



National
Urban League

COVID-19

COMMUNITIES OF COLOR NEEDS ASSESSMENT

The American Psychological Association
Diverse Racial and Ethnic Older Adults

A PARTNERSHIP WITH
The Alliance for National Psychological Associations for Racial and Ethnic Equity



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Founded in 1910 and headquartered in New York City, the National Urban League has improved the lives of more than two million people annually through direct service programs run by 90 local affiliates in 36 states and the District of Columbia. The National Urban League also conducts public policy research and advocacy work from its Washington, D.C. bureau.

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INDIGENOUS WELLNESS RESEARCH INSTITUTE (IWRI).

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- Utilizing psychology to make a positive impact on critical societal issues.
- Elevating the public's understanding of, regard for, and use of psychology.
- Preparing the discipline and profession of psychology for the future.
- Strengthening APA's standing as an authoritative voice for psychology.

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APA is positioning the field to play a leading role in addressing the grand challenges of today and the future. In February 2019, APA's Council of Representatives adopted a new strategic plan that provides a roadmap to guide and prioritize the work of the organization for the next three to five years. The implementation process will be transformative and comprehensive, with the association realigning itself and refocusing its work in concert with the new APA/APA Services, Inc. strategic priorities.

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Executive Summary

Older adults from communities of color are disproportionately impacted by the COVID-19 pandemic with regard to exposure, treatment, and mortality. Older individuals and those with underlying health conditions are particularly more prone to die due to COVID-19. Recent data from the Centers for Disease Control (CDC) suggests that, controlling for age, COVID-19 hospitalization rates for Blacks, Latinos, and American Indians and Alaska Natives are two to three folds higher than their population size.¹ Additionally, several studies have found that individuals from communities of color are dying at rates nearly two to four times higher than the national average (Doumas et al., 2020; Louis-Jean, Cenat, Njoku, Angelo, & Sanon, 2020; Macias Gil et al., 2020; Phillips, Park, Robinson, & Jones, 2020; Shah, Sachdeva, & Dodiuk-Gad, 2020; Wilder, 2021). The COVID-19 pandemic, a once-in-a-lifetime event, may or may not have significant impacts on the psychological health of older Black and Brown people in the United States (US).

It is too early to predict the long-term effects of the pandemic on the mental health of historically under- or disparately served US communities including diverse race/ethnic older populations. Data accumulated over the past several months, however, can help us understand the current general and mental health status in these older populations and uncover characteristics of vulnerability and resilience, as well as domains to be targeted by policies for improving these health outcomes. This study contributes to these goals by analyzing data on Non-Hispanic Blacks, Non-Hispanic Asians and Hispanic older adults from the Census Bureau's Household Pulse Survey (HPS) conducted between April 2020 and February 2021. We do so because the HPS, currently, does not allow for more fine-grained distinction of other race/ethnic groups (e.g. Alaska Native/American Indian people [AN/AI] and Hawaiian or other Pacific Islanders [HPI]). The HPS analyses allows us to estimate the prevalence of anxiety, depression, and general health outcomes across states/regions and time, and to model these prevalence rates as a function of a series of demographic, social, economic, and health-care access characteristics known to contribute to health outcomes.

We supplement and extend our findings by analyzing two, relatively smaller data sets that include or solely focus on indigenous groups from the Alaska Department of Health and Social Services (DHSS), and the University of Washington's, Indigenous Wellness Research Institute (IWRI).

Based on our literature review, we tested two hypotheses:

Hypothesis 1: (a) Over time, given the known impacts of chronic stress and disasters, there will be a significant increase in older adults' reports of anxiety and depression, and (b) general health. (c) Rates of mental and general health problems will vary nationwide within and across groups.

Hypothesis 2: (a) The increase in reports of anxiety and depression and worse health among older race/ethnic adults will be inversely related to age, and (b) seen largely among those with significant financial strain and/or low income or lower wage occupational fields.

