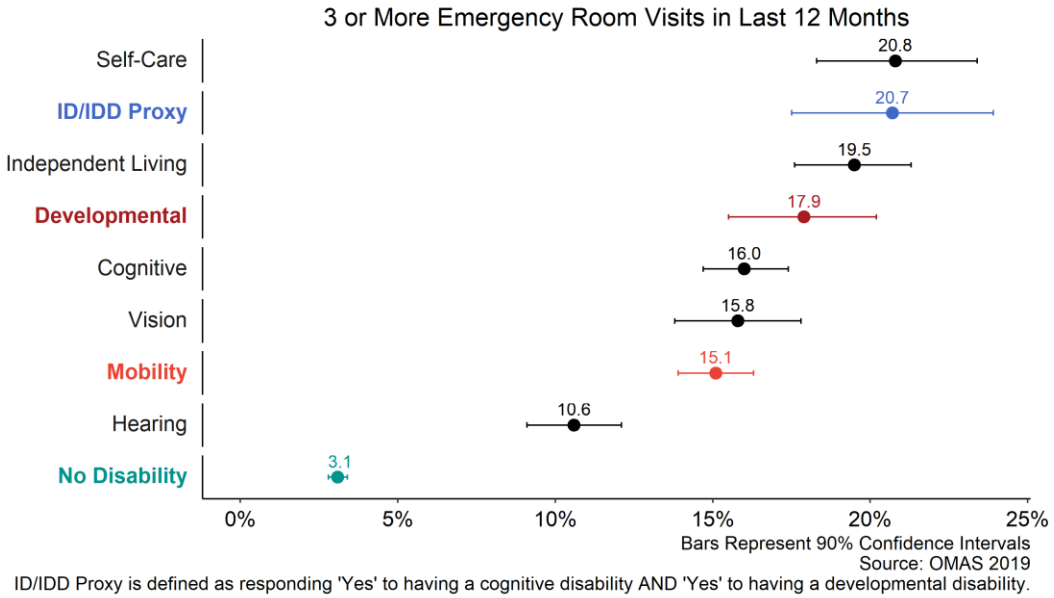


Figure 67: Shingles Vaccine



Health Care Utilization

Figure 68: Emergency Room Visits



Access to Care

Figure 69: Health Insurance Coverage

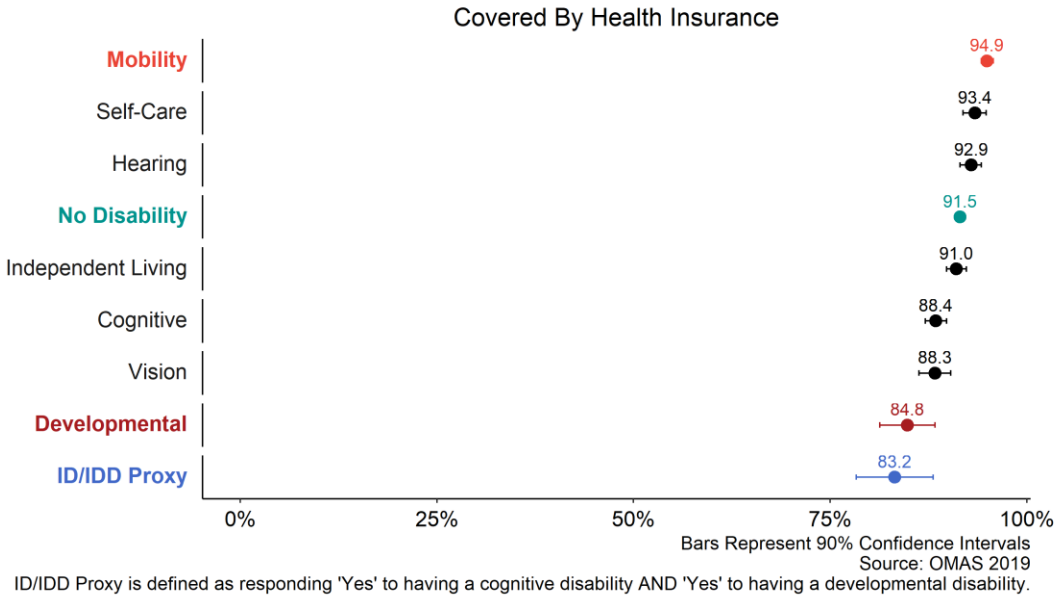


Figure 70: Covered by Medicaid

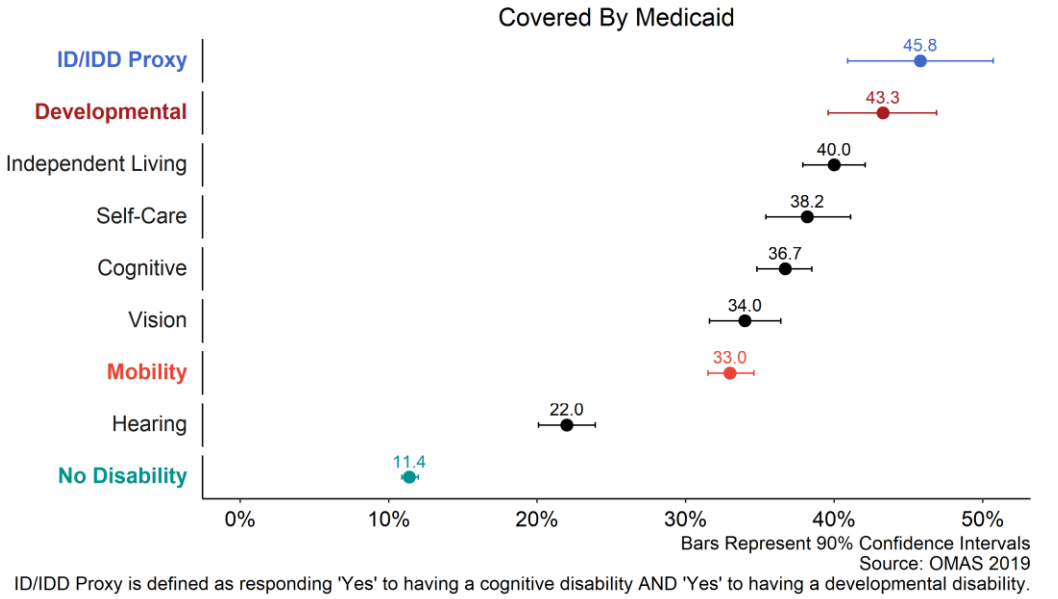


Figure 71: Unmet Need for Drug/Alcohol Treatment

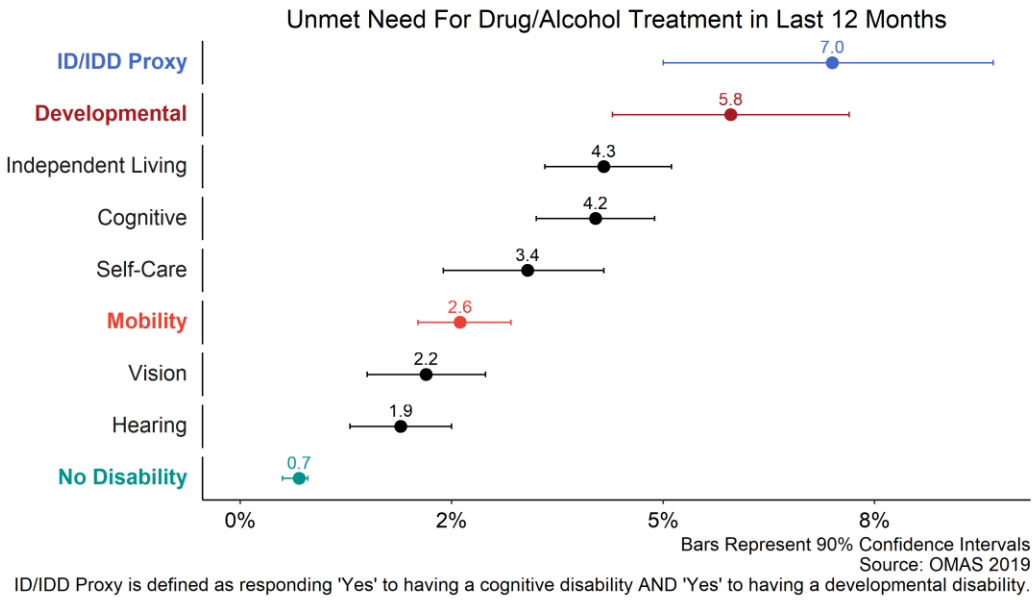


Figure 72: Unmet Other Health Care Needs

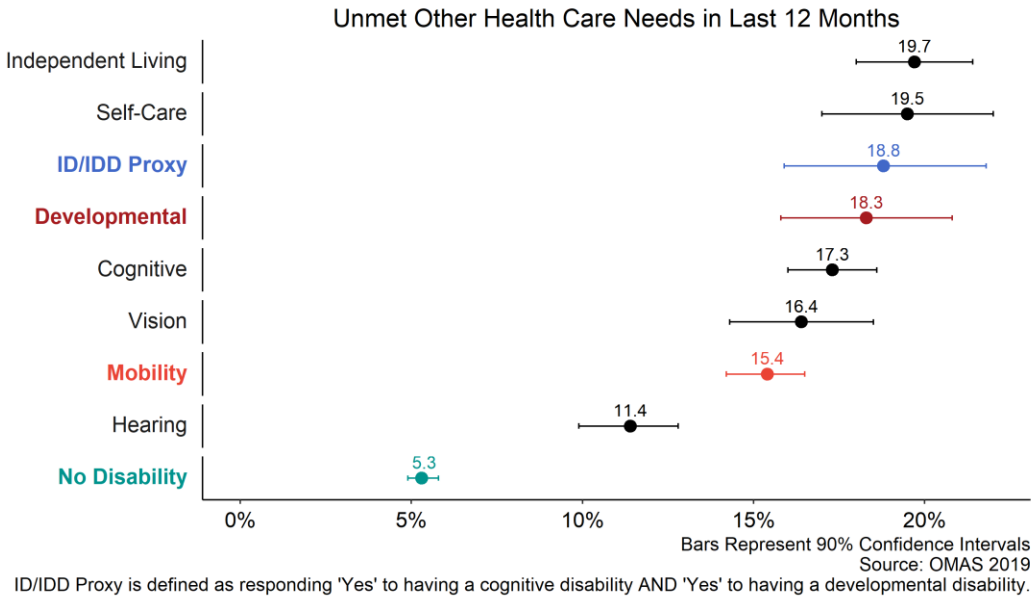


Figure 73: Harder to Get Medical Care

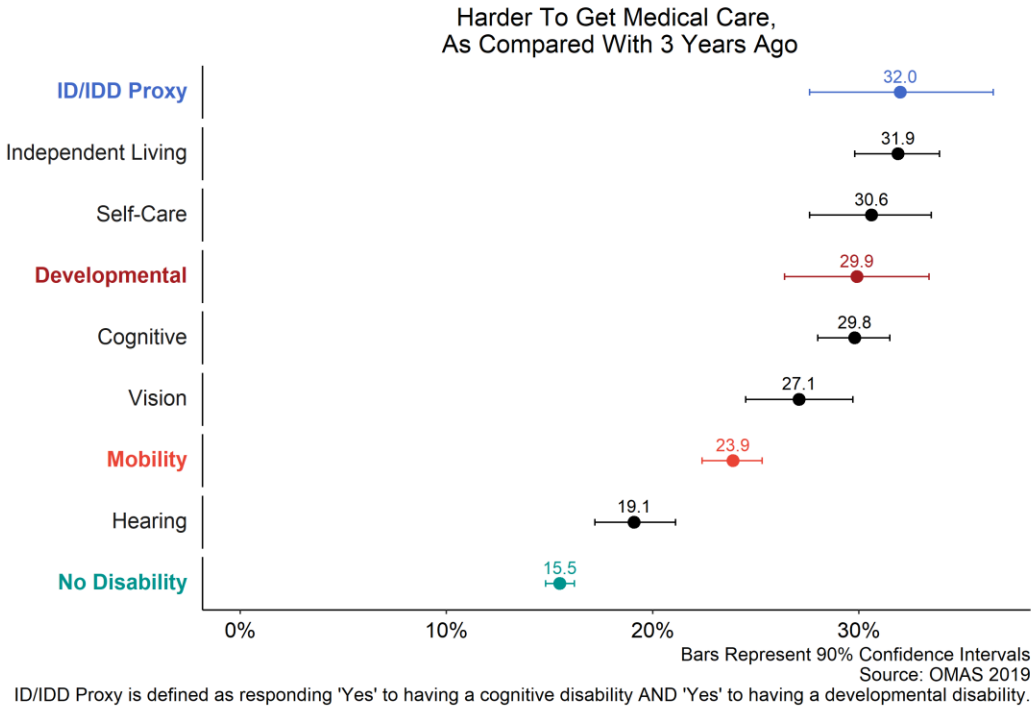


Figure 74: Delay or Avoid Getting Care Because Provider Was Not Available

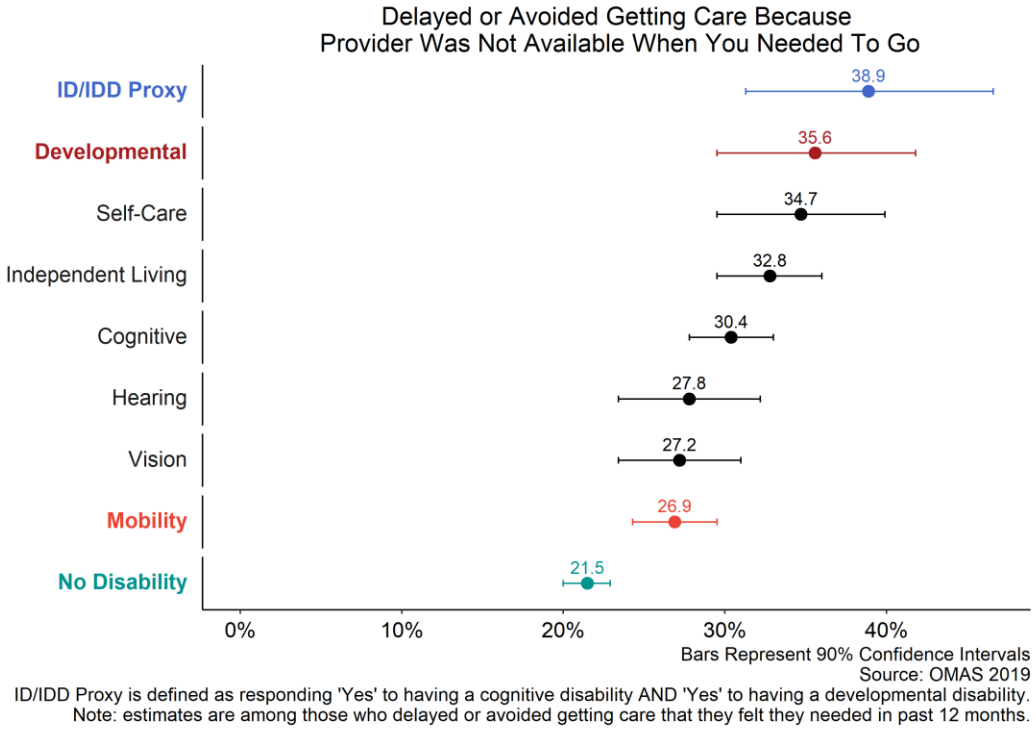


Figure 75: Could Not See Doctor Due to Cost

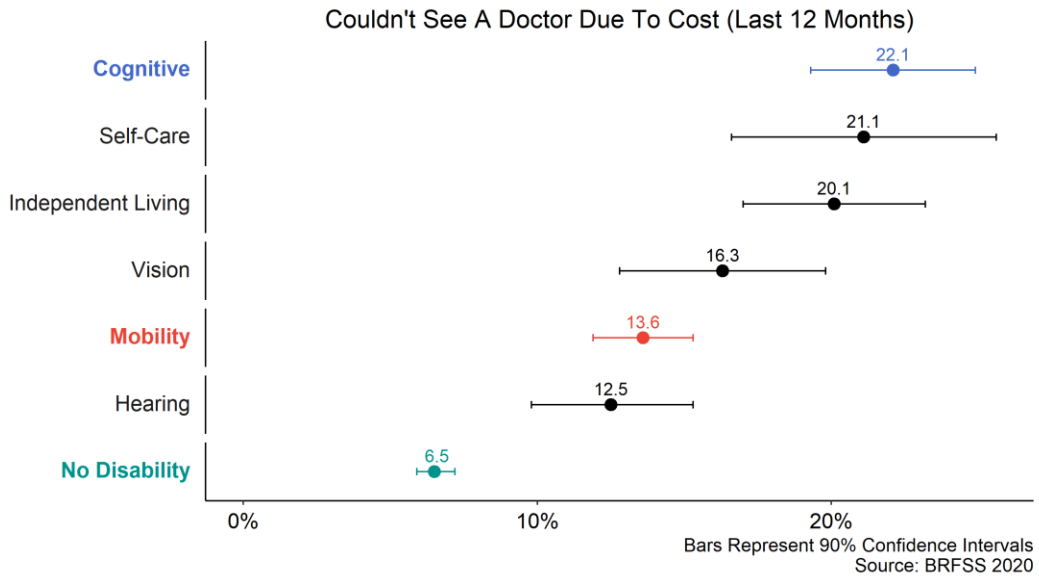
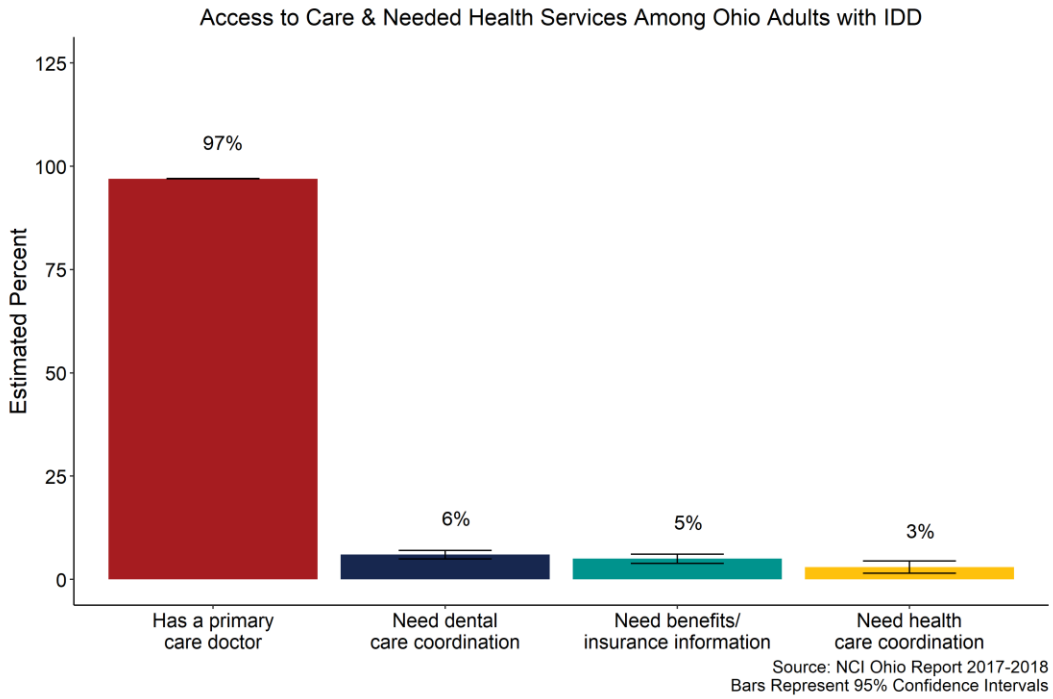