¹ Continuously updated statistics by the CDC can be found here (data examined as of March 6th, 2021): https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html

Results

HPS data indicates that older Hispanics had the highest prevalence of anxiety or depression (39.5%) and suboptimal (fair/poor) general health (31.0%). Blacks, overall, had similar rates of subpar general health (29.4%) compared to Hispanics, and their rates of mental health problems (34.0%) were second to Hispanic older adults. Asians had relatively lower levels of both mental health (27.8%) and general health issues (17.8%). The crude findings for these three racial/ethnic groups must be interpreted carefully, however, as they do not take into account any potential mediators.

Data from the Alaska DHSS shows that more than half of adults (45-years and older) reported that their “overall emotional health” has gotten worse since the COVID-19 pandemic began, and that four in five were (somewhat or very) worried about being infected with the virus. Additionally, three in five participants reported (60.5%) being (somewhat or very true) more irritable and easily angered than usual. A similar number (61.4%) reported being more sad or depressed than usual, and nearly 70% reported being more anxious than usual. Overall, the estimated rates were comparable across the considered race/ethnic groups including Alaska Natives/American Indian people, Asians, Blacks, Hispanics, and Hawaiian or Other Pacific Islanders.

We found similarly elevated levels of mental health problems among IWRI survey participants. Overall, one in three indigenous participants (30.4%) reported being in fair/poor health, slightly more than a third (34.2%) met anxiety criteria, 25.8% met depression criteria, and two in five respondents (41.0%) met criteria for either anxiety or depression. Rates of mental health problems declined with age. The prevalence of anxiety or depression among participants 50-59 years old was 51.1% and declined to 17.3% among adults 70 years and older. The IWRI data pointed to similar findings regarding the socioeconomic drivers of health among indigenous older adults. Additionally, assessment of social risk factors, which were collected through this rich survey, showed that nearly two-thirds of older adults reporting “often” lacking companionship (63.8%) and “often” feeling isolated (63.2%) had elevated symptoms of anxiety/depression, and more than two in five reported having subpar health (46% for the “often” isolated, and 44% for those “often” lacking companionship).

We found partial support for Hypothesis 1. Time-specific estimates of rates of anxiety or depression showed evidence for a curvilinear trend with the prevalence increasing by the summer months and dropping down to starting levels by the end of the summer months and into the beginning of fall, then picking up again into the winter of 2020 and early 2021. There was also a pattern of worsening general health problems across several months. Using future data, it would be helpful to know if and how these patterns change in the months following the start and completion of the national vaccination period.

We also found support for Hypothesis 2. First, age was inversely related to the prevalence of anxiety or depression, with older adults 75 years and older reporting close to half the rates of those in later middle age. Second, basic needs play a critical role in general and mental health. Worse general and mental health outcomes were more concentrated in lower socioeconomic strata of the older communities of color. Indeed, the most vulnerable groups, with majorities reporting mental health problems, included those reporting “not enough food” both during (66.0%) and before (63.7%) the COVID pandemic. Similarly, high rates of mental health issues are found among respondents with low confidence in food sufficiency (50%), as well as individuals in households making <\$25,000 a year (48.2%), and those with concerns about potential job losses (48.0%). Basic food concerns drove higher rates of mental health problems within Blacks, Asians, and Hispanic older adults. Close to three in five Black and Asian older adults who reported “not enough food” pre and post COVID, also reported significant symptoms of anxiety or depression. Those rates approached 70% among older Hispanics. Expected household job losses among Black and Hispanic, but not Asian, older adults ranked in the top five factors associated with significant mental health problems. Similar findings on these social drivers of health were replicated using data from indigenous groups in the US. Results additionally pointed to a significant role of social support as a buffer against mental and general health problems among indigenous elders. Hypothesis 2 was largely supported.

Implications for Interventions and Policy

1. **The data points to alarmingly high rates of mental health symptoms among all older adults of color** (slightly more than one-third overall). Nearly three in ten Asian older adults, slightly more than one in three Black older adults and two in five Hispanic and Indigenous older adults met this study's criteria for anxiety or depression. Overall, where available, the data indicate that the high rates of mental health symptoms trended higher during the summer months of 2020 before returning to baseline levels by September. Evidence of "pandemic fatigue" was apparent starting in the winter months with increased rates tracking with increased death rates and peaking around January 2021. State level data from Alaska provided further evidence that similarly high levels of mental strain were evident among older AN/AI and HPIs, with more than half reporting worsening mental health during COVID, and close to two-thirds or higher reporting symptoms of irritability/anger, sadness or depression, or higher anxiety than normal.
2. **Hispanics (31%), indigenous elders (30%), and Non-Hispanic Blacks (29.5%) reported worse general health than did Non-Hispanic Asians (17.8%).** Available time trends suggest that Hispanics showed worsening physical health over time. The rates for Non-Hispanic Blacks and Asians remained relatively stable. Particularly worrisome are the close to 20% and 15% of older Hispanics and Blacks, with comorbid subpar general and mental health problems. These subgroups might be particularly vulnerable to economic, social, and health conditions resulting from a protracted pandemic. While not within the scope of this work, continued health surveillance of these subgroups is especially warranted, as data from the vaccination rollout becomes available and during the post-pandemic period, in order to minimize longer term effects of the pandemic and develop policy interventions that could potentially ameliorate their well-being. Data from IWRI also highlighted the vulnerability of older adults with low levels of social support and the pronounced rates of indigenous older adults (20-30%) who felt isolated or lonely. Future work and data collection should assess these risks in other groups and focus on the implications of social risk and lack of social support to the health of older minorities.
3. **The data underscore the heterogeneity of mental and physical health conditions across groups and regions of the country.** Both geographic and within-group heterogeneities are important to keep in mind regarding mental and physical health among diverse groups. One-size-fits-all policy solutions are likely insufficient to alleviate these within-group differences, and multidimensional interventions with federal, state, and local components are likely required.
4. **Significant mental health symptoms were found most when basic needs were not being met.** These findings were similar to pre-pandemic conditions as well. For example, two-thirds of all of those in the sample who did not have enough food reported significant mental health problems. Almost half of those with very low income (less than \$25,000 per year), a lack of insurance and expected or actual job loss reported significant mental health symptoms. Additionally, although the level of self-reported physical health problems was slightly lower than mental health symptoms, the patterns were similar. Those with the highest rates of fair or poor health lacked enough food, income and employment. Fragmentation of attention and dissipation or redirection of resources and help, particularly regarding basic needs, in the post-pandemic era can aggravate some of these geographic and within-group disparities.
5. **There were relatively high rates (one-quarter to one-third) of significant mental health symptoms even among those with average or above average income, food security and employment.** This reflects a relatively high level of stress among diverse older adults even when basic needs are being met.
6. **The oldest individuals (over 70-75 years of age) had the lowest rates of significant mental health symptoms (28% in HPS and 17% among indigenous groups).** Thirty-eight percent of those individuals ages 50-64 years (51% among 50-59 in IWRI) reported significant mental health problems, as did 32% of those 65-74 years (32% among 60-69 years old in IWRI). The need to "reframe" aging and to combat ageism is highlighted in these data. The oldest racial/ethnic adults are resilient, and the data indicate that they suffer the lowest rate of overall mental health symptoms.

This work points to clear heterogeneities in risks for subpar general health and mental health among older diverse race/ethnic groups. Maintaining policy attention to within-group vulnerabilities is critical to enhancing health equity in the post-pandemic era.

Introduction

The COVID-19 pandemic, a once-in-a-lifetime event, may or may not have significant impacts on the psychological health of older Black and Brown people in the United States (US); specifically, Non-Hispanic Black, Hispanic, Asian, and indigenous Americans. Research on the effects of natural disasters, chronic stress exposure, and life course mental health experiences may give us insights into working hypotheses as to the effects this pandemic will have on the psychological health and well-being of diverse older race/ethnic older adults. In section 1, we start by concisely describing the current differential impact of COVID-19 on communities of color. We follow with a brief review of disaster research, then a short review of chronic stress and life course mental health in diverse race/ethnic groups. In section 2, we present the methods used in this report including data sources, variables, and analytic plan. Section 3 includes results from the analyses. Finally, section 4 comprises a brief discussion summarizing the findings followed by a set of policy recommendations.