Figure 76: Access to Care and Health Services Among Ohio Adults with IDD



Practice of Healthy Lifestyle Behaviors

Figure 77: Attempted to Quit Smoking in Last Year

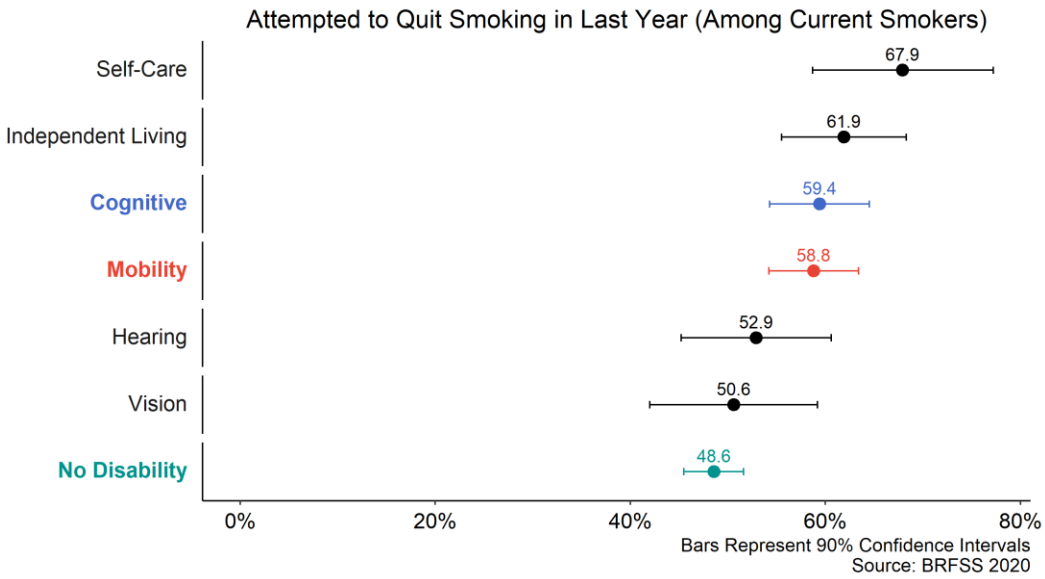


Figure 78: Electronic Cigarette Use

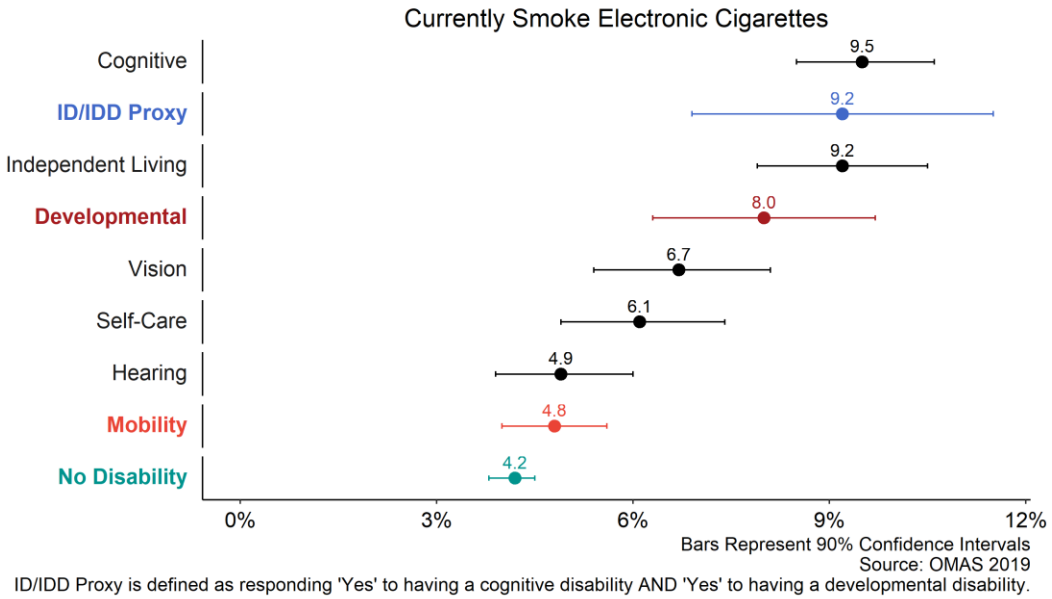


Figure 79: Binge Drinking

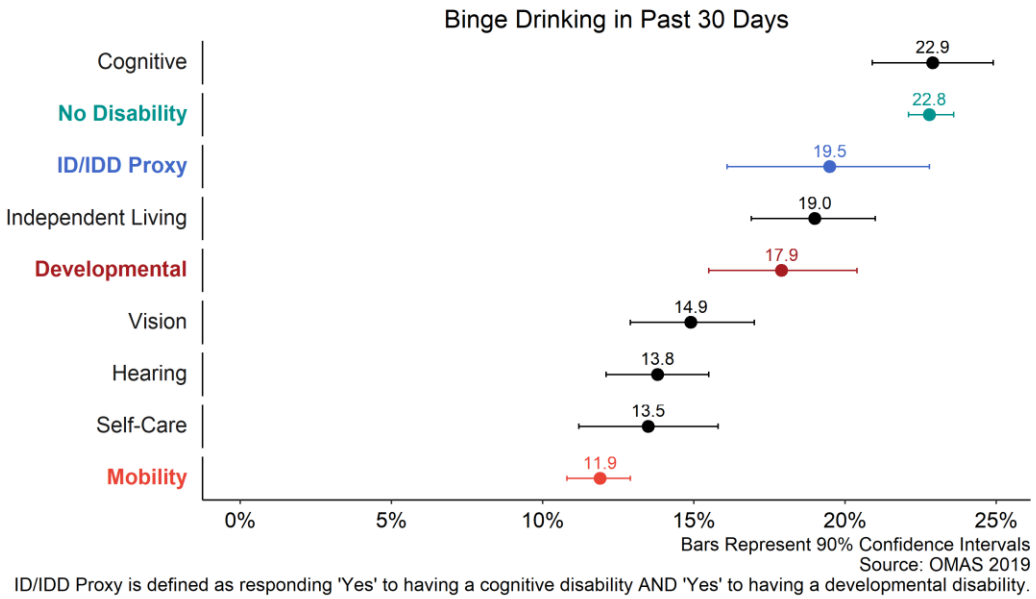


Figure 80: Smokeless Tobacco Use

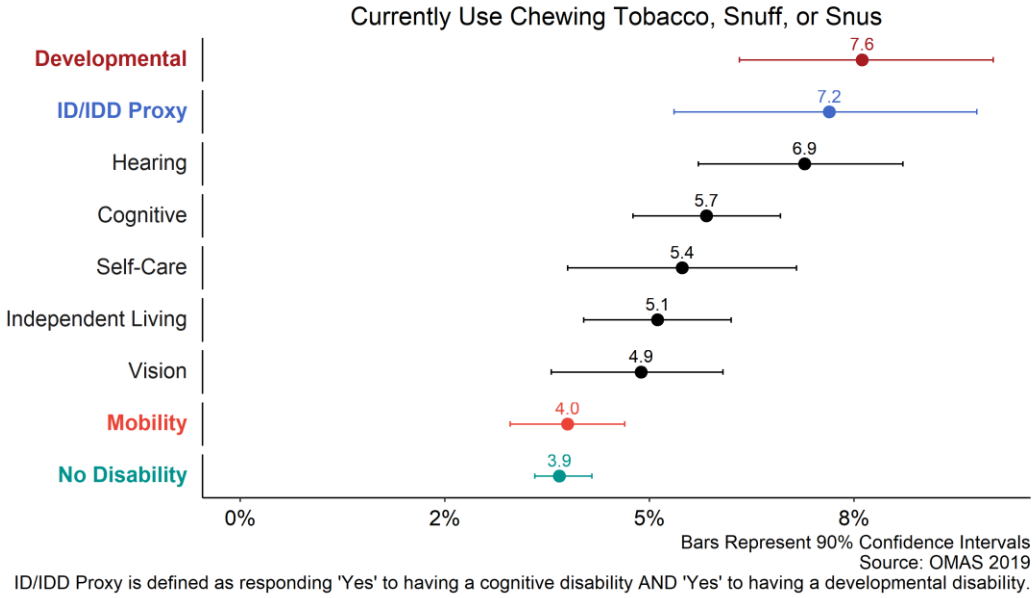


Figure 81: Misuse of Prescription Pain Relievers

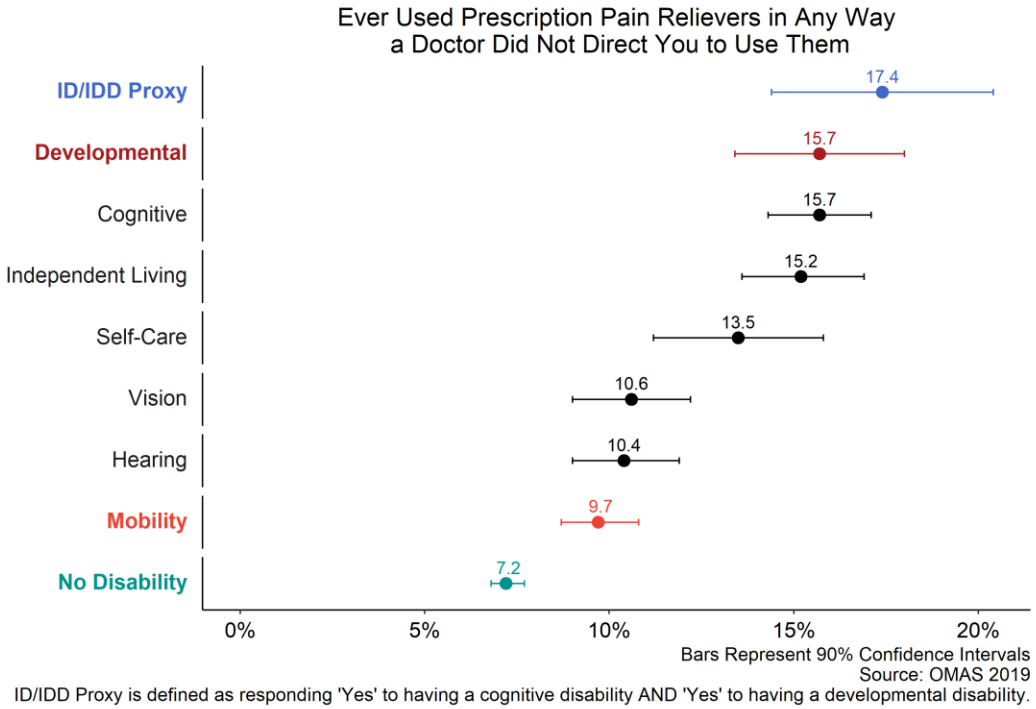
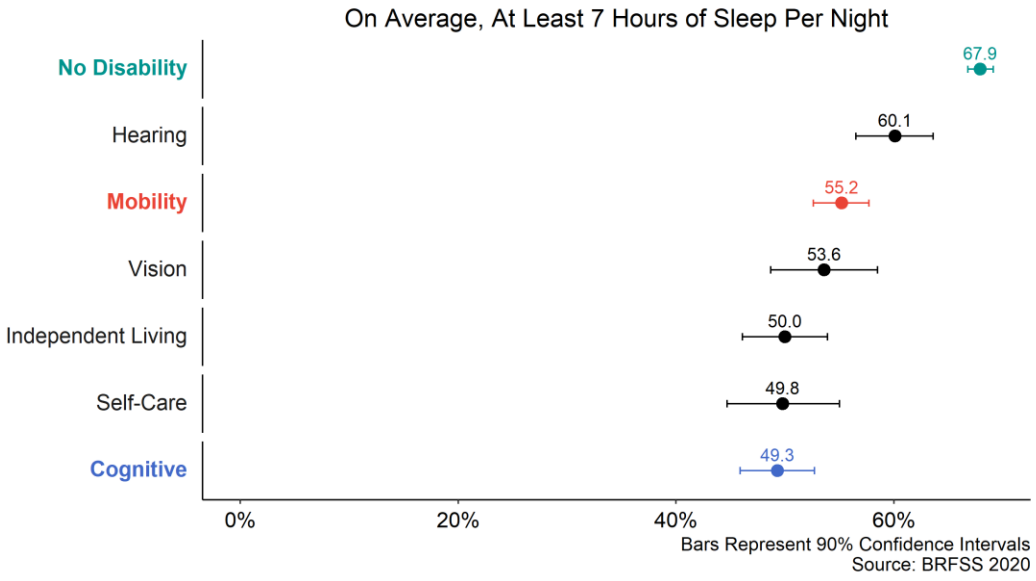


Figure 82: Sufficient Sleep



Health Outcomes

Figure 83: Often Feel You Lack Companionship

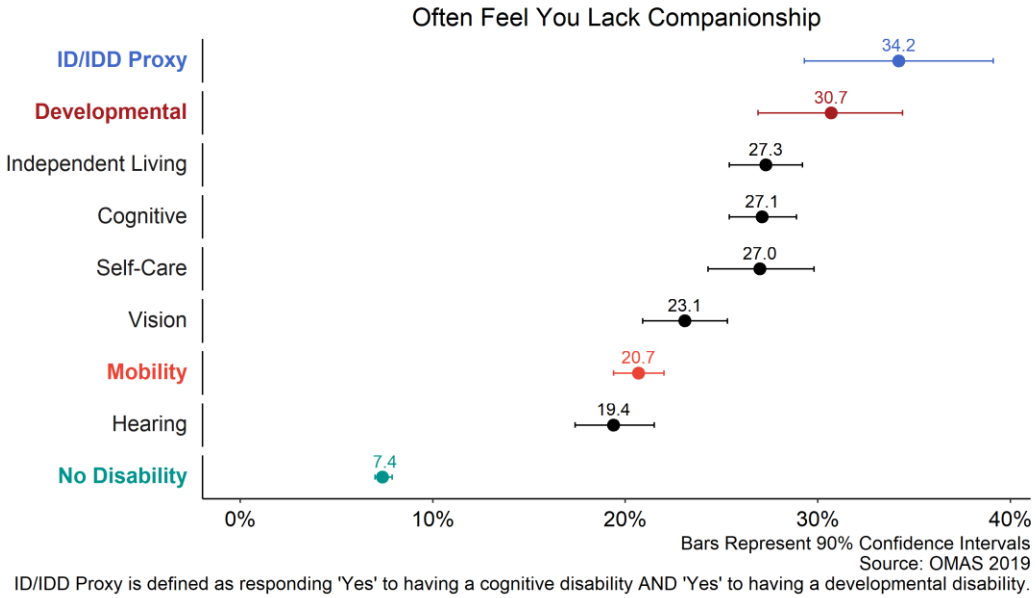


Figure 84: Often Feel Left Out

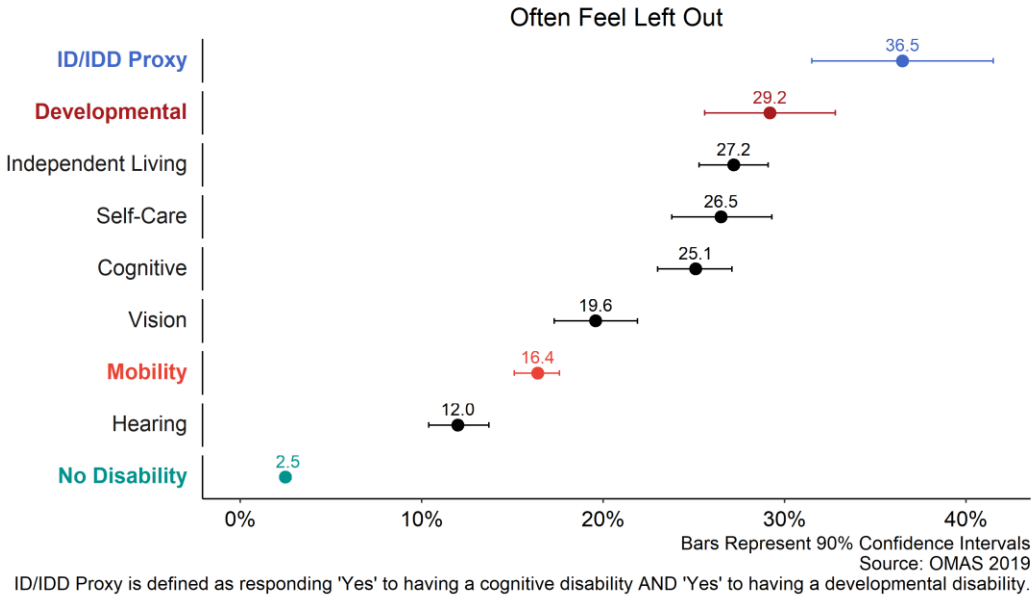


Figure 85: Injured Due to Fall

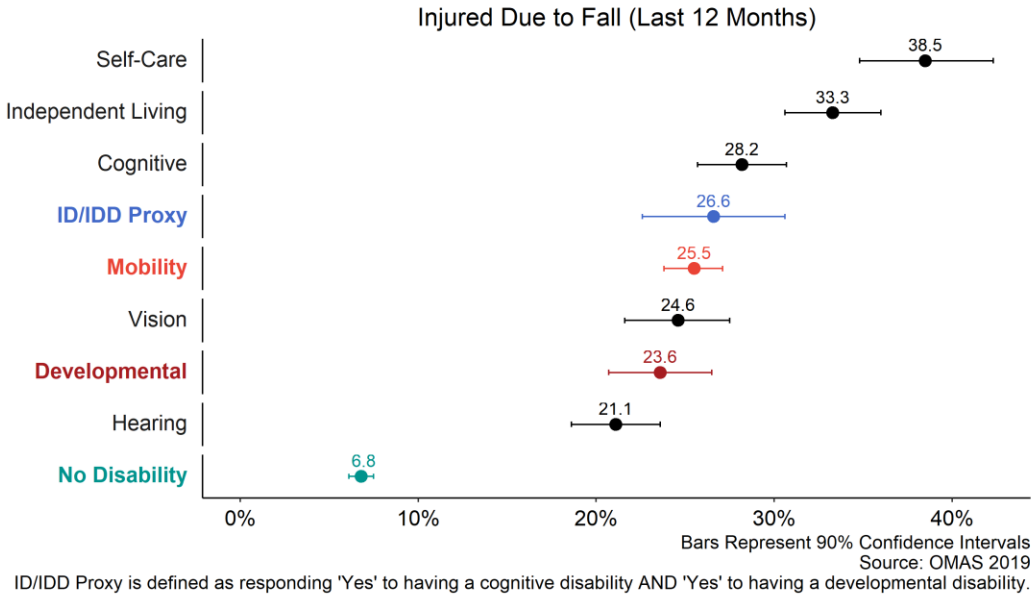


Figure 86: Pregnant in Last Year

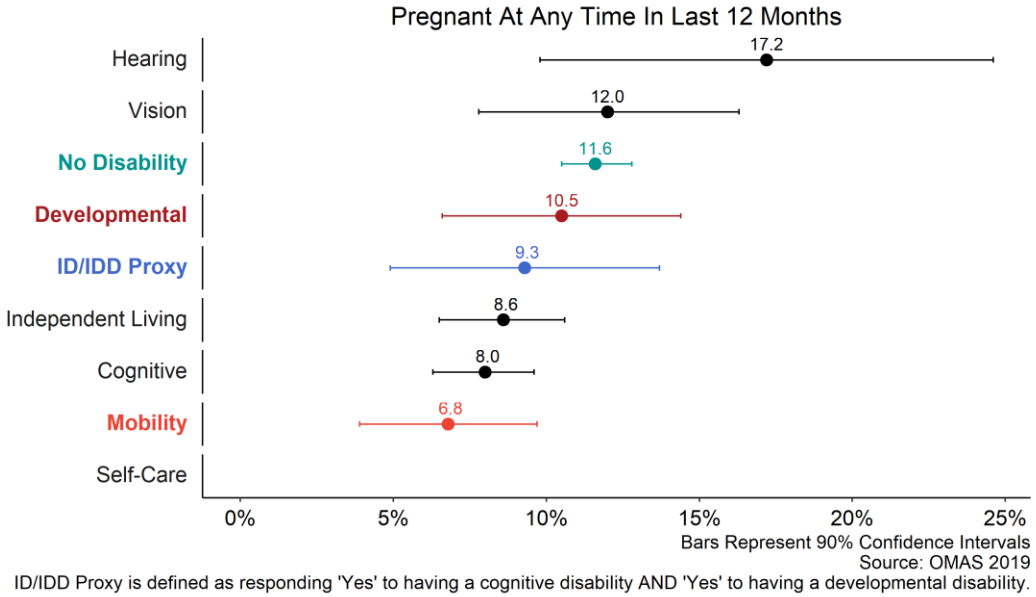


Figure 87: Self-Rated Health Among Ohio Adults with IDD

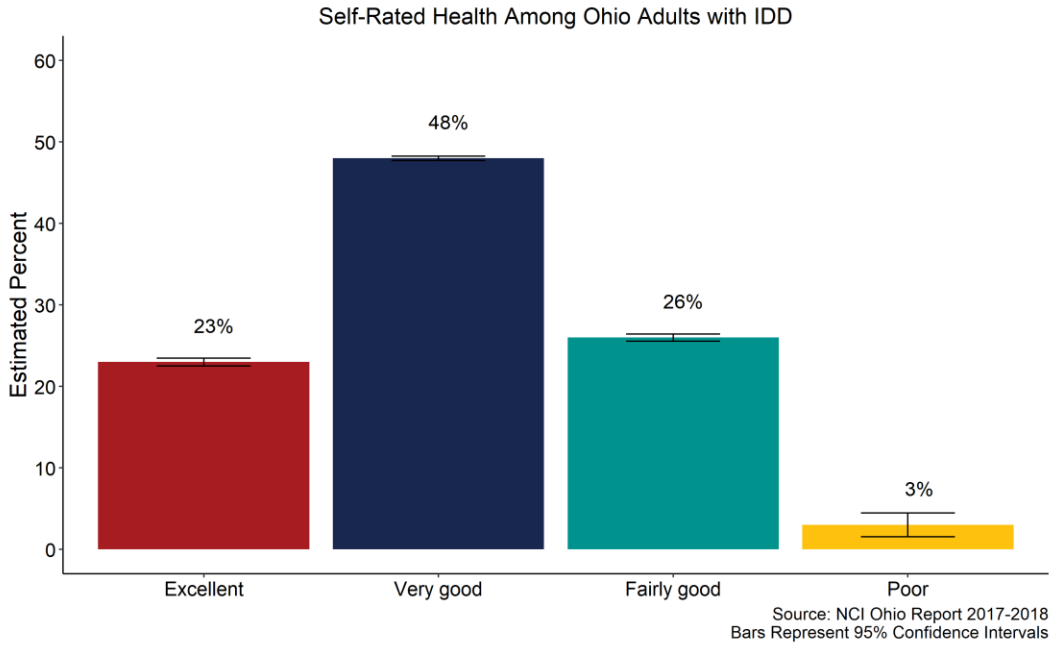
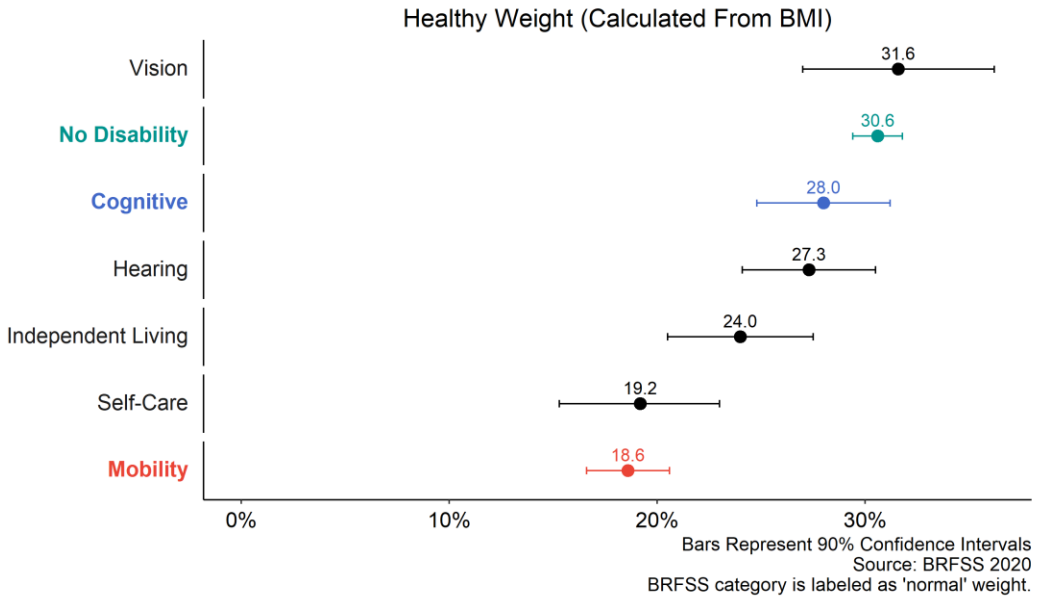


Figure 88: Healthy Weight



Chronic Conditions

Figure 89: Heart Attack

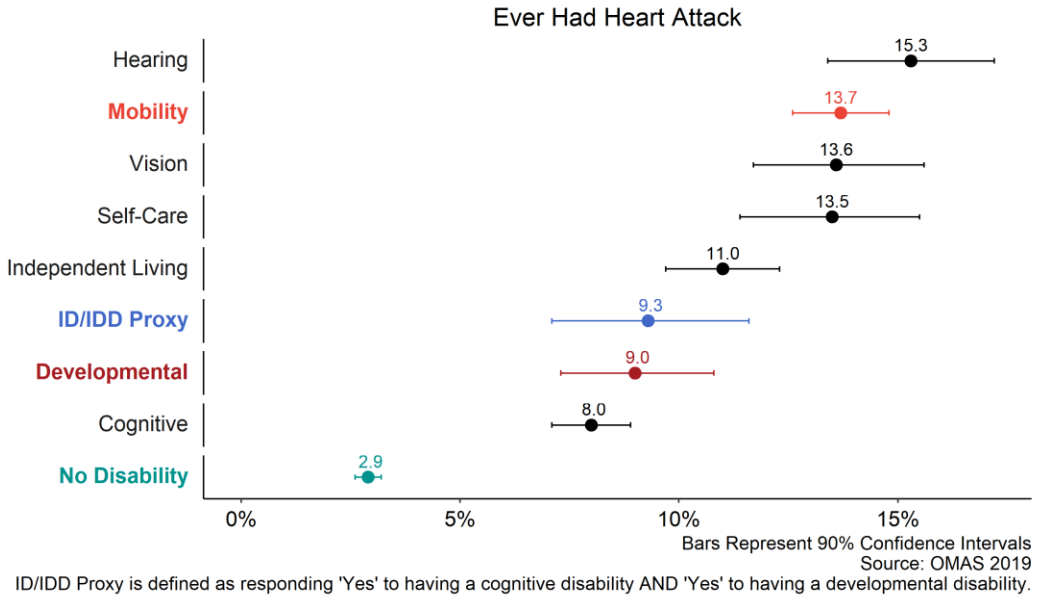


Figure 90: Coronary Heart Disease

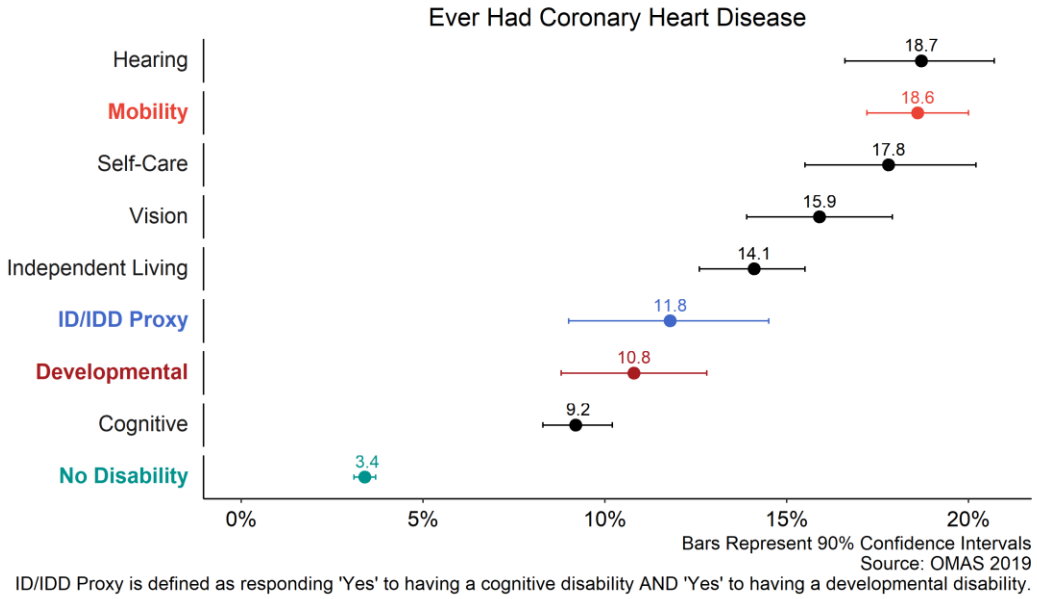


Figure 91: Congestive Heart Failure

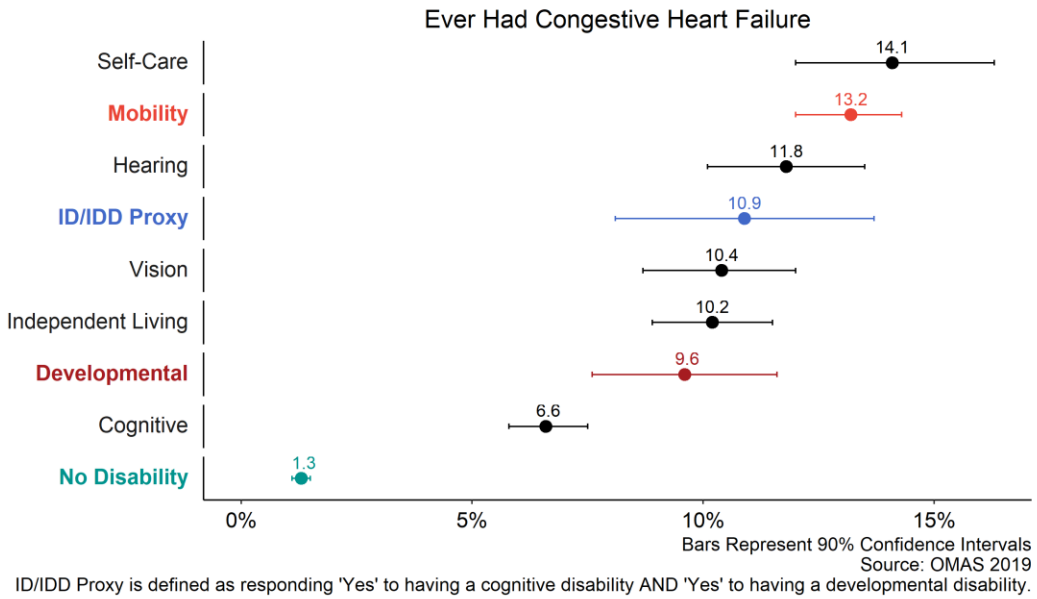


Figure 92: Stroke

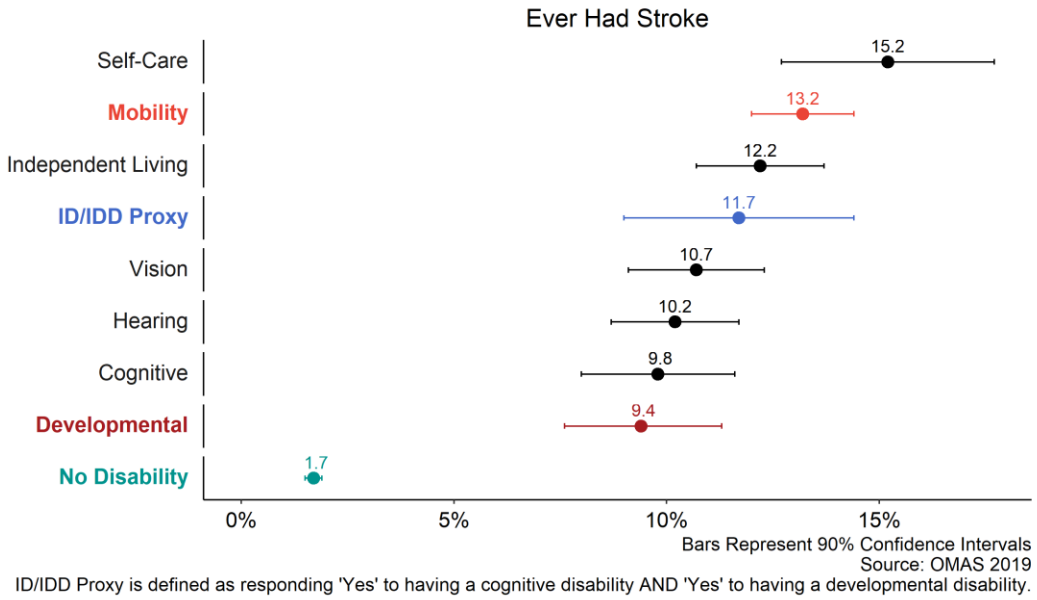


Figure 93: Asthma

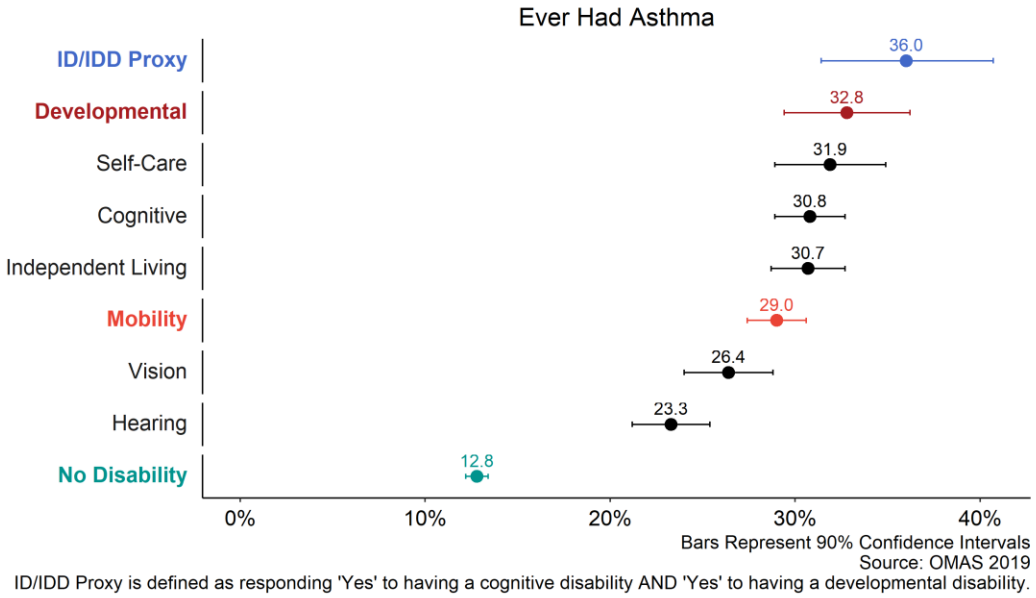


Figure 94: Diabetes

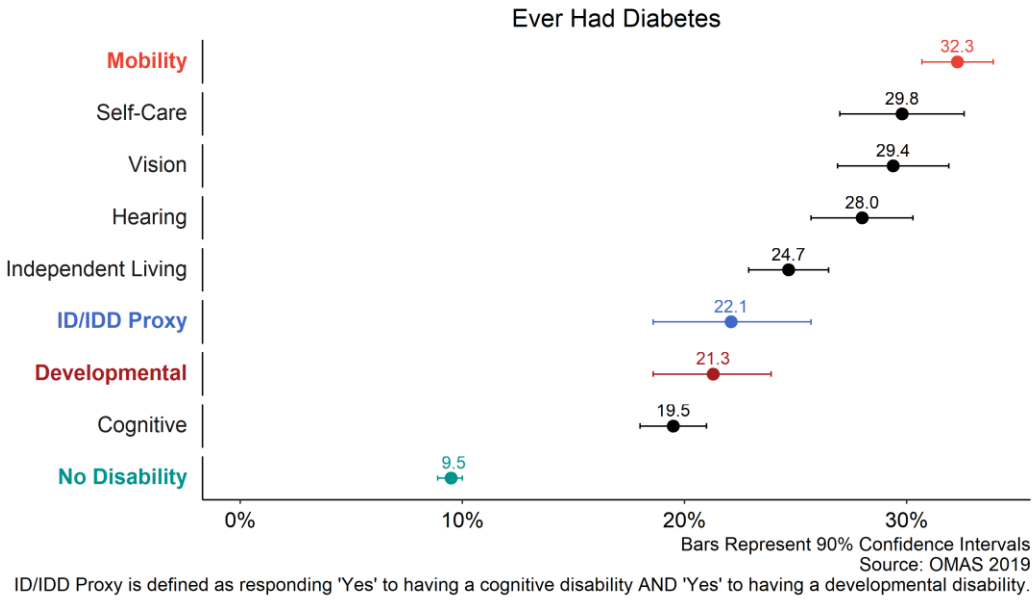


Figure 95: Take Insulin

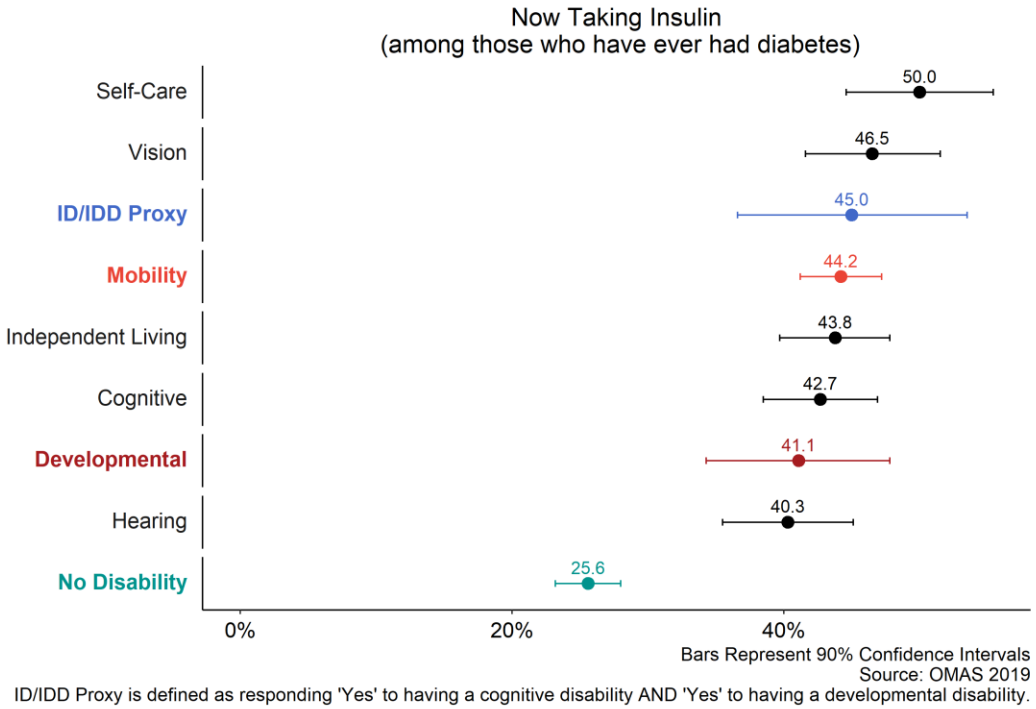


Figure 96: Take Diabetic Pills

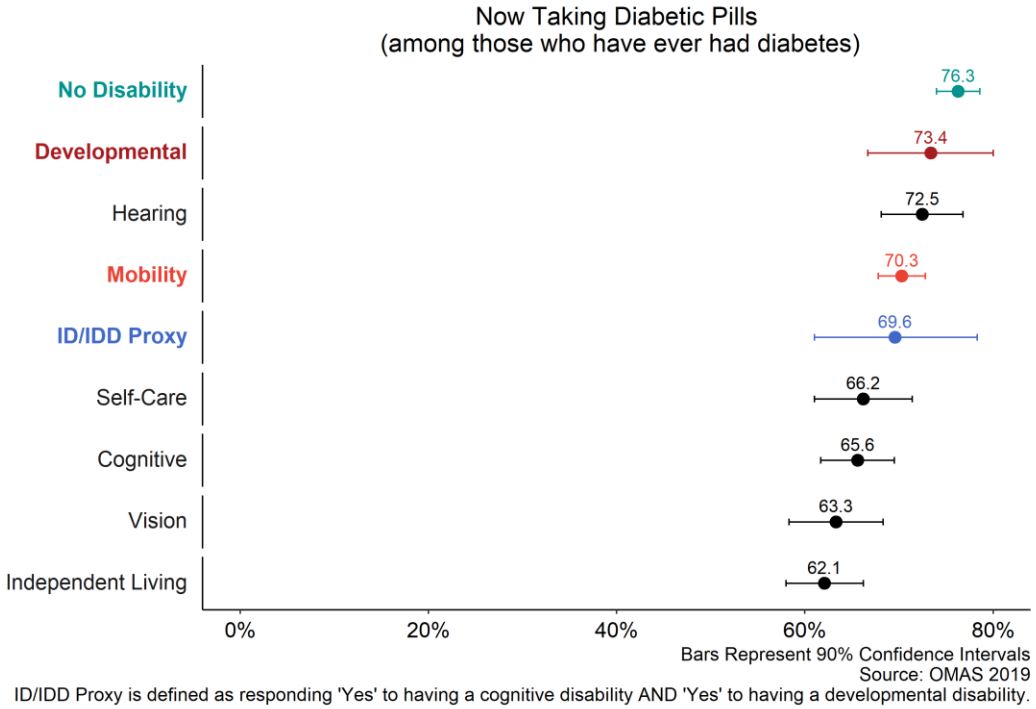


Figure 97: Cancer

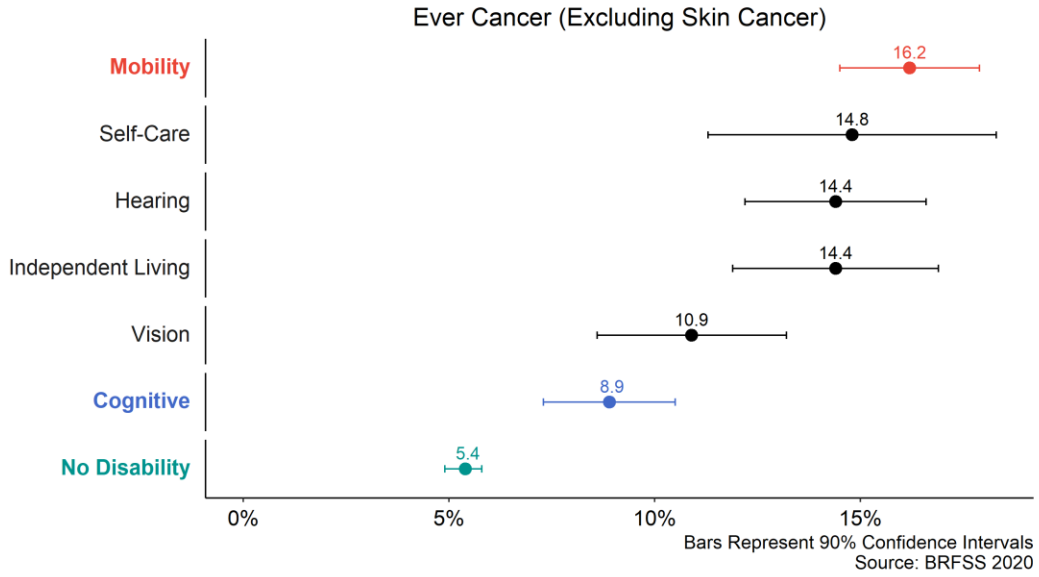
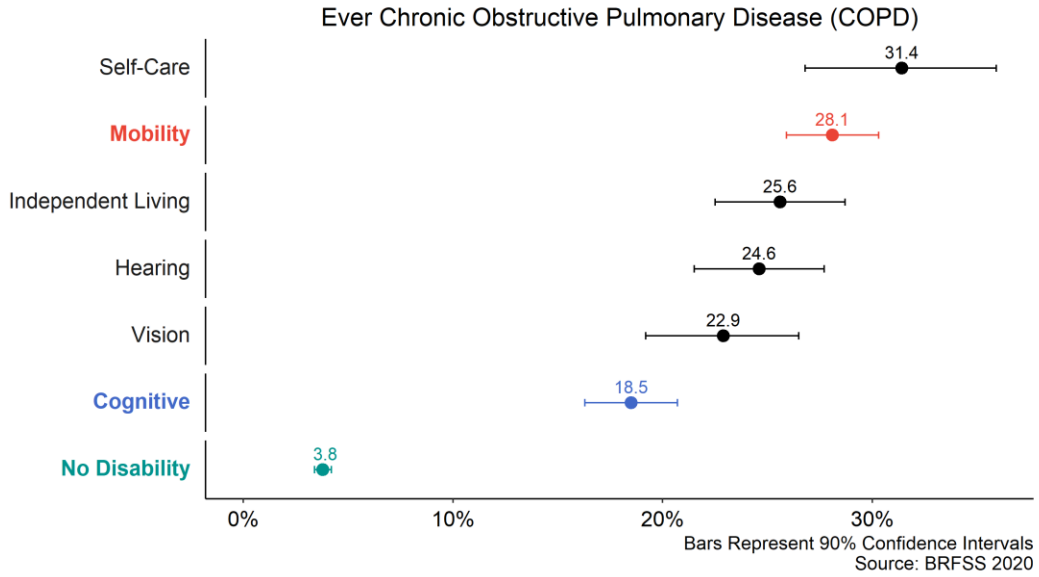


Figure 98: COPD



Estimates by Race/Ethnicity

Figure 99: Race/Ethnicity Comparison – Delayed or Avoided Getting Care: Transportation

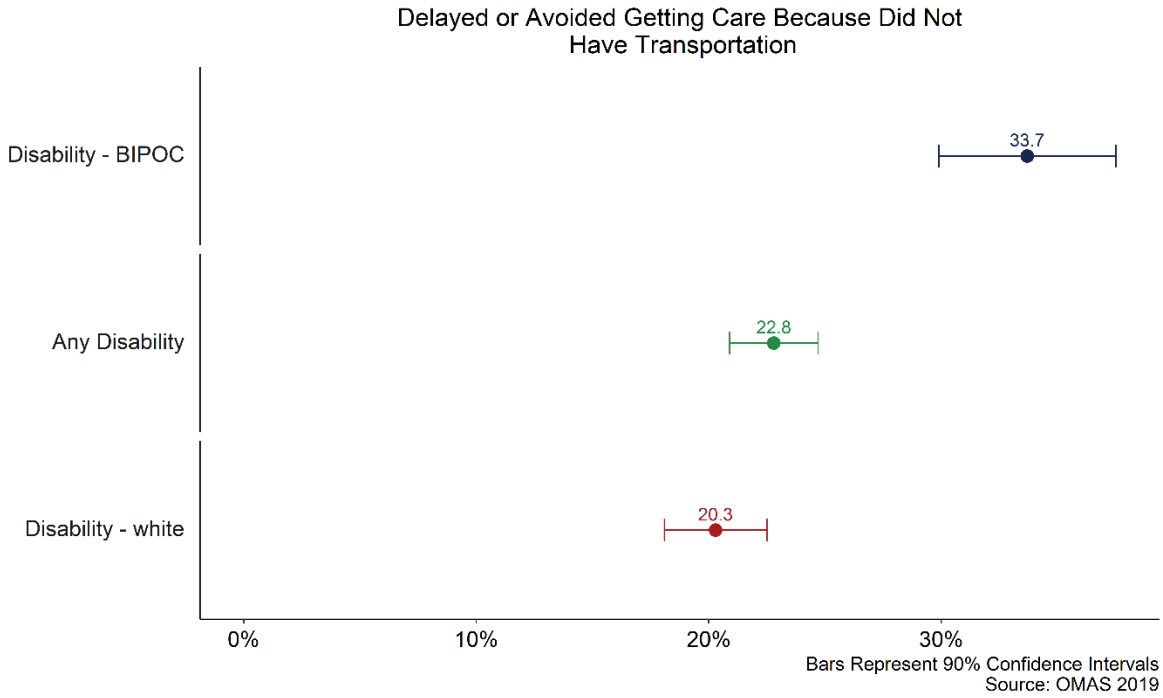


Figure 100: Race/Ethnicity Comparison – Fair or Poor Self-Rated Health

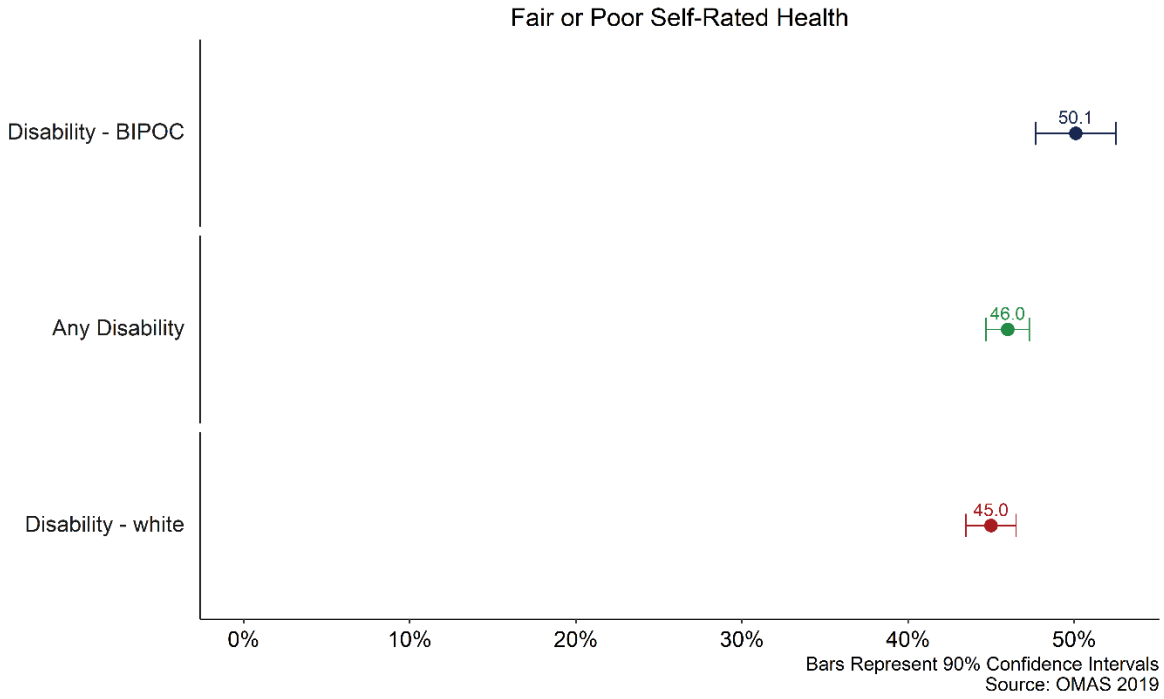


Figure 101: Race/Ethnicity Comparison – Often Feel Left Out

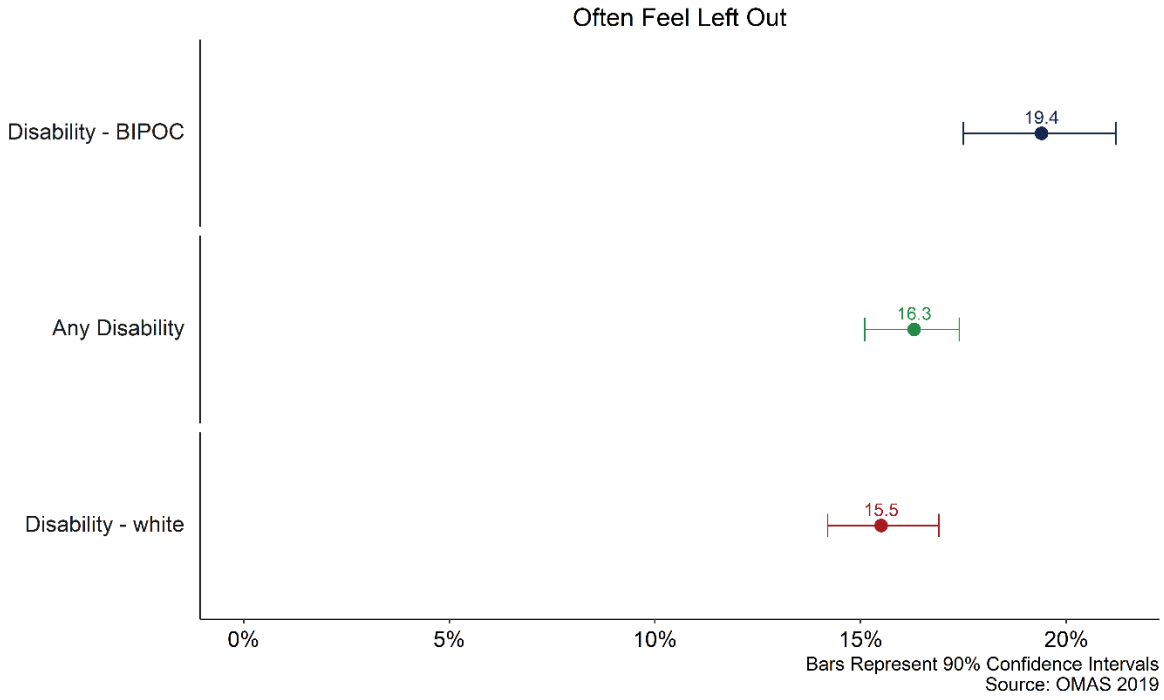


Figure 102: Race/Ethnicity Comparison – 3 or More Emergency Room Visits

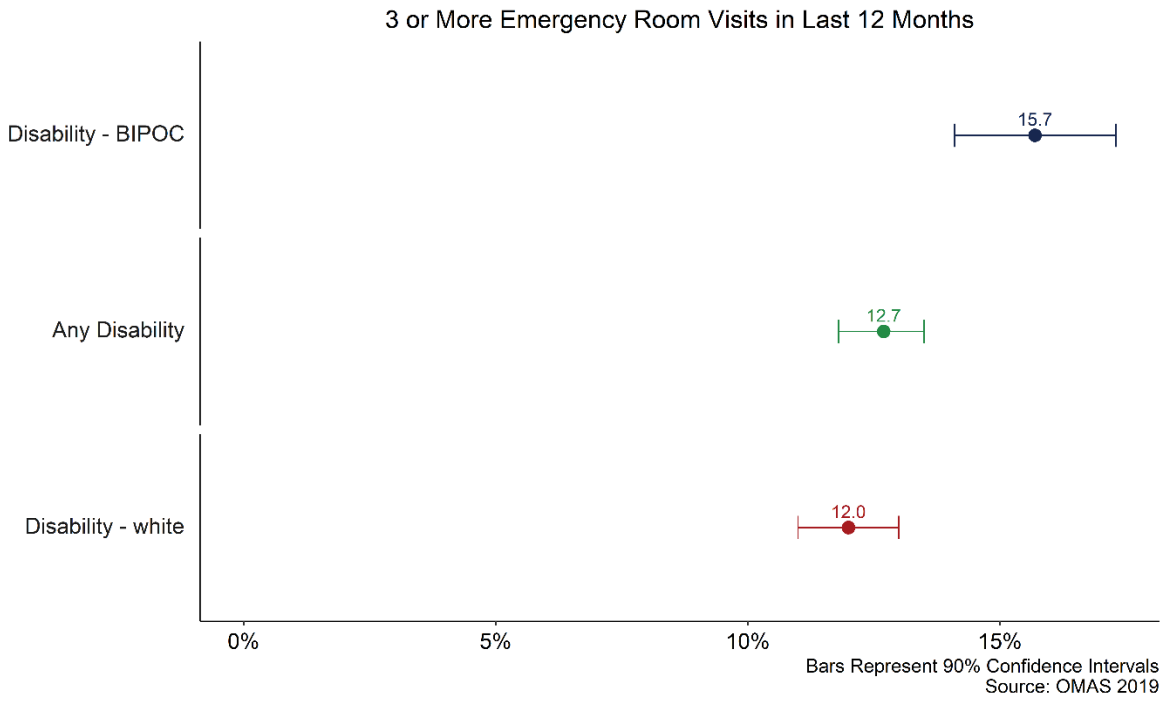


Figure 103: Race/Ethnicity Comparison – Ever Chronic Obstructive Pulmonary Disease