COVID-19 disparities in diverse race/ethnic older adults

Diverse race/ethnic older adults are disproportionately impacted by the COVID-19 pandemic with regard to exposure, treatment, and mortality. Older individuals and those with underlying health conditions are particularly more prone to die due to COVID-19. Recent data from the CDC suggests that, controlling for age, COVID-19 hospitalization rates for Blacks and Latinos are 2-3 folds higher than their population size.² Additionally, several studies have found that African Americans and Latinos are dying at rates nearly two to four times higher than the national average (Doumas et al., 2020; Louis-Jean et al., 2020; Macias Gil et al., 2020; Phillips et al., 2020; Shah et al., 2020; Wilder, 2021). Some findings are replicated both nationally and internationally, as the central organization responsible for producing demographic statistics in the United Kingdom (UK)—the Office for National Statistics (ONS)—recently stated that Blacks were over four times more likely than Whites in England and Wales to die from COVID-19, figures that were equivalent across both genders (Bentley, 2020). In general, Black and Brown individuals are more susceptible to higher mortality (Bentley, 2020; Smith, Bhui, & Cipriani, 2020).

Disparities further exist in the recovery from critical illness due to COVID-19 and the mental health effects facing survivors. Patients with severe COVID-19 infection are typically placed in the intensive care unit (ICU). ICU survivors, particularly those who require prolonged mechanical ventilation and those who develop delirium, are at greater risk of developing neuropsychiatric and cognitive sequelae, referred to as post-intensive care syndrome (PICS) (Johnson, Tiako, Flash, Lamas, & Alba, 2020). Approximately half of the survivors who require prolonged mechanical ventilation develop anxiety and depression, one-quarter develop PTSD, and half demonstrate neurocognitive impairments that, in some, might persist for two years following hospital discharge (Johnson et al., 2020; Needham et al., 2012). Further data suggest minorities are at a substantially greater risk of PICS and the psychological toll of COVID-19.

Several precursors have been proposed as explanations for differential vulnerability in contracting the disease, receiving a poor prognosis, type of treatment, and mortality outcomes in racial and ethnic minorities. Causes for differences include pre-existing health disparities, such as comorbidities (e.g., hypertension, heart disease, diabetes, and asthma), socioeconomic factors (living in densely populated neighborhoods of lower socioeconomic status), limited healthcare access, and lower rates of COVID-19 testing in areas with higher prevalence of racial/ethnic groups (Bentley, 2020; Doumas et al., 2020; Louis-Jean et al., 2020; Shah et al., 2020; Tai, Shah, Doubeni, Sia, & Wieland, 2021). For example, race/ethnic minorities have limited access to health care, including mental health care, due to the costs of health insurance, so they are often both uninsured and underinsured. Further, Black and Brown individuals who are treated are more likely to receive poorer quality care and are less likely to receive comprehensive, evidence-based treatment once in care (Johnson et al., 2020; McGuire & Miranda, 2008). The social problems faced by individuals belonging to race/ethnic minorities may further exacerbate disparities in PICS and other psychological symptoms such as anxiety, depression and PTSD. Scholars have further argued that racial and “ethnic inequalities in health do not reflect underlying human biology or genes, but rather the social environment in which human individuals find themselves embedded” (Bentley 2020, p.4). Yet despite this knowledge, racial gaps in mental health disorders remain, raising the question of whether minority older adults have higher rates of symptoms?

² Continuously updated statistics by the CDC can be found here: https://gis.cdc.gov/grasp/COVIDNet/COVID19_5.html