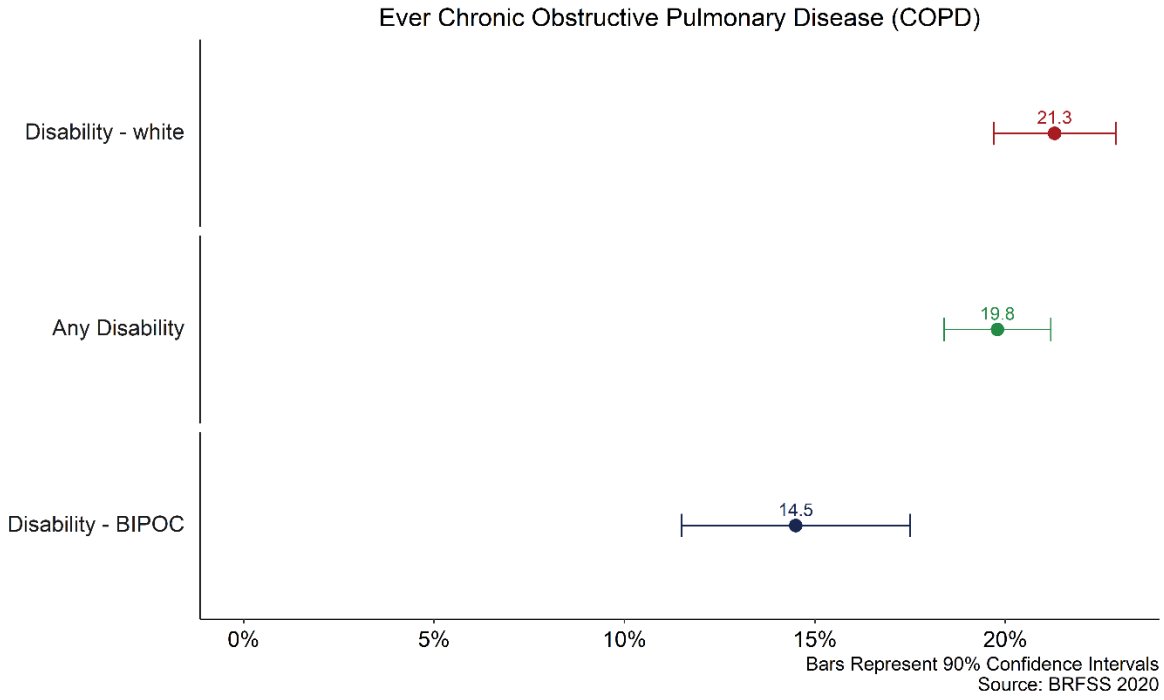


Figure 104: Race/Ethnicity Comparison – 14 or More Physically Unhealthy Days

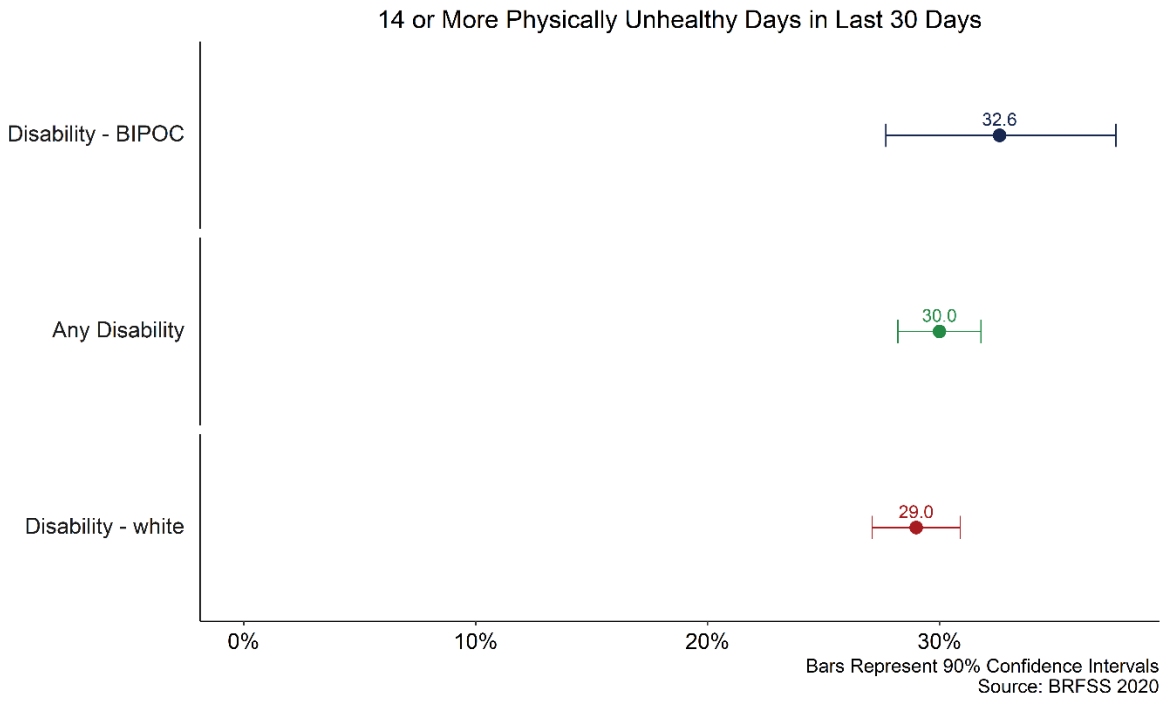


Figure 105: Race/Ethnicity Comparison – 14 or More Mentally Unhealthy Days

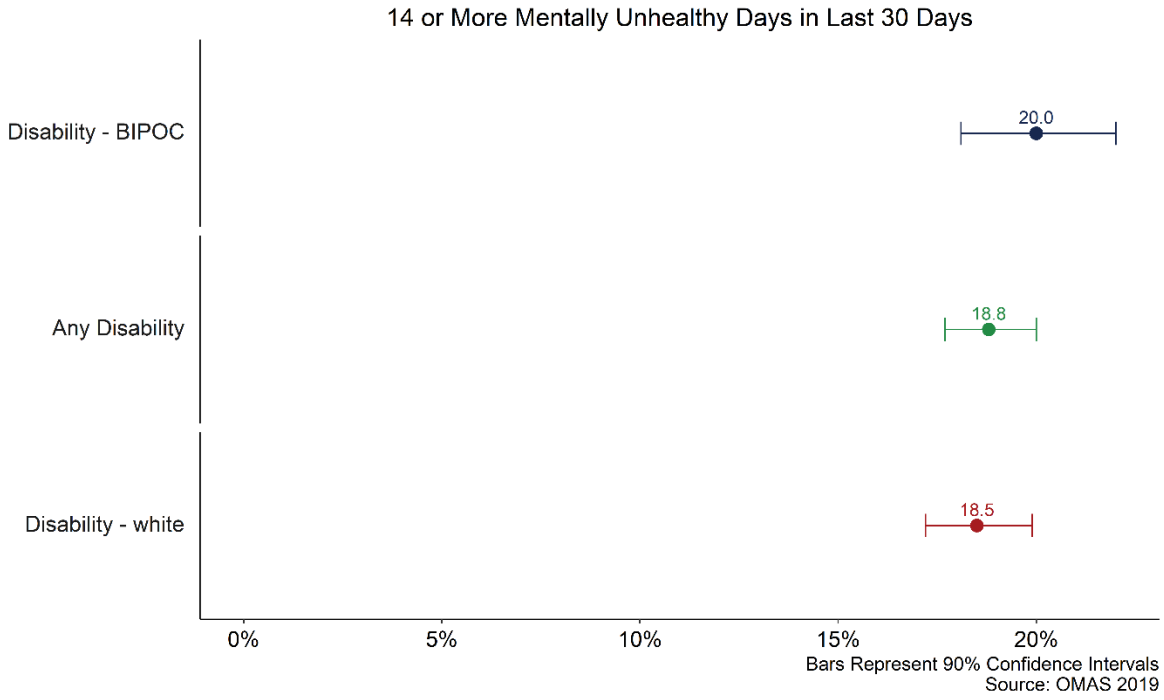


Figure 106: Race/Ethnicity Comparison – Unmet Need for Mental Health Care

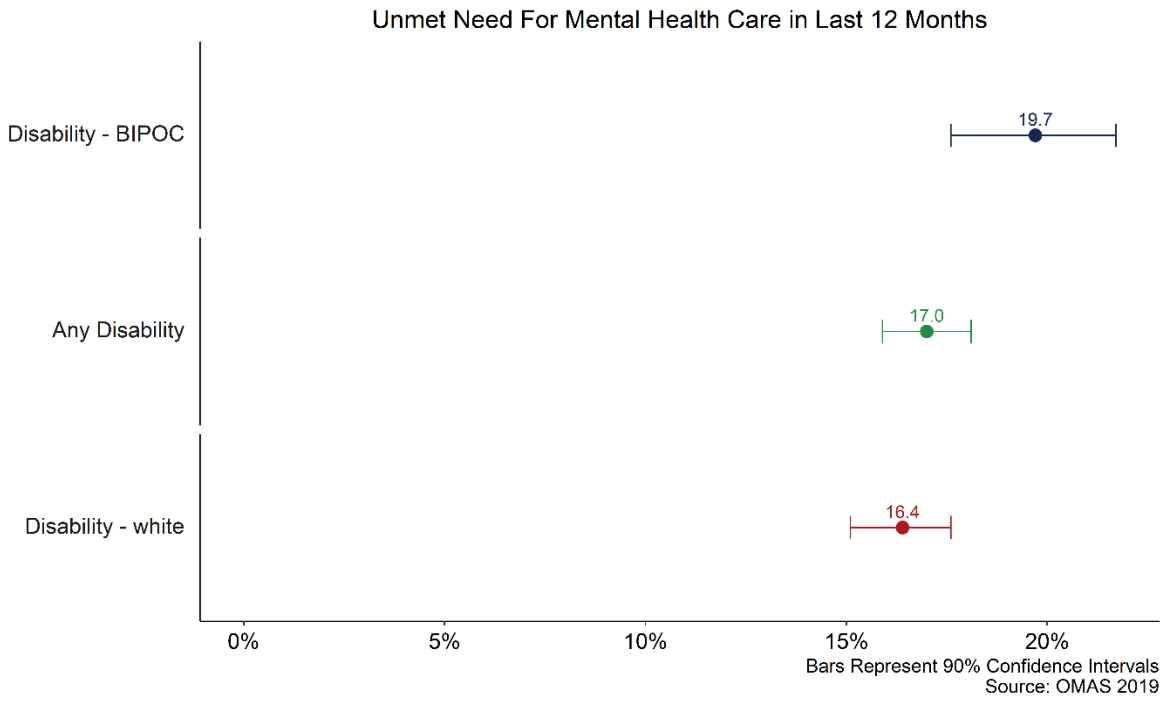


Figure 107: Race/Ethnicity Comparison – Often Feel Isolated from Others

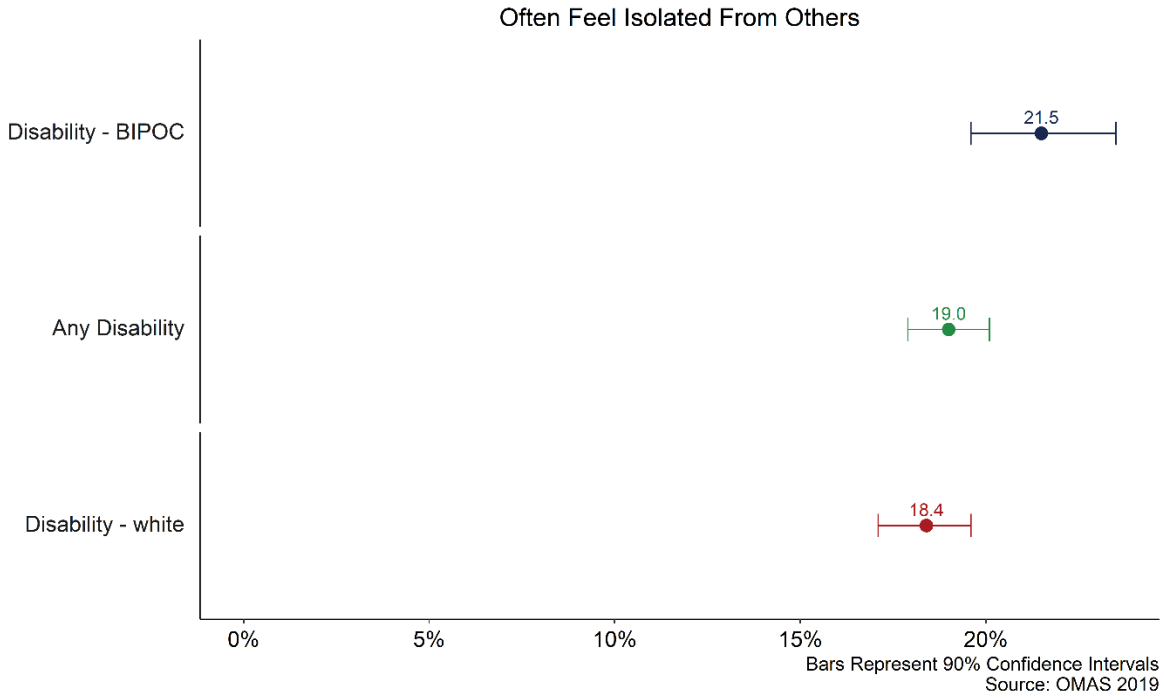
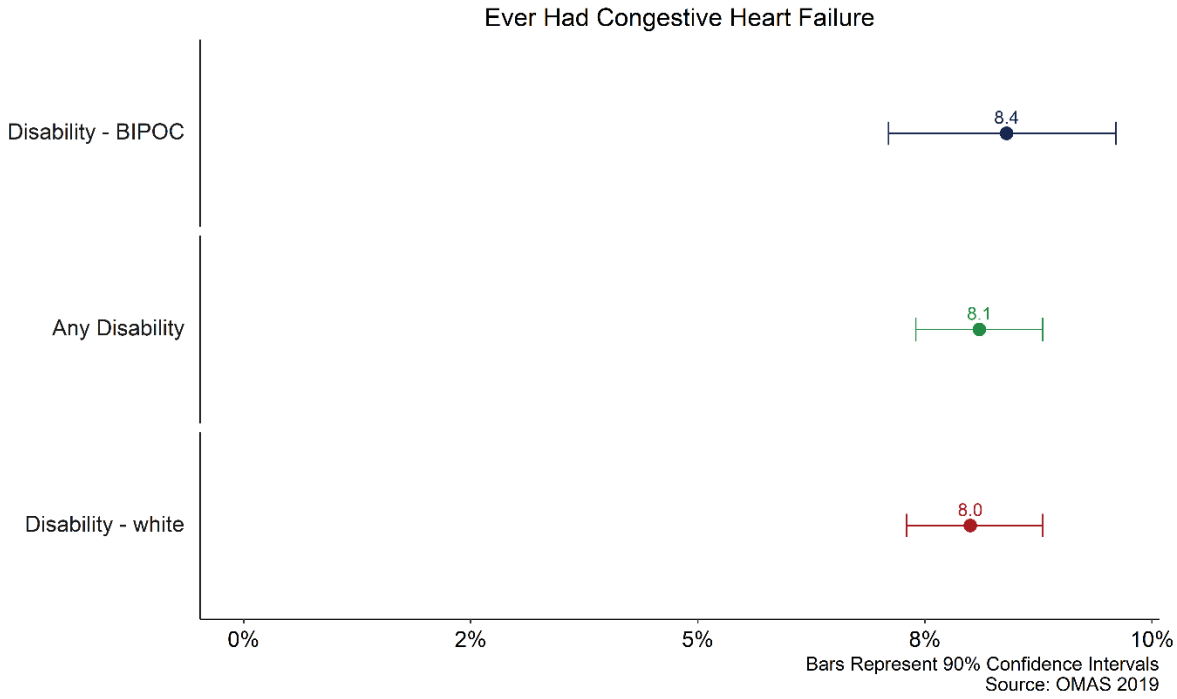


Figure 108: Race/Ethnicity Comparison – Ever Had Congestive Heart Failure



Estimates by County Type

Figure 109: Geographic Location Comparison – Fair or Poor Self-Rated Health

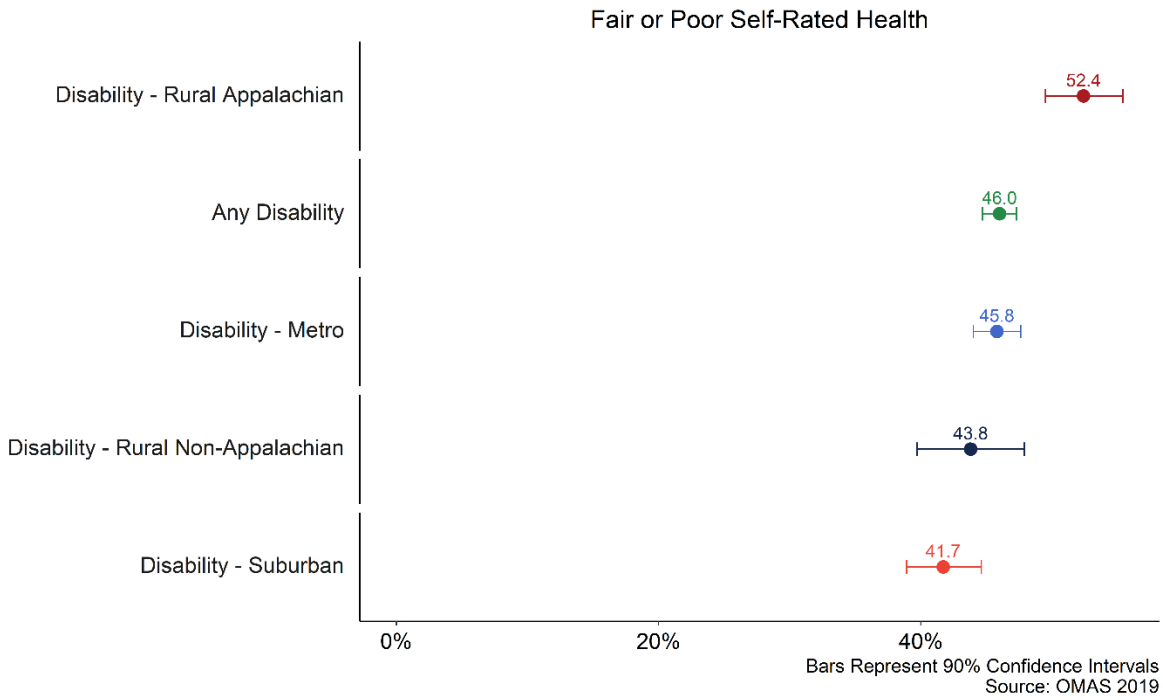


Figure 110: Geographic Location Comparison – Unmet Need for Mental Health Care

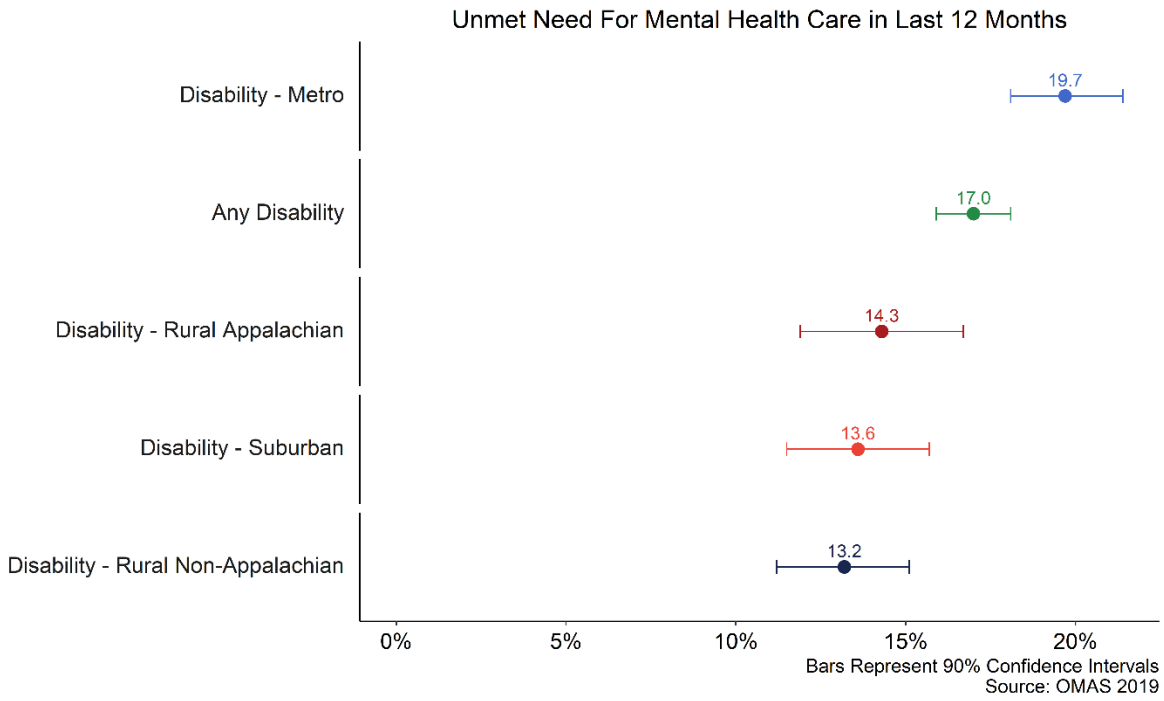


Figure 111: Geographic Location Comparison – Often Feel Isolated from Others

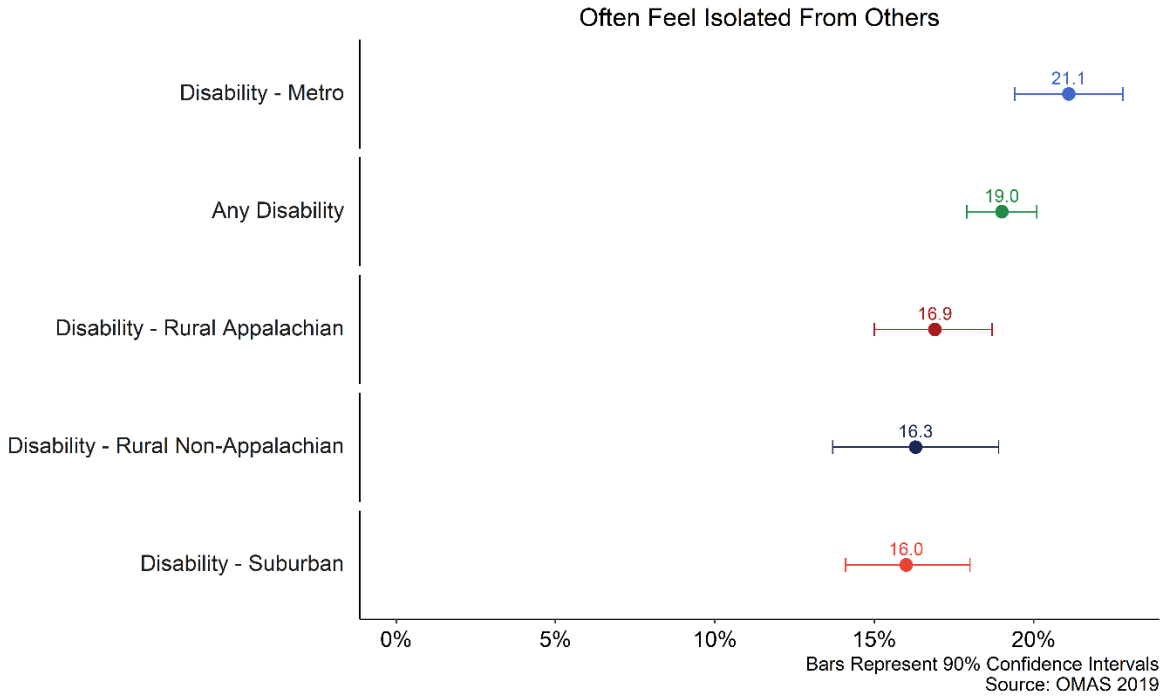


Figure 112: Geographic Location Comparison – Often Feel Left Out

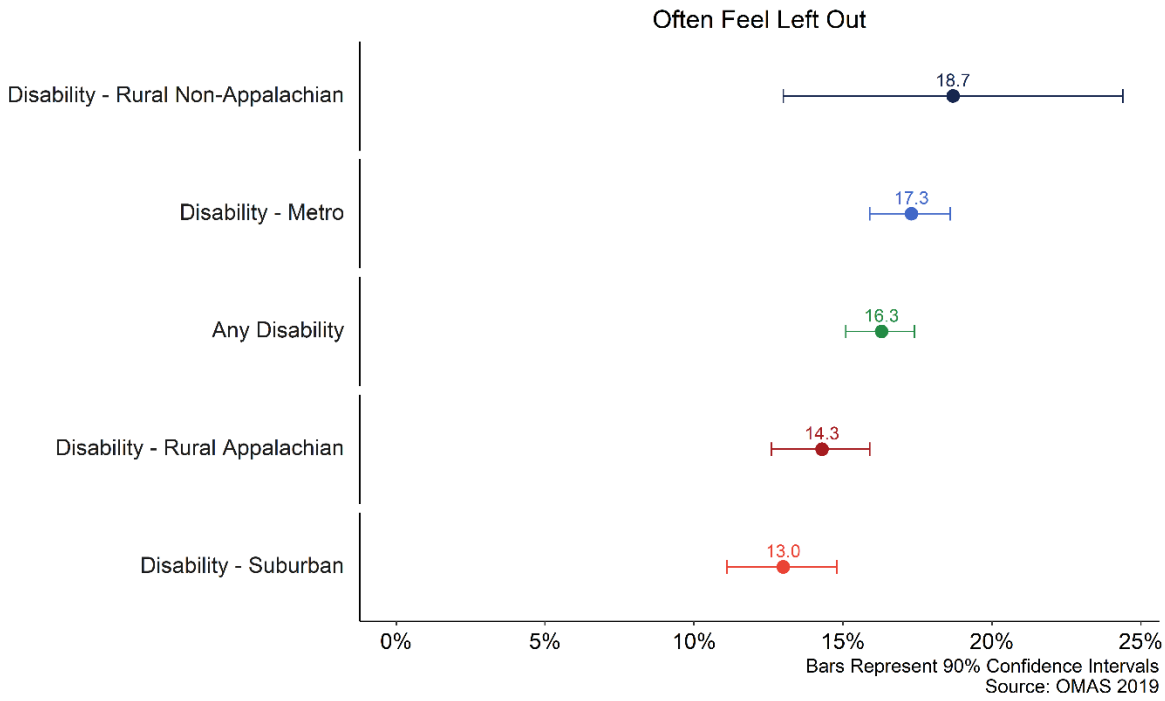


Figure 113: Geographic Location Comparison – 3 or More Emergency Room Visits

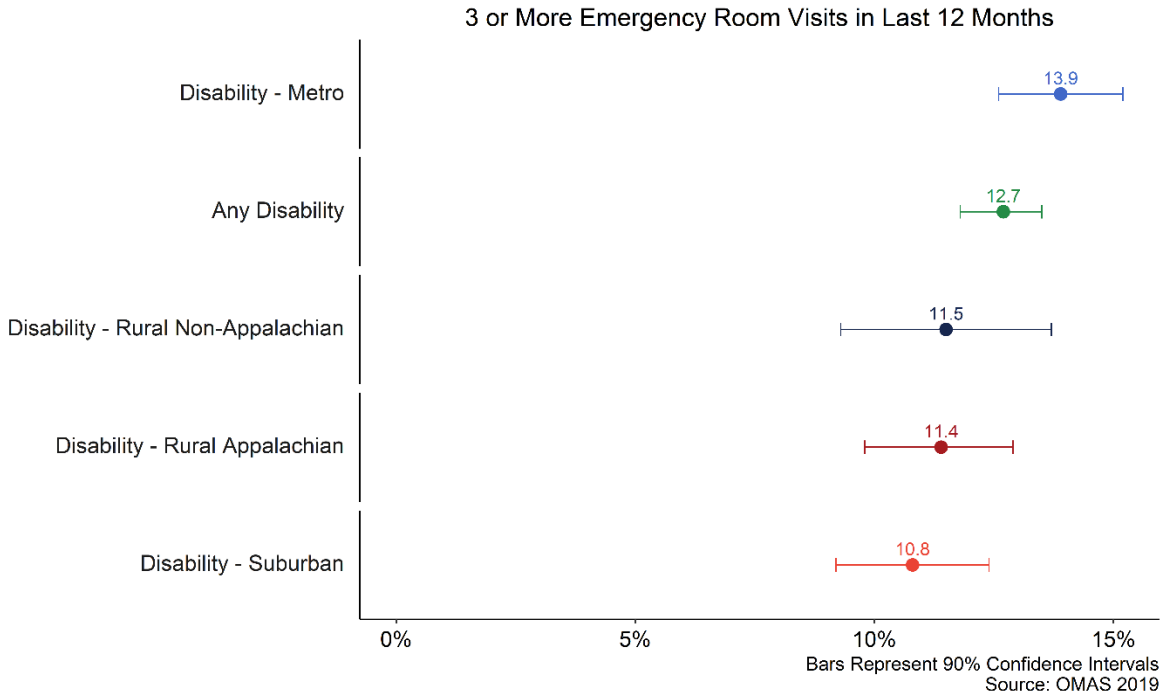


Figure 114: Geographic Location Comparison – 14 or More Mentally Unhealthy Days

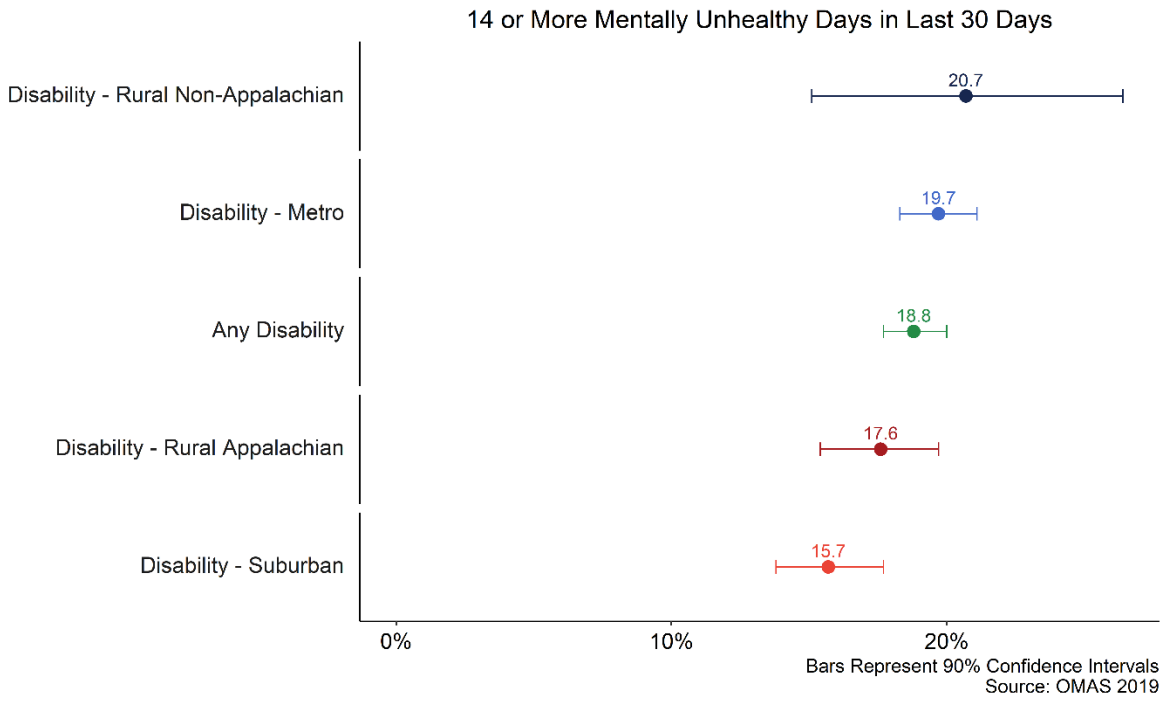


Figure 115: Geographic Location Comparison – Ever Had Congestive Heart Failure

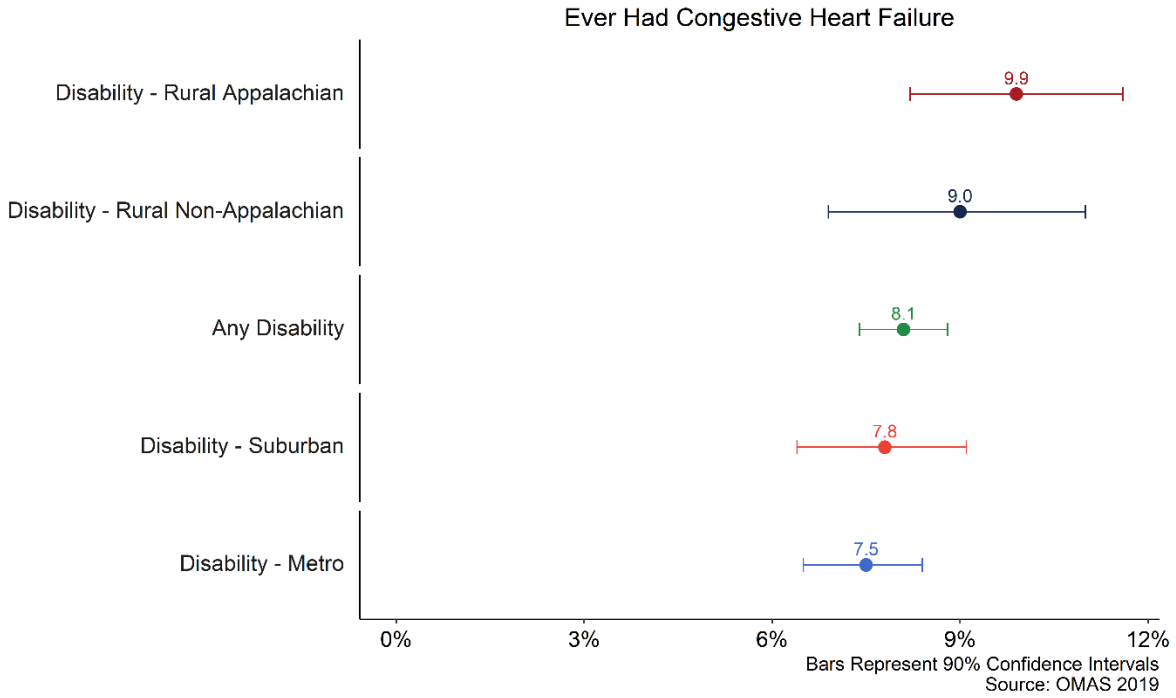
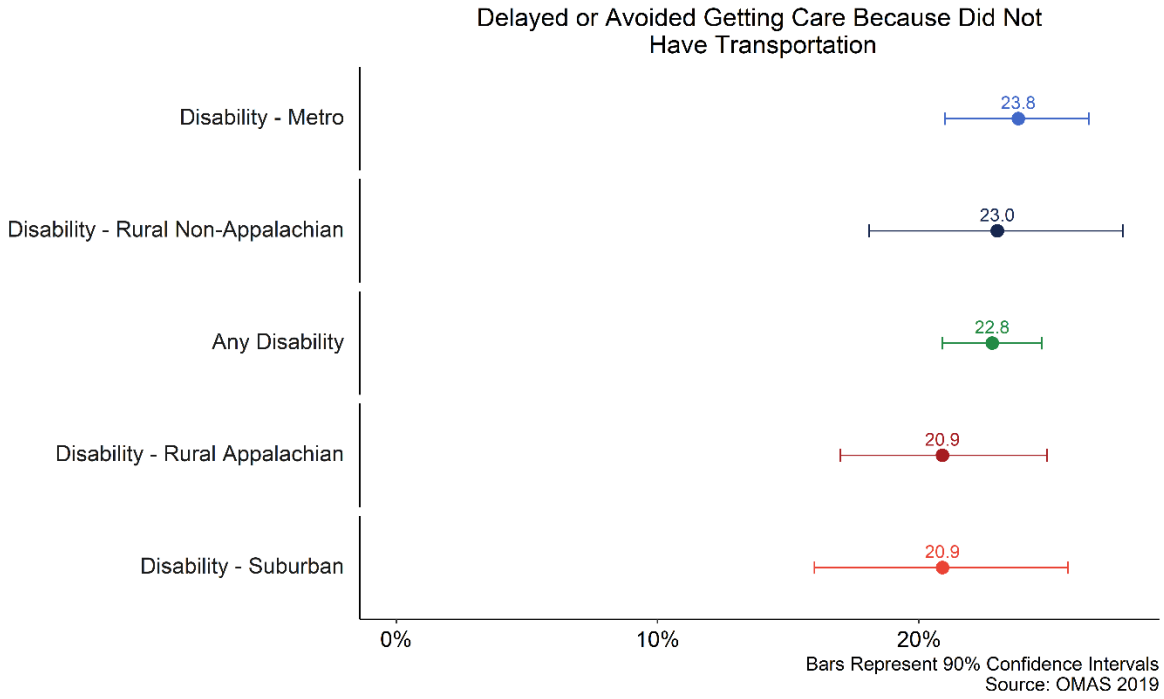


Figure 116: Geographic Location Comparison – Delayed or Avoided Getting Care: Transportation



DHDS 2019 Ohio-United States Comparisons

The Disability and Health Data System (DHDS) is an online source of state-level data on adults with disabilities. Data are from the Behavioral Risk Factor Surveillance System (BRFSS), a state-based, telephone health survey of civilian, non-institutionalized adults 18 years of age and older. The prevalence estimates for Ohio and the United States (U.S.) shown in this section predominantly come from the 2019 BRFSS[44] that were pre-calculated and made available on the DHDS website, as well as their corresponding 95% confidence intervals. Per the DHDS methodology, "*All estimates were weighted to account for the probability of selection, nonresponse, noncoverage of households without a telephone, the number of adults in a household, the number of telephones in a household, and to adjust to population totals for each state or territory*."[45] Estimates for the U.S. are an aggregation of state-level (and territory) data. All estimates were age-adjusted to the 2000 U.S. standard population for the most relevant comparisons between prevalence in Ohio and in the United States.[46]

[44] One exception to this is for outcomes pertaining to engagement with preventative care, for which only 2018 data was made available.

[45] https://www.cdc.gov/ncbddd/disabilityandhealth/dhds/methods.html

[46] Note that this is why prevalence estimates in the Epidemiological Assessment section using 2019 BRFSS data are slightly different from the estimates presented in this section, as the former are not age-adjusted.

Figure 117: Up-To-Date Colorectal Cancer Screening (Ohio vs. U.S.)

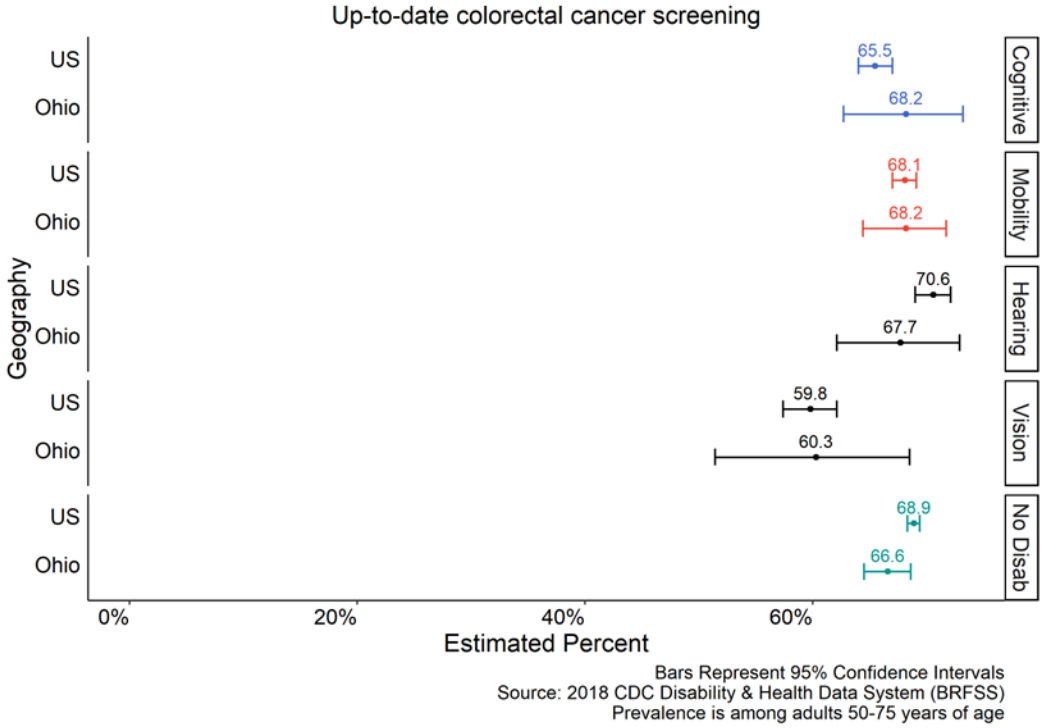


Figure 118: Up-To-Date Cervical Cancer Screening (Ohio vs. U.S.)

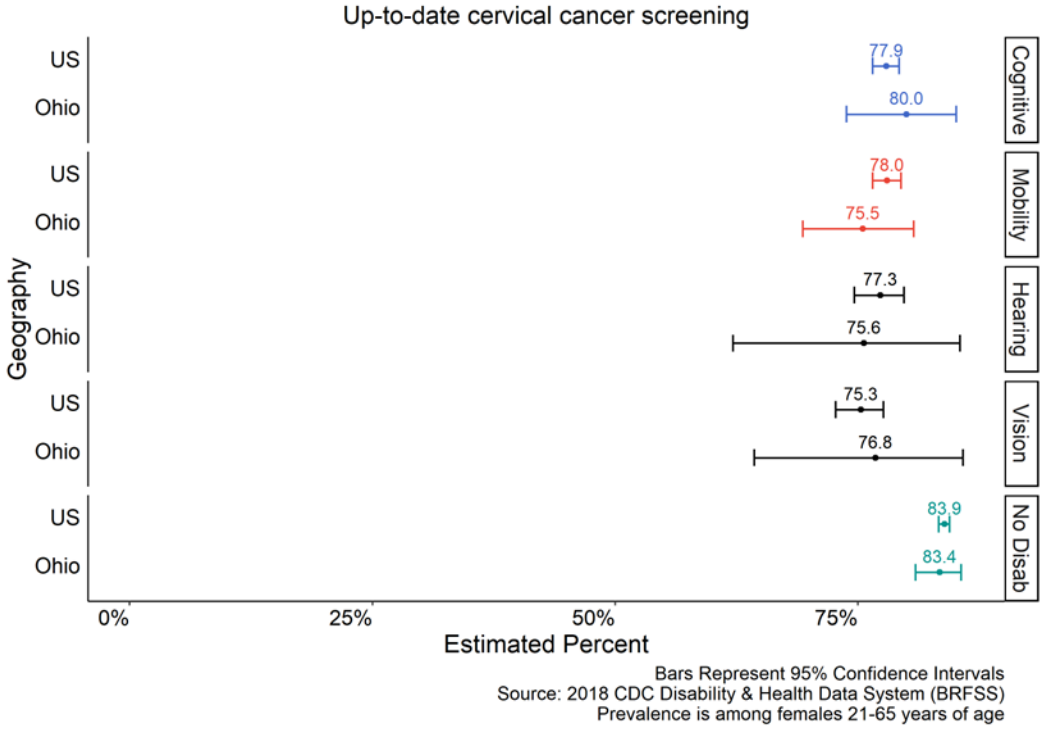


Figure 119: Mammogram in the Past 2 Years (Ohio vs. U.S.)

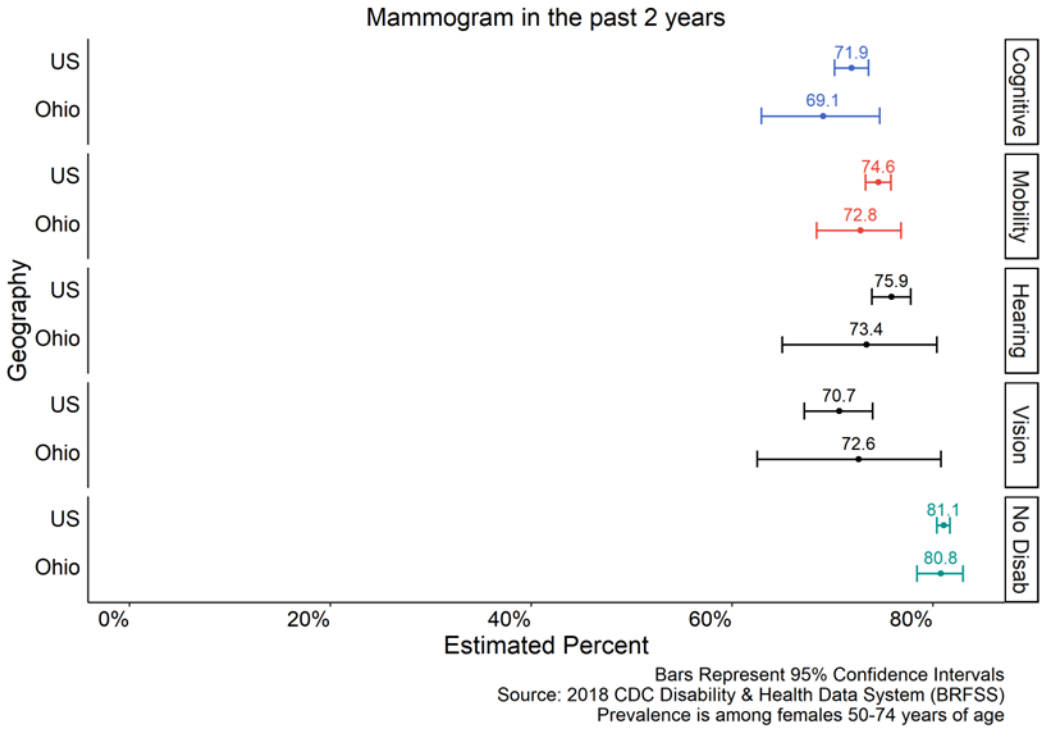


Figure 120: Visited a Dentist in the Past Year (Ohio vs. U.S.)

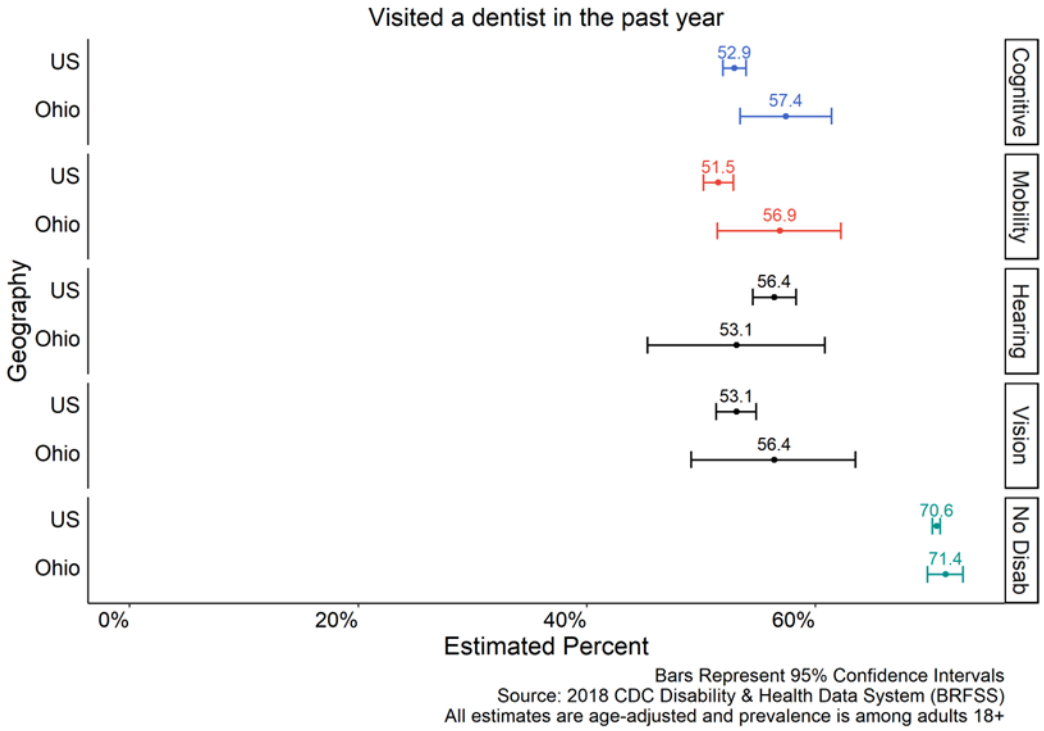


Figure 121: Meeting Physical Activity Guidelines (Ohio vs. U.S.)