Disaster research and mental health of older adults

Do older adults have a differential vulnerability to psychological distress after a natural disaster? More than 30 years of research on older adults demonstrates that context matters! Older adults may, on the whole, be no more susceptible (and maybe even less susceptible) to anxiety or depression following a natural disaster (e.g. flood, hurricane) but sub-groups of older adults are indeed highly vulnerable to psychological distress. Phifer (1990) described his research findings on flood survivors using baseline and 18-month follow-up surveys. Compared to their baseline, older adults' flood exposure was related to modestly elevated rates of anxiety and depression, but these effects were more pronounced for those with lower occupational status. Parker et al. (2016) performed a meta-analysis on the mental health implications for older adults after a natural disaster. While older adults were not at a higher risk for anxiety or depression compared to younger adults, they were more likely to experience post-traumatic stress disorder (PTSD) symptoms and had higher rates of adjustment disorders. Acierno, Ruggiero, Kilpatrick, Resnick, and Galea (2006) noted that after the 2004 Florida hurricanes, the factors related to psychopathology in older adults were nuanced. Compared to younger adults, older adults reported lower rates of anxiety and depression, however older adults' experience of psychological distress was very closely tied to their financial status. In particular, older adults with lower incomes, higher out-of-pocket expenses, and worse physical health experienced heightened anxiety. In their longitudinal study on the impacts of disasters in New Zealand, Allen, Brown, Alpass, and Stephens (2018) reported that overall older adults adjusted quite well. Once again, however, sociodemographic factors predicted who had the most psychological difficulties following the earthquakes.

Taken together, results from disaster research point to two consistent findings: (1) Older adults are not more susceptible to psychological effects of disasters than younger adults; and (2) Older adults experiencing health and financial hardships are also more likely to have heightened levels of anxiety and depression. There are a number of limitations to this research. First, few studies reported the race of their participants, indicating that it is likely there were few Black or Brown older adults included in these data. Second, when no longitudinal analyses were conducted, the periods between measurements varied from months to a year or more, and almost none included measures at multiple time points. Still the research on the psychological impact of disasters on older adults is illuminating.

Chronic stress and psychological symptoms

While much of this research has focused on natural disasters, other work highlights the complex relationship between chronic stress exposure and psychological symptoms in older diverse race/ethnic populations. For example, data from the Health and Retirement Survey indicated that older Blacks and US and foreign born Hispanics (L. L. Brown, Mitchell, & Ailshire, 2020) report higher levels of chronic stress exposure compared to Non-Hispanic Whites, which is related to greater levels of anxiety and depression. Erving, Satcher, and Chen (2020) further noted that chronic stress in Blacks was more insidious than other forms of stress such as financial strain or family conflict. Recent data from the Hispanic/Community Health Study, while not focused exclusively on older adults, has shown that exposure to adversity (traumatic stress) and chronic stress is particularly high among diverse Hispanic groups with more than three in four reporting at least one traumatic stressor and eight in ten reporting a chronic stressor (Gallo et al., 2014). Similarly high prevalence rates were found in reporting at least one childhood traumatic stressor, with close to three in ten reporting four or more events (Llabre et al., 2017).

Cumulative lifetime adversity (CLA) and chronic stress are linked to psychological problems (e.g. depression; [Cooper, Bachem, Meentken, Aceves, & Barrios, 2020]) and adverse general health outcomes (e.g. cardiovascular disease; [Gallo et al., 2014]). A growing body of research suggests that AN/Al experiences lead to a “considerable and pervasive” (Manson, 2000) higher risk for psychiatric and mental health problems (Asdigian, Bear, Beals, Manson, & Kaufman, 2018; Brave Heart et al., 2016). CLA is also compounded in immigrant Hispanics by the stressors experienced pre, during, and post immigration, and for first generation Hispanics by cultural and acculturative stressors and experiences of discrimination in the host country. Similar experiences are found among immigrant Asian Americans (Li, 2016). Some have argued that the experience of chronic stressors is different for Blacks (L. L. Brown et al., 2020). In older Blacks, one of the major sources of chronic stress exposure is discrimination and the prevalence (including major lifetime and everyday discrimination) is higher in this population compared with non-Hispanic Whites (Ayalon & Gum, 2011; Luo, Xu, Granberg, & Wentworth, 2012). Recent findings also suggest that older Blacks and Hispanics react to and process stressors (e.g. being upset) differently than non-Hispanics Whites (L. L. Brown et al., 2020).