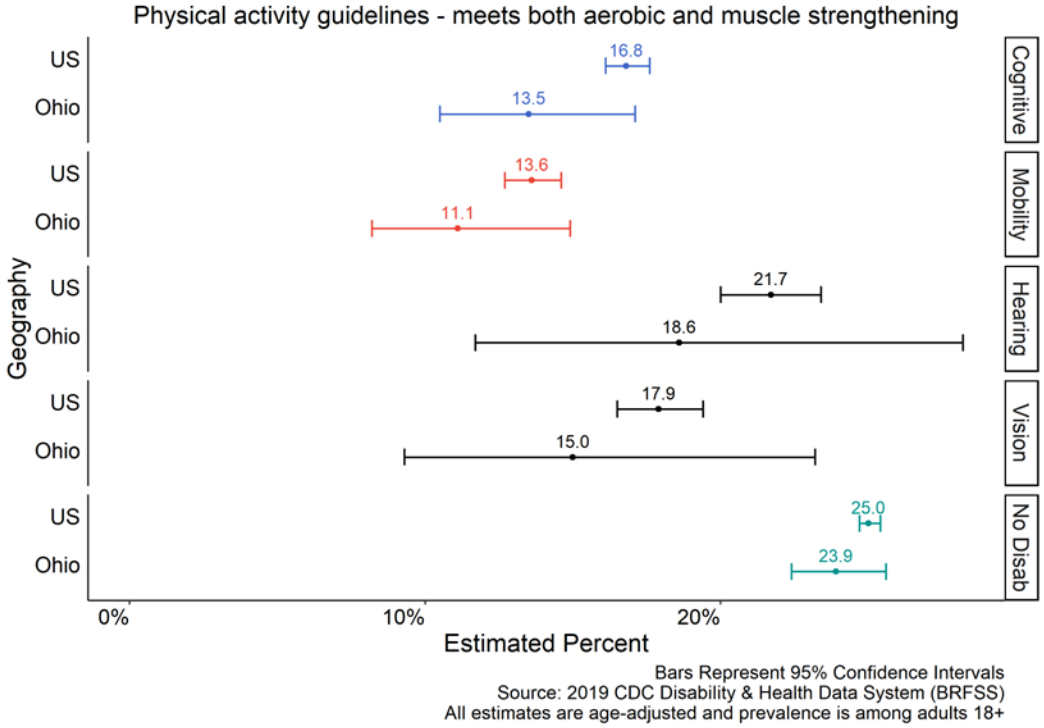


Figure 122: 14+ Mentally Unhealthy Days in the Past 30 Days (Ohio vs. U.S.)

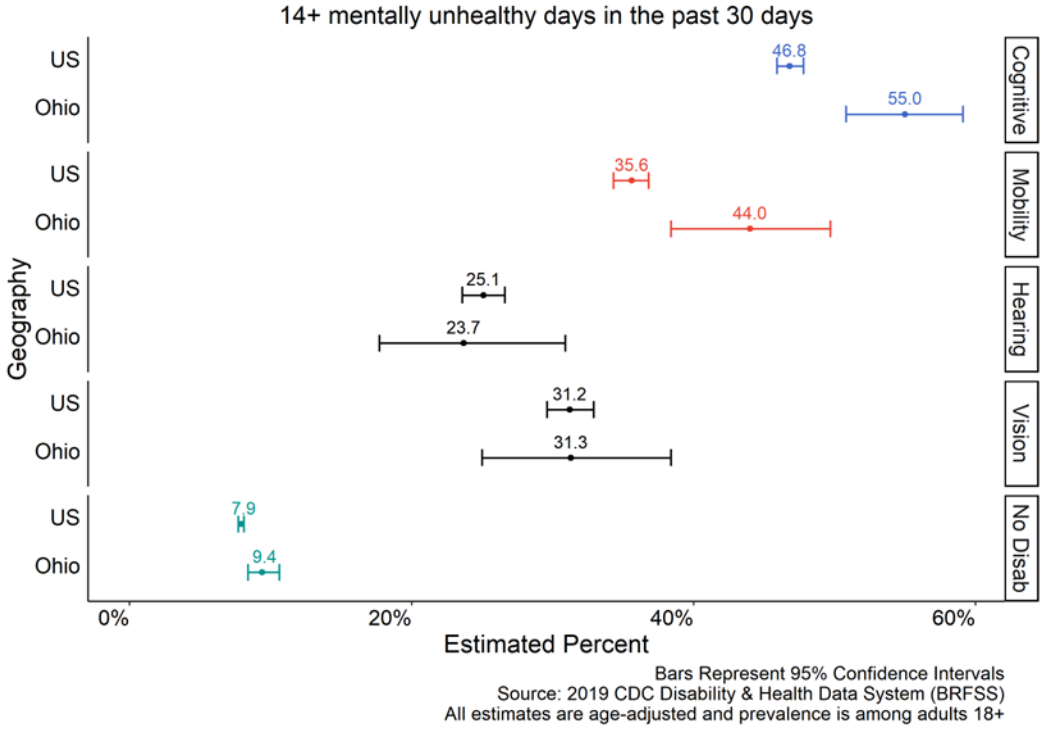


Figure 123: Ever Had Depression (Ohio vs. U.S.)

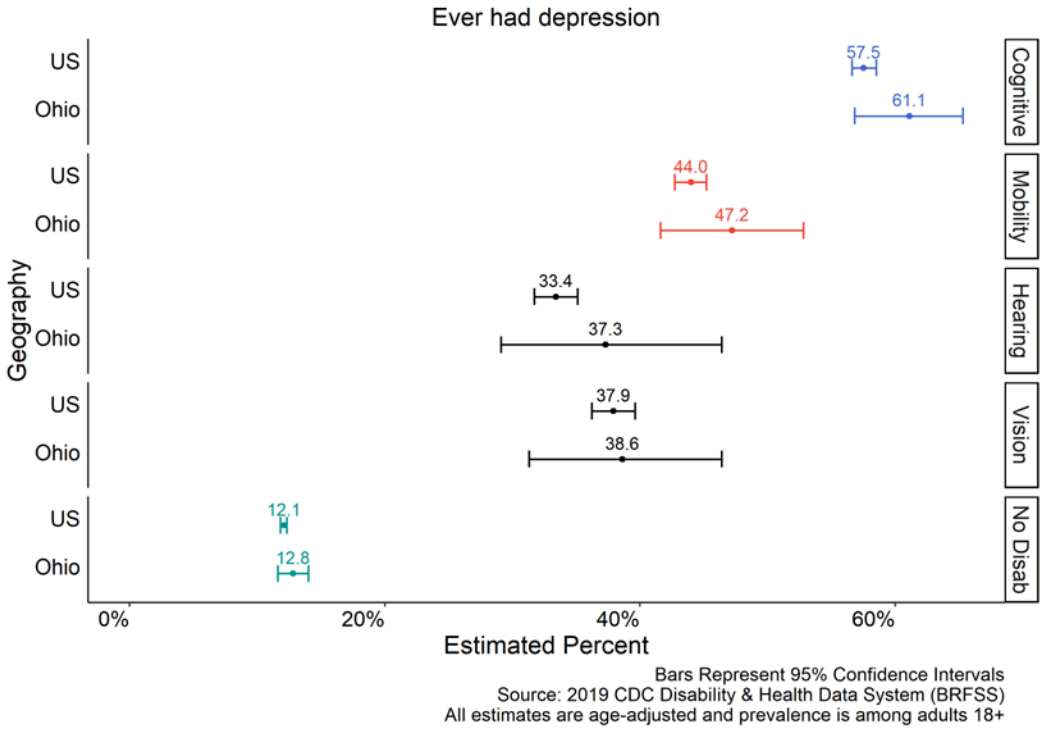


Figure 124: 14+ Physically Unhealthy Days in the Past 30 Days (Ohio vs. U.S.)

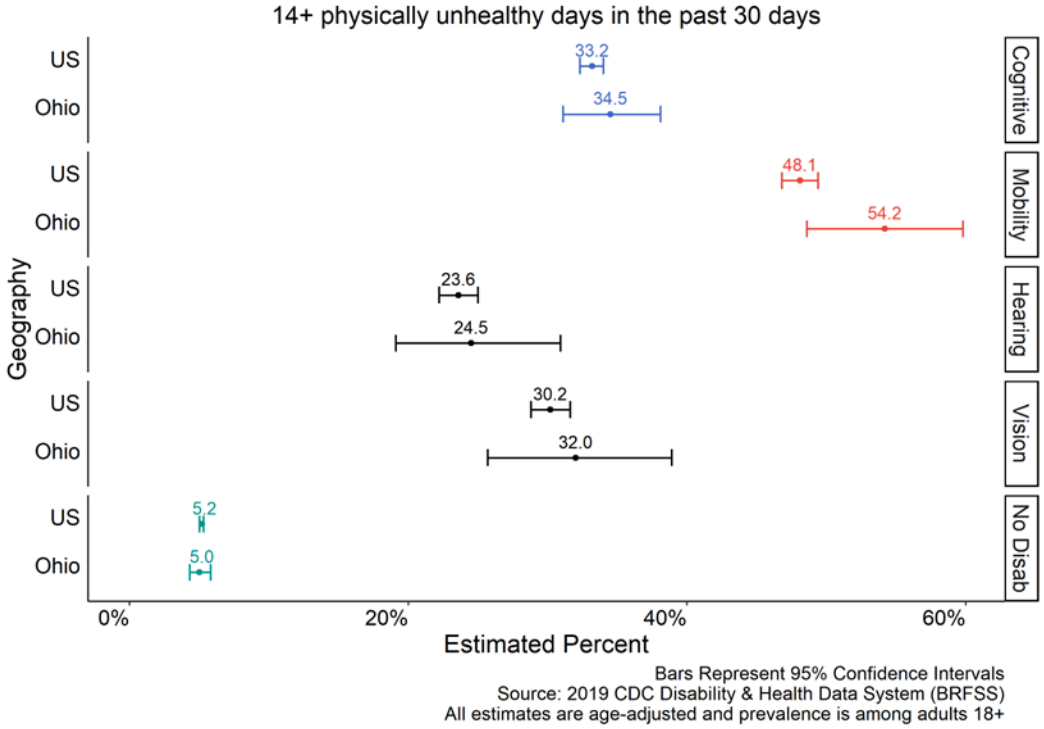


Figure 125: Ever Had Arthritis (Ohio vs. U.S.)

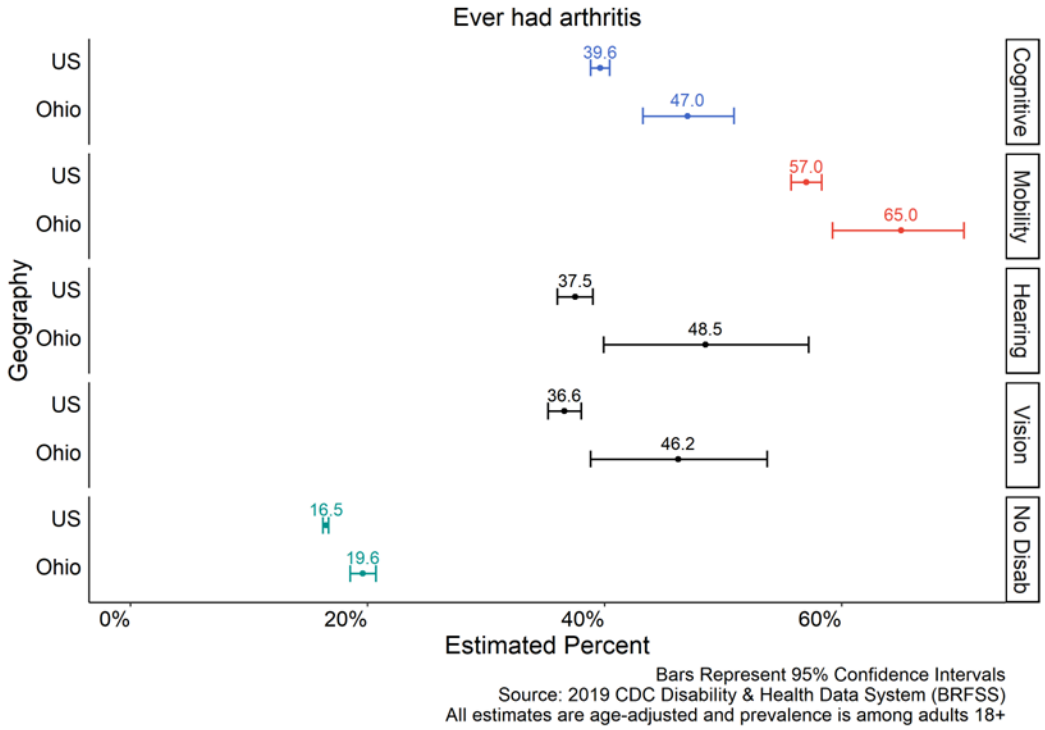
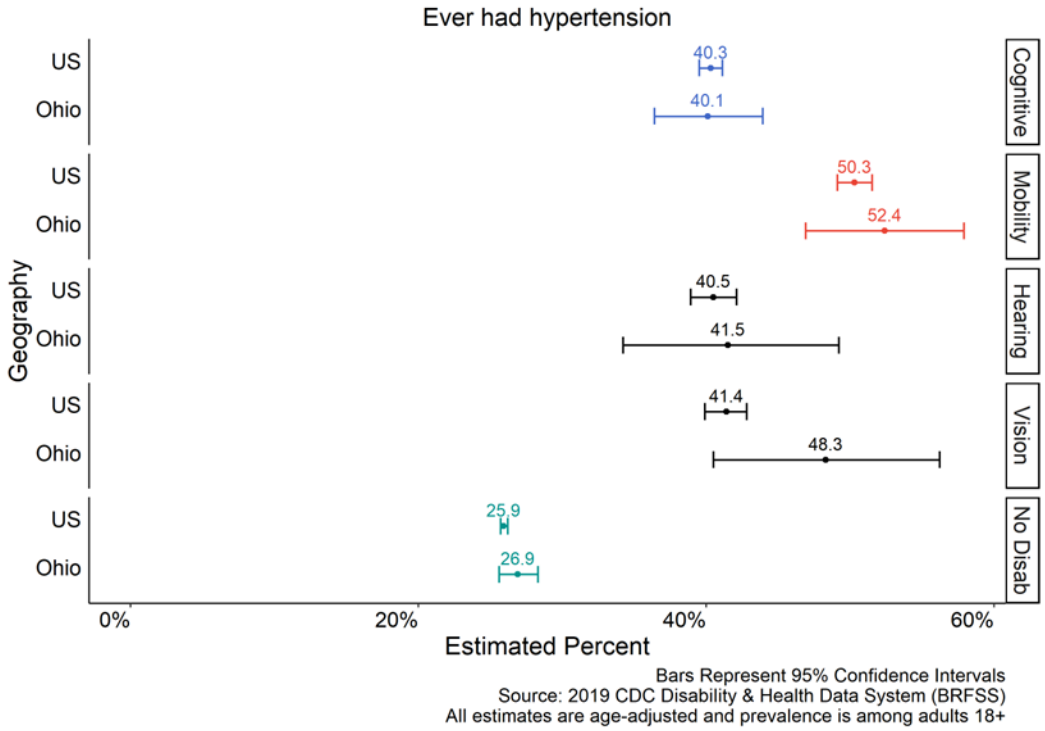


Figure 126: Ever Had Hypertension (Ohio vs. U.S.)



Poisson models for prevalence rate ratios

Model specifications

Using a survey-weighted Poisson model with robust standard errors and adjusting for age, race, and sex, we estimate prevalence rate ratios ("disparity ratios") for adults with disabilities, as compared to the reference category of adults without disabilities. Age range is a categorical seven-level variable; race is a dichotomous variable indicating whether an adult is White or BIPOC;[47] sex is a dichotomous variable indicating whether an adult is male or female. When using OMAS 2019 survey data for the model, we also control for a four-level categorical county type variable that classifies an adult's county of residence as either metropolitan, suburban, rural non-Appalachian, or rural Appalachian. Model results for each health outcome are in the Appendices.

Figure 52-Figure 60 show the prevalence rate ratios for various health outcomes using OMAS 2019 and BRFSS 2020 survey data. The point estimates and 95% confidence intervals plotted are the expected log counts for the disability dummy variable with "adult without disability" as the reference category. Therefore, the vertical line at 0 indicates the statistical significance of each model's coefficient. We plot the expected log counts to avoid distorting the confidence intervals when exponentiating the coefficients to calculate the prevalence rate ratio. The point labels represent the prevalence rate ratio for each model and are discussed when assessing the magnitude of disparities for each outcome.

Model Results

Coefficient estimates shown here should be interpreted as expected log counts. Tables show robust standard errors and adjusted p-values, and statistical significance markers reflect the adjusted p-values. To calculate a prevalence rate ratio, exponentiate the expected log count.

[47] Due to very small sample sizes for certain racial groups (2.9% for Hispanic, 1.1% for Asian), we made the methodological decision to collapse all non-White racial categories into a single BIPOC category in order to meet the sample size requirements necessary for statistical power.

OMAS Models

Table 12: Poisson model, Covered by Health Insurance

Outcome: Health insurance				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.1927	0.0053	0.0000	***
Any disability ref:No disability	-0.0238	0.0022	0.0000	***
Age 25-34 ref:Age 19-24	-0.0391	0.0080	0.0000	***
Age 35-44 ref:Age 19-24	0.0205	0.0076	0.0068	***
Age 45-54 ref:Age 19-24	0.0490	0.0076	0.0000	***
Age 55-64 ref:Age 19-24	0.0759	0.0076	0.0000	***
Age 65-74 ref:Age 19-24	0.1300	0.0077	0.0000	***
Age 75+ ref:Age 19-24	0.1331	0.0079	0.0000	***
Female ref:Male	0.0332	0.0014	0.0000	***
White ref:BIPOC	0.0499	0.0023	0.0000	***
Metro ref:Rural Appalachian	-0.0009	0.0016	0.5799	No
Rural Non-Appalachian ref:Rural Appalachian	0.0024	0.0016	0.1338	No
Suburban ref:Rural Appalachian	0.0118	0.0013	0.0000	***

Table 13: Poisson model, Covered by Medicaid

Outcome: Covered by Medicaid				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.7075	0.1299	0.0000	***
Any disability ref:No disability	1.0156	0.0615	0.0000	***
Age 25-34 ref:Age 19-24	0.2881	0.1382	0.0371	**
Age 35-44 ref:Age 19-24	0.3358	0.1452	0.0207	**
Age 45-54 ref:Age 19-24	-0.0709	0.1373	0.6058	No
Age 55-64 ref:Age 19-24	-0.1348	0.1333	0.3118	No
Age 65-74 ref:Age 19-24	-0.5685	0.1526	0.0002	***
Age 75+ ref:Age 19-24	-0.7662	0.1869	0.0000	***
Female ref:Male	0.3339	0.0542	0.0000	***
White ref:BIPOC	-0.5978	0.0619	0.0000	***
Metro ref:Rural Appalachian	-0.1815	0.0684	0.0080	***
Rural Non-Appalachian ref:Rural Appalachian	-0.3538	0.1007	0.0004	***
Suburban ref:Rural Appalachian	-0.3771	0.0939	0.0001	***

Table 14: Poisson model, Unmet Need for Dental Care (Last 12 Months)

Outcome: Unmet dental needs				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.0093	0.1787	0.0000	***
Any disability ref:No disability	0.9846	0.0990	0.0000	***
Age 25-34 ref:Age 19-24	0.1201	0.2460	0.6253	No
Age 35-44 ref:Age 19-24	-0.0944	0.2438	0.6987	No
Age 45-54 ref:Age 19-24	-0.2716	0.2702	0.3148	No
Age 55-64 ref:Age 19-24	-0.3241	0.2534	0.2010	No
Age 65-74 ref:Age 19-24	-0.6289	0.2706	0.0201	**
Age 75+ ref:Age 19-24	-1.1613	0.3611	0.0013	***
Female ref:Male	0.0793	0.0947	0.4021	No
White ref:BIPOC	-0.2369	0.1092	0.0300	**
Metro ref:Rural Appalachian	0.0665	0.1181	0.5732	No
Rural Non-Appalachian ref:Rural Appalachian	-0.1086	0.1397	0.4371	No
Suburban ref:Rural Appalachian	-0.1355	0.1352	0.3164	No

Table 15: Poisson model, Unmet Need for Mental Health Care (Last 12 Months)

Outcome: Unmet mental health needs				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-3.0174	0.2407	0.0000	***
Any disability ref:No disability	1.5674	0.1685	0.0000	***
Age 25-34 ref:Age 19-24	0.1063	0.2476	0.6678	No
Age 35-44 ref:Age 19-24	-0.2621	0.2326	0.2597	No
Age 45-54 ref:Age 19-24	-0.5695	0.3360	0.0901	*
Age 55-64 ref:Age 19-24	-1.1376	0.2593	0.0000	***
Age 65-74 ref:Age 19-24	-1.8874	0.4918	0.0001	***
Age 75+ ref:Age 19-24	-2.3226	1.1679	0.0467	**
Female ref:Male	0.2253	0.1519	0.1379	No
White ref:BIPOC	0.0463	0.1592	0.7714	No
Metro ref:Rural Appalachian	0.2656	0.1942	0.1715	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0892	0.2057	0.6646	No
Suburban ref:Rural Appalachian	-0.0105	0.2650	0.9685	No

Table 16: Poisson model, Unmet Need for Drug/Alcohol Treatment (Last 12 Months)

Outcome: Unmet drug/alcohol treatment needs			*p<0.1, **p<0.05, ***p<0.01	
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-4.5083	0.5280	0.0000	***
Any disability ref:No disability	1.5890	1.2133	0.1903	No
Age 25-34 ref:Age 19-24	0.3054	0.4717	0.5173	No
Age 35-44 ref:Age 19-24	0.4994	0.4261	0.2412	No
Age 45-54 ref:Age 19-24	0.1069	2.0581	0.9586	No
Age 55-64 ref:Age 19-24	-0.5028	0.5171	0.3309	No
Age 65-74 ref:Age 19-24	-1.9507	0.4418	0.0000	***
Age 75+ ref:Age 19-24	-2.2484	0.5408	0.0000	***
Female ref:Male	-0.7472	0.7670	0.3300	No
White ref:BIPOC	-0.3596	0.7046	0.6098	No
Metro ref:Rural Appalachian	0.2088	0.8725	0.8109	No
Rural Non-Appalachian ref:Rural Appalachian	-0.1736	0.4089	0.6712	No
Suburban ref:Rural Appalachian	-0.1107	0.5062	0.8268	No

Table 17: Poisson model, Unmet Other Health Care Needs (Last 12 Months)

Outcome: Unmet other health needs			*p<0.1, **p<0.05, ***p<0.01	
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-3.0142	0.3555	0.0000	***
Any disability ref:No disability	1.0302	0.1526	0.0000	***
Age 25-34 ref:Age 19-24	0.2219	0.3328	0.5050	No
Age 35-44 ref:Age 19-24	0.1231	0.3234	0.7034	No
Age 45-54 ref:Age 19-24	0.1454	0.3666	0.6917	No
Age 55-64 ref:Age 19-24	-0.0137	0.3253	0.9663	No
Age 65-74 ref:Age 19-24	-0.1072	0.3428	0.7545	No
Age 75+ ref:Age 19-24	-0.3377	0.3457	0.3287	No
Female ref:Male	-0.0475	0.1305	0.7161	No
White ref:BIPOC	-0.0096	0.1494	0.9489	No
Metro ref:Rural Appalachian	0.0840	0.1585	0.5961	No
Rural Non-Appalachian ref:Rural Appalachian	0.0361	0.2401	0.8805	No
Suburban ref:Rural Appalachian	0.0307	0.1604	0.8482	No

Table 18: Poisson model, Harder to Get Medical Care, As Compared with 3 Years Ago

Outcome: Harder to get medical care				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.0582	0.1678	0.0000	***
Any disability ref:No disability	0.5355	0.0811	0.0000	***
Age 25-34 ref:Age 19-24	0.2367	0.1534	0.1229	No
Age 35-44 ref:Age 19-24	0.1422	0.1733	0.4119	No
Age 45-54 ref:Age 19-24	0.0943	0.1690	0.5769	No
Age 55-64 ref:Age 19-24	0.0634	0.1552	0.6828	No
Age 65-74 ref:Age 19-24	-0.5480	0.1903	0.0040	***
Age 75+ ref:Age 19-24	-0.7507	0.2289	0.0010	***
Female ref:Male	0.2185	0.0752	0.0037	***
White ref:BIPOC	0.0003	0.1032	0.9977	No
Metro ref:Rural Appalachian	0.0607	0.1029	0.5554	No
Rural Non-Appalachian ref:Rural Appalachian	0.0403	0.1422	0.7770	No
Suburban ref:Rural Appalachian	0.1249	0.1114	0.2620	No

Table 19: Poisson model, Delayed/Avoided Getting Care You Felt You Needed (Last 12 Months)