Discrimination has been linked to worse mental health outcomes such as depression, psychiatric disorders, and serious psychological distress (Williams, Lawrence, Davis, & Vu, 2019). For instance, Qin, Nguyen, Mouzon, Hamler, and Wang (2020) found older Blacks who experienced more frequent everyday discrimination defined as chronic, and unfair treatment that occurs in commonplace social encounters; (Kessler, Mickelson, & Williams, 1999) also had more depressive symptoms. Their finding was demonstrated cross-sectionally (Marshall & Rue, 2012) as well as over time (Qin et al., 2020). Similarly, Mouzon and colleagues (2017), using a sample of older Blacks aged 55 and older, examined the association between everyday discrimination in terms of overall, racial, or non-racial and mental health outcomes (Mouzon, Taylor, Keith, Nicklett, & Chatters, 2017). They found that everyday discrimination was associated with a higher risk of depressive symptoms, psychiatric disorders, and serious psychological distress. Moreover, stress exposure in terms of everyday discrimination, chronic stress, and financial strain are associated with higher depressive symptoms in Blacks, after adjusting for other stress exposures and psychological resources (Erving et al., 2020; Louis-Jean et al., 2020). Associations between discrimination and psychiatric disorders have been also reported in diverse samples of Latinos with particularly elevated effects being noted among Mexicans and Puerto Ricans (Held & Lee, 2017). Work on these associations among Asian Americans suggests a complex dynamic where ethnic identity acts as a buffer depending on age and immigration status (Yip, Gee, & Takeuchi, 2008). Thus the links between chronic stress, discrimination and mental health outcomes are supported across race/ethnic groups.

Evidence regarding the correlates of mental health problems in indigenous populations are more limited despite the elevated levels of depression and other severe problems such as suicide in these groups. Moon, Roh, Lee, and Goins (2016) used state-level data from South Dakota and showed that better self-perceived mental health, better access to health care, and a higher degree of social support were significantly linked to lower depressive symptoms, and that a greater childhood adversity increased the risk for depression (Moon et al., 2016). Other small sample studies also linked childhood neglect and household dysfunction to higher levels of depressive symptoms, and found that social support plays a protective role that buffers against mental health issues and can enhance resilience among AN/Al older adults (Burnette et al., 2017; Roh, Burnette, et al., 2015). Nelson, Noonan, Goldberg, and Buchwald (2013) using data from the U.S. Health and Retirement Study on American Indians and Alaska Natives aged 50 years and older (n=203) found evidence to link social engagement to better health (Nelson et al., 2013).

Mental health prevalence in older minorities

Studies of psychiatric disorders largely show higher prevalence rates of anxiety (but not PTSD) and depression in non-Hispanic Whites (Asnaani, Richey, Dimaite, Hinton, & Hofmann, 2010; González, Tarraf, Whitfield, & Vega, 2010). More nuanced portraits emerge when looking at the prevalence rates of mental health disorders in other racial/ethnic groups. González et al. (2010), for example, using data from the National Institute of Mental Health's Collaborative Psychiatric Epidemiology Surveys (CPES) showed higher rates of depression in US vs foreign born groups but not among older adults, and pointed to variations in rates of depression within Black (African Americans vs. Black Caribbeans) and within Latino (Cubans, Mexicans, and Puerto Ricans) populations. A recent report by Jimenez et al. (2020) highlights the consistently high rates of mental health problems found in older Hispanics across samples and studies (Jimenez, Martinez Garza, Cardenas, & Marquine, 2020), but points to critical within-group differences (e.g. Hispanic background that overlaps with geographic location and immigration status) that need to be taken into account when discussing Hispanic mental health. Woodward, Taylor, Abelson, and Matusko (2013), using National Survey of American Life data, examined rates of depression in older adults and found that overall Blacks had the lowest lifetime rate of mental health disorders (9%), while non-Hispanic Whites had the highest (15%). Other studies have likewise shown that Blacks have lower rates of depressive and anxiety disorders (Breslau et al., 2006; Erving, Thomas, & Frazier, 2019) and that these differences are not due to measurement error (Mezuk et al., 2013). Across most studies, similar to findings that emerge from disaster research, sociodemographic factors and, in particular, an SES gradient is significantly linked to elevated rates of depression and anxiety.