Outcome: Delayed or avoided getting care				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.4326	0.1327	0.0000	***
Any disability ref:No disability	0.5333	0.0439	0.0000	***
Age 25-34 ref:Age 19-24	0.1112	0.1050	0.2896	No
Age 35-44 ref:Age 19-24	0.0423	0.1104	0.7017	No
Age 45-54 ref:Age 19-24	-0.1601	0.1209	0.1855	No
Age 55-64 ref:Age 19-24	-0.3150	0.1138	0.0056	***
Age 65-74 ref:Age 19-24	-0.9733	0.1305	0.0000	***
Age 75+ ref:Age 19-24	-1.4597	0.2069	0.0000	***
Female ref:Male	0.2085	0.0443	0.0000	***
White ref:BIPOC	0.1575	0.0469	0.0008	***
Metro ref:Rural Appalachian	0.0831	0.0697	0.2329	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0029	0.1010	0.9773	No
Suburban ref:Rural Appalachian	0.0266	0.0738	0.7187	No

Table 20: Poisson model, Delayed/Avoided Getting Care Because Thought It Would Cost Too Much

Outcome: Delayed/avoided care due to cost				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.5951	0.1372	0.0000	***
Any disability ref:No disability	-0.0201	0.0386	0.6021	No
Age 25-34 ref:Age 19-24	-0.0401	0.0833	0.6302	No
Age 35-44 ref:Age 19-24	-0.1721	0.0861	0.0457	**
Age 45-54 ref:Age 19-24	-0.1960	0.0920	0.0331	**
Age 55-64 ref:Age 19-24	-0.1484	0.0879	0.0915	*
Age 65-74 ref:Age 19-24	-0.4116	0.1037	0.0001	***
Age 75+ ref:Age 19-24	-0.6038	0.2308	0.0089	***
Female ref:Male	0.0285	0.0359	0.4275	No
White ref:BIPOC	0.1489	0.0390	0.0001	***
Metro ref:Rural Appalachian	0.0461	0.0835	0.5811	No
Rural Non-Appalachian ref:Rural Appalachian	0.0558	0.0871	0.5219	No
Suburban ref:Rural Appalachian	-0.0074	0.0859	0.9315	No

Table 21: Poisson model, Delayed/Avoided Getting Care Because Did Not Have Transportation

Outcome: Delayed/avoided care due to lack of transportation				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.1837	0.4138	0.0000	***
Any disability ref:No disability	1.4260	0.2385	0.0000	***
Age 25-34 ref:Age 19-24	-0.2597	0.8349	0.7558	No
Age 35-44 ref:Age 19-24	-0.0617	0.7873	0.9375	No
Age 45-54 ref:Age 19-24	-0.1006	0.8312	0.9036	No
Age 55-64 ref:Age 19-24	-0.3471	0.8133	0.6695	No
Age 65-74 ref:Age 19-24	-0.3397	0.8584	0.6923	No
Age 75+ ref:Age 19-24	-0.3823	0.9529	0.6883	No
Female ref:Male	0.0573	0.2471	0.8165	No
White ref:BIPOC	-0.6212	0.3227	0.0542	*
Metro ref:Rural Appalachian	-0.1195	0.3404	0.7256	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0615	0.3106	0.8430	No
Suburban ref:Rural Appalachian	-0.1216	0.4228	0.7736	No

Table 22: Poisson model, Delayed/Avoided Getting Care Because Provider Was Not Available

Outcome: Delayed/avoided care because provider not available				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.6773	0.2457	0.0000	***
Any disability ref:No disability	0.2824	0.1104	0.0105	**
Age 25-34 ref:Age 19-24	-0.0078	0.2560	0.9757	No
Age 35-44 ref:Age 19-24	0.1240	0.2561	0.6282	No
Age 45-54 ref:Age 19-24	-0.2021	0.2630	0.4422	No
Age 55-64 ref:Age 19-24	-0.2143	0.2701	0.4274	No
Age 65-74 ref:Age 19-24	-0.6234	0.2691	0.0205	**
Age 75+ ref:Age 19-24	-0.6142	0.4412	0.1639	No
Female ref:Male	0.2965	0.1058	0.0051	***
White ref:BIPOC	-0.1427	0.1285	0.2668	No
Metro ref:Rural Appalachian	0.1436	0.1599	0.3692	No
Rural Non-Appalachian ref:Rural Appalachian	0.1655	0.1880	0.3785	No
Suburban ref:Rural Appalachian	0.2576	0.1727	0.1358	No

Table 23: Poisson model, Delayed/Avoided Getting Care Because Could Not Find Provider

Outcome: Delayed/avoided care because could not find provider				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.8886	0.2789	0.0000	***
Any disability ref:No disability	0.6359	0.1841	0.0006	***
Age 25-34 ref:Age 19-24	0.0905	0.3289	0.7832	No
Age 35-44 ref:Age 19-24	0.0158	0.3286	0.9618	No
Age 45-54 ref:Age 19-24	-0.3560	0.3160	0.2599	No
Age 55-64 ref:Age 19-24	-0.4085	0.3229	0.2059	No
Age 65-74 ref:Age 19-24	-0.6787	0.3592	0.0588	*
Age 75+ ref:Age 19-24	-0.7315	0.7126	0.3047	No
Female ref:Male	0.1448	0.1821	0.4267	No
White ref:BIPOC	-0.3043	0.2250	0.1762	No
Metro ref:Rural Appalachian	0.1270	0.2243	0.5713	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0948	0.1972	0.6307	No
Suburban ref:Rural Appalachian	0.1601	0.2221	0.4709	No

Table 24: Poisson model, Have a Person(s) You Think of as Your Personal Doctor/Nurse

Outcome: Have personal doctor/nurse				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.5741	0.0457	0.0000	***
Any disability ref:No disability	0.0029	0.0066	0.6653	No
Age 25-34 ref:Age 19-24	0.0495	0.0482	0.3040	No
Age 35-44 ref:Age 19-24	0.1736	0.0471	0.0002	***
Age 45-54 ref:Age 19-24	0.2542	0.0467	0.0000	***
Age 55-64 ref:Age 19-24	0.3052	0.0469	0.0000	***
Age 65-74 ref:Age 19-24	0.3139	0.0468	0.0000	***
Age 75+ ref:Age 19-24	0.3346	0.0474	0.0000	***
Female ref:Male	0.0844	0.0060	0.0000	***
White ref:BIPOC	0.0838	0.0083	0.0000	***
Metro ref:Rural Appalachian	0.0000	0.0096	0.9964	No
Rural Non-Appalachian ref:Rural Appalachian	0.0150	0.0110	0.1711	No
Suburban ref:Rural Appalachian	0.0217	0.0098	0.0271	**

Table 25: Poisson model, Currently Smoke Cigarettes

Outcome: Current smoker				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.0842	0.1530	0.0000	***
Any disability ref:No disability	0.7236	0.0584	0.0000	***
Age 25-34 ref:Age 19-24	0.7769	0.1573	0.0000	***
Age 35-44 ref:Age 19-24	0.7529	0.1557	0.0000	***
Age 45-54 ref:Age 19-24	0.5987	0.1649	0.0003	***
Age 55-64 ref:Age 19-24	0.5689	0.1627	0.0005	***
Age 65-74 ref:Age 19-24	-0.0417	0.1763	0.8129	No
Age 75+ ref:Age 19-24	-0.9250	0.2638	0.0005	***
Female ref:Male	-0.0743	0.0559	0.1837	No
White ref:BIPOC	0.0184	0.0577	0.7492	No
Metro ref:Rural Appalachian	-0.1687	0.0708	0.0172	**
Rural Non-Appalachian ref:Rural Appalachian	-0.1712	0.1048	0.1025	No
Suburban ref:Rural Appalachian	-0.2341	0.0859	0.0064	***

Table 26: Poisson model, Currently Use Chewing Tobacco, Snuff, or Snus

Outcome: Use smokeless tobacco				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.2885	0.2901	0.0000	***
Any disability ref:No disability	0.4178	0.1740	0.0163	**
Age 25-34 ref:Age 19-24	0.1319	0.2967	0.6566	No
Age 35-44 ref:Age 19-24	0.0532	0.2720	0.8450	No
Age 45-54 ref:Age 19-24	-0.1582	0.3377	0.6396	No
Age 55-64 ref:Age 19-24	-0.8019	0.2732	0.0033	***
Age 65-74 ref:Age 19-24	-1.1281	0.3890	0.0037	***
Age 75+ ref:Age 19-24	-1.2895	0.4208	0.0022	***
Female ref:Male	-1.9875	0.2377	0.0000	***
White ref:BIPOC	0.4862	0.2310	0.0353	**
Metro ref:Rural Appalachian	-0.8685	0.2403	0.0003	***
Rural Non-Appalachian ref:Rural Appalachian	-0.4979	0.2223	0.0251	**
Suburban ref:Rural Appalachian	-0.3705	0.2313	0.1092	No

Table 27: Poisson model, Currently Smoke Electronic Cigarettes

Outcome: Current e-cigarette use				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.4207	0.3744	0.0000	***
Any disability ref:No disability	0.6396	0.2214	0.0039	***
Age 25-34 ref:Age 19-24	-0.4831	0.2338	0.0388	**
Age 35-44 ref:Age 19-24	-0.6934	0.2424	0.0042	***
Age 45-54 ref:Age 19-24	-1.1800	0.4525	0.0091	***
Age 55-64 ref:Age 19-24	-2.0560	0.2718	0.0000	***
Age 65-74 ref:Age 19-24	-2.0933	1.2739	0.1004	No
Age 75+ ref:Age 19-24	-3.6391	0.2994	0.0000	***
Female ref:Male	-0.3861	0.2309	0.0945	*
White ref:BIPOC	0.5773	0.1623	0.0004	***
Metro ref:Rural Appalachian	-0.1699	0.4420	0.7007	No
Rural Non-Appalachian ref:Rural Appalachian	-0.2344	0.5185	0.6513	No
Suburban ref:Rural Appalachian	-0.1170	0.4928	0.8123	No

Table 28: Poisson model, Binge Drinking in Past 30 Days

Outcome: Binge drinking				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.9813	0.1804	0.0000	***
Any disability ref:No disability	-0.0827	0.1036	0.4248	No
Age 25-34 ref:Age 19-24	-0.2101	0.1518	0.1664	No
Age 35-44 ref:Age 19-24	-0.3720	0.1582	0.0187	**
Age 45-54 ref:Age 19-24	-0.6378	0.1735	0.0002	***
Age 55-64 ref:Age 19-24	-0.8911	0.1866	0.0000	***
Age 65-74 ref:Age 19-24	-1.6971	0.1878	0.0000	***
Age 75+ ref:Age 19-24	-2.0836	0.6173	0.0007	***
Female ref:Male	-0.3385	0.0780	0.0000	***
White ref:BIPOC	0.1744	0.0711	0.0141	**
Metro ref:Rural Appalachian	0.1182	0.1276	0.3543	No
Rural Non-Appalachian ref:Rural Appalachian	0.0823	0.1902	0.6654	No
Suburban ref:Rural Appalachian	0.0204	0.1371	0.8818	No

Table 29: Poisson model, Currently Use Marijuana or Cannabis

Outcome: Marijuana use				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.4573	0.1599	0.0000	***
Any disability ref:No disability	0.7948	0.1350	0.0000	***
Age 25-34 ref:Age 19-24	-0.2446	0.2434	0.3150	No
Age 35-44 ref:Age 19-24	-0.5211	0.2385	0.0289	**
Age 45-54 ref:Age 19-24	-0.9812	0.2585	0.0001	***
Age 55-64 ref:Age 19-24	-1.1707	0.2757	0.0000	***
Age 65-74 ref:Age 19-24	-2.0939	0.2793	0.0000	***
Age 75+ ref:Age 19-24	-3.2172	0.4729	0.0000	***
Female ref:Male	-0.3448	0.1057	0.0011	***
White ref:BIPOC	-0.2030	0.1021	0.0468	**
Metro ref:Rural Appalachian	0.2445	0.1005	0.0149	**
Rural Non-Appalachian ref:Rural Appalachian	-0.0524	0.4475	0.9068	No
Suburban ref:Rural Appalachian	0.0082	0.1296	0.9497	No

Table 30: Poisson model, Misuse of Prescription Pain Relievers

Outcome: Misuse of pain medication				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.7750	0.2651	0.0000	***
Any disability ref:No disability	0.6355	0.1245	0.0000	***
Age 25-34 ref:Age 19-24	0.6327	0.2299	0.0059	***
Age 35-44 ref:Age 19-24	0.5096	0.2267	0.0246	**
Age 45-54 ref:Age 19-24	0.0850	0.3268	0.7948	No
Age 55-64 ref:Age 19-24	-0.0087	0.2444	0.9716	No
Age 65-74 ref:Age 19-24	-0.7280	0.2514	0.0038	***
Age 75+ ref:Age 19-24	-0.8746	0.3282	0.0077	***
Female ref:Male	-0.5353	0.1184	0.0000	***
White ref:BIPOC	0.2439	0.1455	0.0937	*
Metro ref:Rural Appalachian	0.0279	0.1594	0.8611	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0925	0.2022	0.6474	No
Suburban ref:Rural Appalachian	0.0037	0.1646	0.9819	No

Table 31: Poisson model, Last Routine Check-Up More Than 12 Months Ago

Outcome: Last routine checkup more than a year ago				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.2548	0.1719	0.0000	***
Any disability ref:No disability	-0.0048	0.0964	0.9603	No
Age 25-34 ref:Age 19-24	-0.0061	0.1360	0.9645	No
Age 35-44 ref:Age 19-24	-0.3185	0.1537	0.0382	**
Age 45-54 ref:Age 19-24	-0.5696	0.1772	0.0013	***
Age 55-64 ref:Age 19-24	-0.8340	0.1582	0.0000	***
Age 65-74 ref:Age 19-24	-1.3369	0.1908	0.0000	***
Age 75+ ref:Age 19-24	-1.3049	0.3029	0.0000	***
Female ref:Male	-0.0661	0.0811	0.4147	No
White ref:BIPOC	0.1821	0.0804	0.0236	**
Metro ref:Rural Appalachian	-0.0642	0.1298	0.6207	No
Rural Non-Appalachian ref:Rural Appalachian	0.0592	0.1726	0.7314	No
Suburban ref:Rural Appalachian	-0.0523	0.1421	0.7129	No

Table 32: Poisson model, Last Doctor Visit More Than 12 Months Ago

Outcome: Last doctor visit more than a year ago			*p<0.1, **p<0.05, ***p<0.01	
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.9637	0.1383	0.0000	***
Any disability ref:No disability	-0.2191	0.1353	0.1053	No
Age 25-34 ref:Age 19-24	0.0217	0.1715	0.8993	No
Age 35-44 ref:Age 19-24	-0.1001	0.1978	0.6126	No
Age 45-54 ref:Age 19-24	-0.4930	0.2219	0.0263	**
Age 55-64 ref:Age 19-24	-0.8510	0.2180	0.0001	***
Age 65-74 ref:Age 19-24	-1.4462	0.2323	0.0000	***
Age 75+ ref:Age 19-24	-1.5289	0.3921	0.0001	***
Female ref:Male	-0.5403	0.1161	0.0000	***
White ref:BIPOC	-0.1267	0.1134	0.2638	No
Metro ref:Rural Appalachian	-0.1028	0.1226	0.4019	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0710	0.1364	0.6029	No
Suburban ref:Rural Appalachian	-0.0618	0.1345	0.6460	No

Table 33: Poisson model, 3 or More ER Visits in Last Year

Outcome: 3+ ER visits in last year			*p<0.1, **p<0.05, ***p<0.01	
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-3.1549	0.3397	0.0000	***
Any disability ref:No disability	1.4708	0.1414	0.0000	***
Age 25-34 ref:Age 19-24	0.1109	0.4141	0.7889	No
Age 35-44 ref:Age 19-24	-0.0789	0.4061	0.8460	No
Age 45-54 ref:Age 19-24	-0.1920	0.4132	0.6422	No
Age 55-64 ref:Age 19-24	-0.3775	0.4041	0.3502	No
Age 65-74 ref:Age 19-24	-0.7592	0.4369	0.0822	*
Age 75+ ref:Age 19-24	-0.8239	0.4910	0.0934	*
Female ref:Male	0.2615	0.1597	0.1015	No
White ref:BIPOC	-0.3482	0.1712	0.0419	**
Metro ref:Rural Appalachian	0.0718	0.1936	0.7108	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0683	0.2153	0.7510	No
Suburban ref:Rural Appalachian	-0.1453	0.1679	0.3868	No

Table 34: Poisson model, 14 or More Mentally Unhealthy Days in Last 30 Days

Outcome: 14+ mentally unhealthy days				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-3.8718	0.7888	0.0000	***
Any disability ref:No disability	2.5869	0.3277	0.0000	***
Age 25-34 ref:Age 19-24	-0.2641	0.8766	0.7632	No
Age 35-44 ref:Age 19-24	-0.1573	0.9004	0.8613	No
Age 45-54 ref:Age 19-24	-0.3872	0.8909	0.6638	No
Age 55-64 ref:Age 19-24	-0.6304	0.9458	0.5050	No
Age 65-74 ref:Age 19-24	-1.5536	0.9754	0.1112	No
Age 75+ ref:Age 19-24	-2.1747	0.9857	0.0274	**
Female ref:Male	0.2311	0.3170	0.4660	No
White ref:BIPOC	0.0227	0.1873	0.9035	No
Metro ref:Rural Appalachian	0.0673	0.1697	0.6916	No
Rural Non-Appalachian ref:Rural Appalachian	0.1599	0.9635	0.8682	No
Suburban ref:Rural Appalachian	-0.1622	0.1617	0.3159	No

Table 35: Poisson model, Often Feel You Lack Companionship

Outcome: Lack companionship				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.3801	0.2285	0.0000	***
Any disability ref:No disability	1.0839	0.1122	0.0000	***
Age 25-34 ref:Age 19-24	0.1607	0.2164	0.4576	No
Age 35-44 ref:Age 19-24	0.0958	0.1960	0.6251	No
Age 45-54 ref:Age 19-24	0.0919	0.2246	0.6823	No
Age 55-64 ref:Age 19-24	0.0957	0.1953	0.6241	No
Age 65-74 ref:Age 19-24	-0.3315	0.2139	0.1212	No
Age 75+ ref:Age 19-24	-0.5229	0.2331	0.0249	**
Female ref:Male	-0.2147	0.0974	0.0275	**
White ref:BIPOC	-0.1470	0.1024	0.1514	No
Metro ref:Rural Appalachian	0.0039	0.1450	0.9784	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0473	0.2162	0.8270	No
Suburban ref:Rural Appalachian	-0.1190	0.1561	0.4457	No

Table 36: Poisson model, Often Feel Left Out

Outcome: Feel left out				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-3.2455	1.0020	0.0012	***
Any disability ref:No disability	1.9547	0.2807	0.0000	***
Age 25-34 ref:Age 19-24	-0.0515	1.1939	0.9656	No
Age 35-44 ref:Age 19-24	-0.1332	1.2212	0.9131	No
Age 45-54 ref:Age 19-24	-0.3732	1.2152	0.7587	No
Age 55-64 ref:Age 19-24	-0.3408	1.2575	0.7864	No
Age 65-74 ref:Age 19-24	-0.9726	1.2696	0.4436	No
Age 75+ ref:Age 19-24	-1.5235	1.4023	0.2773	No
Female ref:Male	-0.0840	0.3481	0.8093	No
White ref:BIPOC	-0.2071	0.2074	0.3180	No
Metro ref:Rural Appalachian	0.1158	0.1637	0.4791	No
Rural Non-Appalachian ref:Rural Appalachian	0.2664	1.1385	0.8150	No
Suburban ref:Rural Appalachian	-0.1767	0.1574	0.2616	No

Table 37: Poisson model, Often Feel Isolated From Others

Outcome: Feel isolated from others				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.9977	0.2813	0.0000	***
Any disability ref:No disability	1.9888	0.1706	0.0000	***
Age 25-34 ref:Age 19-24	-0.0860	0.3883	0.8246	No
Age 35-44 ref:Age 19-24	-0.1512	0.3895	0.6979	No
Age 45-54 ref:Age 19-24	-0.5419	0.3768	0.1503	No
Age 55-64 ref:Age 19-24	-0.5498	0.3806	0.1486	No
Age 65-74 ref:Age 19-24	-1.4642	0.3907	0.0002	***
Age 75+ ref:Age 19-24	-1.7246	0.4963	0.0005	***
Female ref:Male	-0.0470	0.1397	0.7366	No
White ref:BIPOC	-0.1662	0.1676	0.3213	No
Metro ref:Rural Appalachian	0.0774	0.1621	0.6331	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0179	0.2499	0.9428	No
Suburban ref:Rural Appalachian	-0.1395	0.1507	0.3546	No

Table 38: Poisson model, Fair or Poor Self-Rated Health

Outcome: Fair/poor self-rated health				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.7311	0.1918	0.0000	***
Any disability ref:No disability	1.6241	0.0815	0.0000	***
Age 25-34 ref:Age 19-24	0.4073	0.2128	0.0557	*
Age 35-44 ref:Age 19-24	0.5921	0.2013	0.0033	***
Age 45-54 ref:Age 19-24	0.7065	0.1946	0.0003	***
Age 55-64 ref:Age 19-24	0.8277	0.1949	0.0000	***
Age 65-74 ref:Age 19-24	0.6627	0.1971	0.0008	***
Age 75+ ref:Age 19-24	0.5565	0.2028	0.0061	***
Female ref:Male	0.0162	0.0475	0.7324	No
White ref:BIPOC	-0.2221	0.0491	0.0000	***
Metro ref:Rural Appalachian	-0.1044	0.0589	0.0763	*
Rural Non-Appalachian ref:Rural Appalachian	-0.1325	0.0905	0.1432	No
Suburban ref:Rural Appalachian	-0.2183	0.0692	0.0016	***

Table 39: Poisson model, Injured Due to Fall (Last 12 months)

Outcome: Injured due to fall				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.9592	0.8891	0.0009	***
Any disability ref:No disability	1.1052	0.1476	0.0000	***
Age 25-34 ref:Age 19-24	0.0267	1.2583	0.9831	No
Age 35-44 ref:Age 19-24	0.4010	0.8799	0.6486	No
Age 45-54 ref:Age 19-24	0.4861	0.8604	0.5721	No
Age 55-64 ref:Age 19-24	0.2116	0.8523	0.8039	No
Age 65-74 ref:Age 19-24	0.2154	0.8593	0.8021	No
Age 75+ ref:Age 19-24	0.1762	0.8606	0.8378	No
Female ref:Male	0.1931	0.1343	0.1505	No
White ref:BIPOC	0.0031	0.1349	0.9817	No
Metro ref:Rural Appalachian	-0.0334	0.1911	0.8613	No
Rural Non-Appalachian ref:Rural Appalachian	-0.1944	0.1913	0.3095	No
Suburban ref:Rural Appalachian	-0.0110	0.1746	0.9499	No

Table 40: Poisson model, Ever Had Hypertension

Outcome: Hypertension				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.3994	0.5568	0.0000	***
Any disability ref:No disability	0.3873	0.0438	0.0000	***
Age 25-34 ref:Age 19-24	0.5660	0.6307	0.3695	No
Age 35-44 ref:Age 19-24	1.0435	0.6159	0.0902	*
Age 45-54 ref:Age 19-24	1.5097	0.6181	0.0146	**
Age 55-64 ref:Age 19-24	1.8176	0.6181	0.0033	***
Age 65-74 ref:Age 19-24	2.0557	0.6199	0.0009	***
Age 75+ ref:Age 19-24	2.0738	0.6247	0.0009	***
Female ref:Male	-0.1208	0.0337	0.0003	***
White ref:BIPOC	-0.1857	0.0469	0.0001	***
Metro ref:Rural Appalachian	-0.0435	0.0474	0.3581	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0777	0.0504	0.1228	No
Suburban ref:Rural Appalachian	-0.0847	0.0425	0.0465	**

Table 41: Poisson model, Ever Had Heart Attack

Outcome: Heart attack				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-5.9689	0.4662	0.0000	***
Any disability ref:No disability	1.0259	0.1544	0.0000	***
Age 25-34 ref:Age 19-24	1.3981	0.5478	0.0107	**
Age 35-44 ref:Age 19-24	1.8454	0.4200	0.0000	***
Age 45-54 ref:Age 19-24	2.7766	0.3929	0.0000	***
Age 55-64 ref:Age 19-24	3.0847	0.3762	0.0000	***
Age 65-74 ref:Age 19-24	3.4062	0.3823	0.0000	***
Age 75+ ref:Age 19-24	3.6718	0.3830	0.0000	***
Female ref:Male	-0.6377	0.1468	0.0000	***
White ref:BIPOC	0.0985	0.1640	0.5482	No
Metro ref:Rural Appalachian	-0.0365	0.1838	0.8424	No
Rural Non-Appalachian ref:Rural Appalachian	-0.1423	0.2025	0.4820	No
Suburban ref:Rural Appalachian	-0.1881	0.1953	0.3355	No

Table 42: Poisson model, Ever Had Coronary Heart Disease

Outcome: Heart disease				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-5.8628	0.4964	0.0000	***
Any disability ref:No disability	1.0553	0.1572	0.0000	***
Age 25-34 ref:Age 19-24	0.7228	0.6112	0.2370	No
Age 35-44 ref:Age 19-24	1.4381	0.4405	0.0011	***
Age 45-54 ref:Age 19-24	2.6721	0.4688	0.0000	***
Age 55-64 ref:Age 19-24	3.2008	0.3993	0.0000	***
Age 65-74 ref:Age 19-24	3.6673	0.3901	0.0000	***
Age 75+ ref:Age 19-24	3.8630	0.3916	0.0000	***
Female ref:Male	-0.4426	0.1463	0.0025	***
White ref:BIPOC	0.0813	0.1735	0.6396	No
Metro ref:Rural Appalachian	-0.1359	0.1904	0.4753	No
Rural Non-Appalachian ref:Rural Appalachian	-0.2644	0.2023	0.1913	No
Suburban ref:Rural Appalachian	-0.2165	0.1727	0.2101	No

Table 43: Poisson model, Ever Had Congestive Heart Failure

Outcome: Heart failure				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-6.2052	0.7388	0.0000	***
Any disability ref:No disability	1.6172	0.2691	0.0000	***
Age 25-34 ref:Age 19-24	0.4815	0.8865	0.5870	No
Age 35-44 ref:Age 19-24	1.4694	0.6926	0.0339	**
Age 45-54 ref:Age 19-24	2.4774	0.6639	0.0002	***
Age 55-64 ref:Age 19-24	2.7554	0.6116	0.0000	***
Age 65-74 ref:Age 19-24	3.1010	0.6121	0.0000	***
Age 75+ ref:Age 19-24	3.1455	0.5853	0.0000	***
Female ref:Male	-0.2684	0.2132	0.2081	No
White ref:BIPOC	-0.1939	0.2293	0.3977	No
Metro ref:Rural Appalachian	-0.2113	0.2959	0.4751	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0247	0.3673	0.9465	No
Suburban ref:Rural Appalachian	-0.1904	0.2291	0.4060	No

Table 44: Poisson model, Ever Had Stroke

Outcome: Stroke				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-4.6958	44.4301	0.9158	No
Any disability ref:No disability	1.5087	3.9313	0.7011	No
Age 25-34 ref:Age 19-24	-0.5278	47.8931	0.9912	No
Age 35-44 ref:Age 19-24	0.0861	48.0273	0.9986	No
Age 45-54 ref:Age 19-24	0.7811	48.1011	0.9870	No
Age 55-64 ref:Age 19-24	1.1752	48.7627	0.9808	No
Age 65-74 ref:Age 19-24	1.3066	48.7641	0.9786	No
Age 75+ ref:Age 19-24	1.4590	49.2955	0.9764	No
Female ref:Male	-0.1492	4.3991	0.9729	No
White ref:BIPOC	-0.0434	2.2340	0.9845	No
Metro ref:Rural Appalachian	0.0272	0.6310	0.9656	No
Rural Non-Appalachian ref:Rural Appalachian	0.1294	13.4079	0.9923	No
Suburban ref:Rural Appalachian	-0.3116	0.3473	0.3696	No

Table 45: Poisson model, Ever Had High Cholesterol

Outcome: High cholesterol				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.8965	5.6260	0.6067	No
Any disability ref:No disability	0.4236	0.1926	0.0278	**
Age 25-34 ref:Age 19-24	0.0804	5.6409	0.9886	No
Age 35-44 ref:Age 19-24	0.7479	5.6487	0.8947	No
Age 45-54 ref:Age 19-24	1.4905	5.6620	0.7924	No
Age 55-64 ref:Age 19-24	1.8076	5.6904	0.7507	No
Age 65-74 ref:Age 19-24	1.9588	5.7009	0.7311	No
Age 75+ ref:Age 19-24	1.9153	5.7179	0.7376	No
Female ref:Male	-0.0598	0.1331	0.6529	No
White ref:BIPOC	0.0803	0.1729	0.6425	No
Metro ref:Rural Appalachian	-0.0781	0.2670	0.7699	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0983	0.5286	0.8525	No
Suburban ref:Rural Appalachian	-0.0222	0.2587	0.9317	No

Table 46: Poisson model, Ever Had Asthma

Outcome: Asthma			*p<0.1, **p<0.05, ***p<0.01	
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.0078	0.1599	0.0000	***
Any disability ref:No disability	0.7628	0.0726	0.0000	***
Age 25-34 ref:Age 19-24	-0.0051	0.1587	0.9745	No
Age 35-44 ref:Age 19-24	-0.0282	0.1508	0.8518	No
Age 45-54 ref:Age 19-24	-0.1779	0.1622	0.2726	No
Age 55-64 ref:Age 19-24	-0.2486	0.1494	0.0960	*
Age 65-74 ref:Age 19-24	-0.4176	0.1667	0.0122	**
Age 75+ ref:Age 19-24	-0.8616	0.1770	0.0000	***
Female ref:Male	0.2897	0.0713	0.0000	***
White ref:BIPOC	-0.1209	0.0757	0.1103	No
Metro ref:Rural Appalachian	0.0996	0.1060	0.3475	No
Rural Non-Appalachian ref:Rural Appalachian	-0.0634	0.1288	0.6225	No
Suburban ref:Rural Appalachian	0.0609	0.1166	0.6016	No

Table 47: Poisson model, Ever Had Arthritis

Outcome: Arthritis			*p<0.1, **p<0.05, ***p<0.01	
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.4657	1.1332	0.1959	No
Any disability ref:No disability	0.5894	0.0359	0.0000	***
Age 25-34 ref:Age 19-24	-1.7314	1.1464	0.1310	No
Age 35-44 ref:Age 19-24	-0.8855	1.1831	0.4542	No
Age 45-54 ref:Age 19-24	0.0160	1.1359	0.9888	No
Age 55-64 ref:Age 19-24	0.2709	1.1339	0.8112	No
Age 65-74 ref:Age 19-24	0.4153	1.1342	0.7143	No
Age 75+ ref:Age 19-24	0.4342	1.1331	0.7015	No
Female ref:Male	0.2258	0.0304	0.0000	***
White ref:BIPOC	0.0765	0.0320	0.0168	**
Metro ref:Rural Appalachian	-0.0056	0.0374	0.8820	No
Rural Non-Appalachian ref:Rural Appalachian	0.0028	0.0536	0.9576	No
Suburban ref:Rural Appalachian	-0.0112	0.0380	0.7689	No

Table 48: Poisson model, Ever Had Diabetes

Outcome: Diabetes				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-3.7463	0.4333	0.0000	***
Any disability ref:No disability	0.7244	0.0918	0.0000	***
Age 25-34 ref:Age 19-24	0.8137	0.5074	0.1088	No
Age 35-44 ref:Age 19-24	1.3396	0.4416	0.0024	***
Age 45-54 ref:Age 19-24	1.9635	0.4394	0.0000	***
Age 55-64 ref:Age 19-24	2.2237	0.4208	0.0000	***
Age 65-74 ref:Age 19-24	2.5659	0.4244	0.0000	***
Age 75+ ref:Age 19-24	2.4278	0.4279	0.0000	***
Female ref:Male	-0.1221	0.0798	0.1259	No
White ref:BIPOC	-0.3415	0.0885	0.0001	***
Metro ref:Rural Appalachian	-0.1433	0.1156	0.2153	No
Rural Non-Appalachian ref:Rural Appalachian	-0.1328	0.1423	0.3504	No
Suburban ref:Rural Appalachian	-0.1180	0.1207	0.3284	No

Table 49: Poisson model, Now Taking Insulin (Among Diabetics)

Outcome: Take insulin				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.9763	0.3283	0.0029	***
Any disability ref:No disability	0.4597	0.0974	0.0000	***
Age 25-34 ref:Age 19-24	-0.1625	0.3400	0.6326	No
Age 35-44 ref:Age 19-24	-0.1585	0.3116	0.6109	No
Age 45-54 ref:Age 19-24	-0.2276	0.2959	0.4418	No
Age 55-64 ref:Age 19-24	-0.3656	0.2816	0.1942	No
Age 65-74 ref:Age 19-24	-0.4229	0.2945	0.1511	No
Age 75+ ref:Age 19-24	-0.4291	0.2907	0.1399	No
Female ref:Male	0.0077	0.0878	0.9297	No
White ref:BIPOC	-0.0999	0.1016	0.3255	No
Metro ref:Rural Appalachian	0.0170	0.1221	0.8891	No
Rural Non-Appalachian ref:Rural Appalachian	0.0665	0.1493	0.6560	No
Suburban ref:Rural Appalachian	-0.0158	0.1310	0.9039	No

Table 50: Poisson model, Now Taking Diabetic Pills (Among Diabetics)

Outcome: Take diabetic pills				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.4758	0.3223	0.0000	***
Any disability ref:No disability	-0.1109	0.0124	0.0000	***
Age 25-34 ref:Age 19-24	0.4440	0.3780	0.2401	No
Age 35-44 ref:Age 19-24	1.0391	0.3241	0.0013	***
Age 45-54 ref:Age 19-24	1.2711	0.3219	0.0001	***
Age 55-64 ref:Age 19-24	1.2412	0.3219	0.0001	***
Age 65-74 ref:Age 19-24	1.3188	0.3216	0.0000	***
Age 75+ ref:Age 19-24	1.2906	0.3217	0.0001	***
Female ref:Male	-0.0374	0.0122	0.0022	***
White ref:BIPOC	-0.0144	0.0148	0.3290	No
Metro ref:Rural Appalachian	0.0240	0.0185	0.1956	No
Rural Non-Appalachian ref:Rural Appalachian	0.0271	0.0204	0.1844	No
Suburban ref:Rural Appalachian	0.0211	0.0191	0.2685	No

Table 51: Poisson model, Pregnant at Any Time in Last 12 Months

Outcome: Pregnant in last year				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.9991	0.3268	0.0000	***
Any disability ref:No disability	-0.1770	0.2063	0.3908	No
Age 25-34 ref:Age 19-24	0.4270	0.2099	0.0420	**
Age 35-44 ref:Age 19-24	-0.7161	0.3134	0.0223	**
Age 45-54 ref:Age 19-24	-14.1003	0.1781	0.0000	***
Age 55-64 ref:Age 19-24	-14.0629	0.1910	0.0000	***
Age 65-74 ref:Age 19-24	-14.0667	0.1851	0.0000	***
Age 75+ ref:Age 19-24	-14.0305	0.2039	0.0000	***
White ref:BIPOC	-0.2244	0.1800	0.2127	No
Metro ref:Rural Appalachian	-0.0764	0.2759	0.7817	No
Rural Non-Appalachian ref:Rural Appalachian	0.0254	0.3325	0.9391	No
Suburban ref:Rural Appalachian	0.2155	0.3403	0.5266	No

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Table 52: Poisson model, Colonoscopy Within 10 Years (Aged 50-75)

Outcome: Colonoscopy				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.7626	0.0382	0.0000	***
Any disability ref:No disability	-0.0181	0.0123	0.1410	No
Age 55-64 ref:Age 19-24	0.3618	0.0384	0.0000	***
Age 65-74 ref:Age 19-24	0.4509	0.0374	0.0000	***
Age 75+ ref:Age 19-24	0.4281	0.0472	0.0000	***
Female ref:Male	0.0542	0.0119	0.0000	***
BIPOC ref:White	-0.0140	0.0258	0.5875	No

Table 53: Poisson model, PSA Test Within 2 Years (Aged 40+, Male)

Outcome: PSA Test				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-12.1355	0.1674	0.0000	***
Any disability ref:No disability	-0.1032	0.0460	0.0249	**
Age 35-44 ref:Age 19-24	9.2673	1.0347	0.0000	***
Age 45-54 ref:Age 19-24	10.8355	0.2107	0.0000	***
Age 55-64 ref:Age 19-24	11.4698	0.1585	0.0000	***
Age 65-74 ref:Age 19-24	11.7974	0.1548	0.0000	***
Age 75+ ref:Age 19-24	11.7769	0.1591	0.0000	***
BIPOC ref:White	-0.1671	0.1656	0.3129	No

Table 54: Poisson model, Pap Smear Within 3 Years (Aged 18-65, Female)

Outcome: Pap Test				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.0377	0.0044	0	***
Any disability ref:No disability	-0.1339	0.0148	0	***
Age 25-34 ref:Age 19-24	-0.0946	0.0108	0	***
Age 35-44 ref:Age 19-24	-0.1493	0.0082	0	***
Age 45-54 ref:Age 19-24	-0.2370	0.0091	0	***
Age 55-64 ref:Age 19-24	-0.3400	0.0129	0	***
Age 65-74 ref:Age 19-24	-20.2328	0.0030	0	***
Age 75+ ref:Age 19-24	-20.2111	0.0048	0	***
BIPOC ref:White	0.0851	0.0096	0	***

Table 55: Poisson model, Hysterectomy (Female)

Outcome: Hysterectomy				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-4.6169	1.4321	0.0013	***
Any disability ref:No disability	0.3394	0.0692	0.0000	***
Age 25-34 ref:Age 19-24	1.1963	1.6901	0.4790	No
Age 35-44 ref:Age 19-24	2.1068	1.4645	0.1503	No
Age 45-54 ref:Age 19-24	3.1625	1.4509	0.0293	**
Age 55-64 ref:Age 19-24	3.3515	1.4512	0.0209	**
Age 65-74 ref:Age 19-24	3.5338	1.4502	0.0148	**
Age 75+ ref:Age 19-24	3.6561	1.4541	0.0119	**
BIPOC ref:White	0.1000	0.1463	0.4944	No

Table 56: Poisson model, Mammogram Within 2 Years (Aged 40+, Female)

Outcome: Mammogram				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-18.2755	0.0043	0	***
Any disability ref:No disability	-0.1454	0.0108	0	***
Age 25-34 ref:Age 19-24	-0.0126	0.0021	0	***
Age 35-44 ref:Age 19-24	17.7989	0.0400	0	***
Age 45-54 ref:Age 19-24	18.0465	0.0077	0	***
Age 55-64 ref:Age 19-24	18.1214	0.0048	0	***
Age 65-74 ref:Age 19-24	18.1322	0.0034	0	***
Age 75+ ref:Age 19-24	17.8219	0.0215	0	***
BIPOC ref:White	0.0796	0.0145	0	***

Table 57: Poisson model, Flu Vaccine Last 12 Months

Outcome: Flu vaccine				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.0944	0.1457	0.0000	***
Any disability ref:No disability	-0.0168	0.0309	0.5852	No
Age 25-34 ref:Age 19-24	0.0039	0.1721	0.9818	No
Age 35-44 ref:Age 19-24	0.0203	0.1592	0.8986	No
Age 45-54 ref:Age 19-24	0.1688	0.1495	0.2590	No
Age 55-64 ref:Age 19-24	0.3445	0.1468	0.0190	**
Age 65-74 ref:Age 19-24	0.5832	0.1454	0.0001	***
Age 75+ ref:Age 19-24	0.6403	0.1460	0.0000	***
Female ref:Male	0.1438	0.0291	0.0000	***
BIPOC ref:White	-0.1881	0.0769	0.0145	**

Table 58: Poisson model, Shingles Vaccine

Outcome: Shingles vaccine				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-13.0016	0.1237	0.0000	***
Any disability ref:No disability	-0.0512	0.0410	0.2117	No
Age 35-44 ref:Age 19-24	9.3486	0.4326	0.0000	***
Age 45-54 ref:Age 19-24	11.2132	0.2007	0.0000	***
Age 55-64 ref:Age 19-24	11.4902	0.1387	0.0000	***
Age 65-74 ref:Age 19-24	12.1936	0.1195	0.0000	***
Age 75+ ref:Age 19-24	12.2729	0.1249	0.0000	***
Female ref:Male	0.0834	0.0402	0.0381	**
BIPOC ref:White	-0.3303	0.1244	0.0079	***

Table 59: Poisson model, Visited Dentist in Last Year

Outcome: Visited dentist in last year				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.3934	0.0345	0.0000	***
Any disability ref:No disability	-0.2987	0.0236	0.0000	***
Age 25-34 ref:Age 19-24	-0.0762	0.0477	0.1101	No
Age 35-44 ref:Age 19-24	-0.0160	0.0401	0.6903	No
Age 45-54 ref:Age 19-24	0.0447	0.0363	0.2186	No
Age 55-64 ref:Age 19-24	-0.0053	0.0367	0.8849	No
Age 65-74 ref:Age 19-24	0.0461	0.0357	0.1956	No
Age 75+ ref:Age 19-24	0.0257	0.0385	0.5036	No
Female ref:Male	0.1057	0.0134	0.0000	***
BIPOC ref:White	-0.1073	0.0337	0.0015	***

Table 60: Poisson model, Could Not See Doctor Due to Cost (Last 12 Months)

Outcome: Couldn't see doctor due to cost				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-2.5983	0.3030	0.0000	***
Any disability ref:No disability	1.1054	0.1733	0.0000	***
Age 25-34 ref:Age 19-24	0.1172	0.3946	0.7664	No
Age 35-44 ref:Age 19-24	-0.1536	0.3660	0.6748	No
Age 45-54 ref:Age 19-24	-0.2891	0.3420	0.3980	No
Age 55-64 ref:Age 19-24	-0.5604	0.3421	0.1014	No
Age 65-74 ref:Age 19-24	-1.1052	0.3510	0.0016	***
Age 75+ ref:Age 19-24	-1.5463	0.4020	0.0001	***
Female ref:Male	0.0594	0.1781	0.7389	No
BIPOC ref:White	0.4013	0.2401	0.0947	*

Table 61: Poisson model, Ever Diagnosed with Depression

Outcome: Depression				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.8198	0.1386	0.0000	***
Any disability ref:No disability	1.1941	0.0688	0.0000	***
Age 25-34 ref:Age 19-24	-0.1398	0.1554	0.3682	No
Age 35-44 ref:Age 19-24	-0.2252	0.1283	0.0791	*
Age 45-54 ref:Age 19-24	-0.3619	0.1195	0.0025	***
Age 55-64 ref:Age 19-24	-0.4979	0.1163	0.0000	***
Age 65-74 ref:Age 19-24	-0.8087	0.1164	0.0000	***
Age 75+ ref:Age 19-24	-1.3706	0.1492	0.0000	***
Female ref:Male	0.5318	0.0769	0.0000	***
BIPOC ref:White	-0.2514	0.1317	0.0562	*

Table 62: Poisson model, Body Mass Index

Outcome: BMI				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.8848	0.0997	0.0000	***
Any disability ref:No disability	-0.2066	0.0821	0.0119	**
Age 25-34 ref:Age 19-24	-0.4078	0.1457	0.0051	***
Age 35-44 ref:Age 19-24	-0.5443	0.1365	0.0001	***
Age 45-54 ref:Age 19-24	-0.7453	0.1137	0.0000	***
Age 55-64 ref:Age 19-24	-0.6278	0.1084	0.0000	***
Age 65-74 ref:Age 19-24	-0.7205	0.1017	0.0000	***
Age 75+ ref:Age 19-24	-0.2657	0.1034	0.0101	**
Female ref:Male	0.3009	0.0663	0.0000	***
BIPOC ref:White	-0.0077	0.1242	0.9508	No

Table 63: Poisson model, 14+ Physically Unhealthy Days in Last 30 Days

Outcome: 14+ physically unhealthy days				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-4.1127	0.5803	0.0000	***
Any disability ref:No disability	1.9597	0.1648	0.0000	***
Age 25-34 ref:Age 19-24	0.5956	0.7677	0.4379	No
Age 35-44 ref:Age 19-24	0.6823	0.6449	0.2900	No
Age 45-54 ref:Age 19-24	1.0479	0.6169	0.0894	*
Age 55-64 ref:Age 19-24	1.0451	0.6172	0.0904	*
Age 65-74 ref:Age 19-24	0.9001	0.6180	0.1453	No
Age 75+ ref:Age 19-24	0.7872	0.6258	0.2085	No
Female ref:Male	0.2017	0.1137	0.0761	*
BIPOC ref:White	0.0707	0.1755	0.6871	No

Table 64: Poisson model, Sufficient Sleep

Outcome: Sufficient sleep				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.3337	0.0342	0.0000	***
Any disability ref:No disability	-0.2380	0.0209	0.0000	***
Age 25-34 ref:Age 19-24	-0.1194	0.0475	0.0120	**
Age 35-44 ref:Age 19-24	-0.1088	0.0417	0.0091	***
Age 45-54 ref:Age 19-24	-0.1253	0.0377	0.0009	***
Age 55-64 ref:Age 19-24	-0.0218	0.0360	0.5444	No
Age 65-74 ref:Age 19-24	0.0910	0.0350	0.0094	***
Age 75+ ref:Age 19-24	0.1928	0.0360	0.0000	***
Female ref:Male	0.0047	0.0130	0.7208	No
BIPOC ref:White	-0.1088	0.0343	0.0015	***

Table 65: Poisson model, Ever Diagnosed with Cancer

Outcome: Cancer				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-5.8052	1.9050	0.0023	***
Any disability ref:No disability	0.4505	0.1120	0.0001	***
Age 25-34 ref:Age 19-24	1.3828	2.0298	0.4957	No
Age 35-44 ref:Age 19-24	1.9820	1.9188	0.3016	No
Age 45-54 ref:Age 19-24	2.5474	1.9045	0.1810	No
Age 55-64 ref:Age 19-24	3.2533	1.8999	0.0868	*
Age 65-74 ref:Age 19-24	3.6576	1.8986	0.0540	*
Age 75+ ref:Age 19-24	3.8134	1.8998	0.0447	**
Female ref:Male	0.2530	0.1158	0.0289	**
BIPOC ref:White	-0.2547	0.2290	0.2660	No

Table 66: Poisson model, Ever Diagnosed with COPD

Outcome: COPD				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-4.4614	1.2705	0.0004	***
Any disability ref:No disability	1.4909	0.1285	0.0000	***
Age 25-34 ref:Age 19-24	0.1551	1.4945	0.9174	No
Age 35-44 ref:Age 19-24	0.6404	1.2910	0.6199	No
Age 45-54 ref:Age 19-24	1.2605	1.2676	0.3200	No
Age 55-64 ref:Age 19-24	1.7317	1.2588	0.1689	No
Age 65-74 ref:Age 19-24	1.7111	1.2551	0.1728	No
Age 75+ ref:Age 19-24	1.4809	1.2580	0.2391	No
Female ref:Male	0.1371	0.1367	0.3159	No
BIPOC ref:White	-0.2318	0.2250	0.3029	No

Table 67: Poisson model, Exercised in Last 30 Days

Outcome: Exercise				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.0759	0.0122	0.0000	***
Any disability ref:No disability	-0.2950	0.0160	0.0000	***
Age 25-34 ref:Age 19-24	-0.0367	0.0158	0.0199	**
Age 35-44 ref:Age 19-24	-0.0767	0.0161	0.0000	***
Age 45-54 ref:Age 19-24	-0.0811	0.0136	0.0000	***
Age 55-64 ref:Age 19-24	-0.1227	0.0141	0.0000	***
Age 65-74 ref:Age 19-24	-0.1724	0.0141	0.0000	***
Age 75+ ref:Age 19-24	-0.2534	0.0197	0.0000	***
Female ref:Male	-0.0563	0.0068	0.0000	***
BIPOC ref:White	-0.0584	0.0153	0.0001	***

Table 68: Poisson model, Attempted to Quit Smoking in Last Year

Outcome: Attempt to stop smoking				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-0.6567	0.1493	0.0000	***
Any disability ref:No disability	0.1638	0.0486	0.0008	***
Age 25-34 ref:Age 19-24	-0.0531	0.1639	0.7461	No
Age 35-44 ref:Age 19-24	-0.1548	0.1578	0.3269	No
Age 45-54 ref:Age 19-24	-0.0776	0.1504	0.6057	No
Age 55-64 ref:Age 19-24	-0.2495	0.1543	0.1059	No
Age 65-74 ref:Age 19-24	-0.1937	0.1527	0.2047	No
Age 75+ ref:Age 19-24	-0.0831	0.1718	0.6285	No
Female ref:Male	0.0476	0.0509	0.3497	No
BIPOC ref:White	0.2141	0.0568	0.0002	***

Table 69: Poisson model, Ever Tested for HIV

Outcome: HIV test				*p<0.1, **p<0.05, ***p<0.01
Variables	Coefficient Estimate	Robust Standard Error	P-value	Stat Sig
Intercept	-1.7692	0.2256	0.0000	***
Any disability ref:No disability	0.3929	0.0465	0.0000	***
Age 25-34 ref:Age 19-24	0.7460	0.2326	0.0013	***
Age 35-44 ref:Age 19-24	0.8627	0.2283	0.0002	***
Age 45-54 ref:Age 19-24	0.6827	0.2285	0.0028	***
Age 55-64 ref:Age 19-24	0.3393	0.2309	0.1417	No
Age 65-74 ref:Age 19-24	-0.0699	0.2338	0.7648	No
Age 75+ ref:Age 19-24	-0.7017	0.2934	0.0168	**
Female ref:Male	0.0506	0.0466	0.2782	No
BIPOC ref:White	0.4483	0.0514	0.0000	***