Research on the health of indigenous populations including American Indians and Alaska Natives (AN/AI) is largely limited and typically relies on small samples. Evidence from such small sample studies examining overall health issues in indigenous groups indicates that the health of older adults (e.g. American Indians) lags behind the majority population and that group members experience some of the highest rates of chronic conditions in the US. Moon et al. (2016) using state level data from South Dakota compared the health of 50+ years old American Indians and Whites born in the post-World War II period (1946 to 1964) and found that American Indians report more chronic diseases and conditions, have lower self-perceived physical health and are more likely to be overweight or obese. Goins and Pilkerton (2010) using a community-based sample of American Indians aged 55 years and older found considerably elevated levels of hypertension, diabetes, and back pain compared to national rates. Indeed, two-thirds of the examined sample experienced some degree of comorbidity. Higher comorbidities were significantly associated with higher depressive symptomatology and lower "personal mastery."

Research on mental health in indigenous populations also points to elevated rates of symptomatology, such as depression. Yet, little is known about the factors associated with help-seeking behavior for mental health services in these populations. A recent review of AN/AI mental health, a relatively "invisible" older minority in mental health research (Garrett, Baldrige, Benson, Crowder, & Aldrich, 2015), argues that despite the relatively scant data, existing evidence indicates that AN/AIs carry a disproportionate burden of mental health issues relative to other groups in the US (Gone & Trimble, 2012). Hiratsuka, Smith, Norman, Manson, and Dillard (2015) used secondary analysis of electronic and paper medical records information of 400 AN/AIs and reported that depression diagnosis was present in more than a third of patient records. Despite experiencing high rates of depression and other psychological disorders the evidence also suggests a limited knowledge of depression and negative attitudes toward help-seeking for mental health problems among group members (Roh, Brown-Rice, Pope, et al., 2015).

The overall racial differences in prevalence, however, do not tell the whole story. Blacks who do experience major depression are also more likely to suffer from PTSD, a substance disorder, and suicidal ideation. Williams et al. (2007) reported that chronicity of depression and lack of treatment was highest for both African Americans and Caribbean Blacks than for non-Hispanic Whites. Himle, Baser, Taylor, Campbell, and Jackson (2009) found that although older Blacks were overall less likely than non-Hispanic Whites to have generalized or social anxiety disorders, they were at continued risk for PTSD across the life course. Gonzalez and colleagues (2010) similarly reported that African Americans (among Blacks) and Mexican origin individuals were more likely to meet criteria for higher depression chronicity and to have lower guideline concordant depression care than other race/ethnic groups. Disparate treatment for psychiatric disorders (e.g. depression) has also been demonstrated in Asian Americans (González et al., 2010; Gonzalez, Vega, et al., 2010). For example, using national data from the CPES, Gonzalez et al (2010) found disparities in past year antidepressant use among three considered Asian groups (Vietnamese, Filipinos, Chinese) meeting criteria for 12 month

depressive and anxiety disorders that persisted even after adjusting for care access enabling factors (Gonzalez, Tarraf, et al., 2010). Similar findings have been reported regarding low treatment of anxiety among diverse Asian groups using the California Health Interview Survey.

Treatment approaches to mental health problems in indigenous groups are complex and incompletely understood. A systematic review of mental health treatment suggests that successful care modalities (e.g. collaborative or integrated care) for some racial/ethnic groups such as African Americans and Latinos do not necessarily generalize to other older minority groups including Asian and Pacific Islanders, and AN/Als (Fuentes & Aranda, 2012). Despite these findings on poor generalizability the evidence on factors that enable treatments and successful care interventions remains limited. Moon, Lee, Roh, and Burnette (2018) have found that White older adults use more mental health services compared to their AI counterparts. They also found that more adverse childhood experiences, worse perceived health, and prior negative experiences with mental health care were significantly related to less use of mental health services among AIs. Dillard, Muller, Smith, Hiratsuka, and Manson (2012) examined factors associated with administration of depression screening among AN/AI patients in a large urban clinic and found that even with “significant organizational support” for depression screening, men and infrequent primary care visitors were at higher risk for subpar treatment (Dillard et al., 2012). Older age and higher chronic medical conditions are also significantly related to negative attitudes toward mental health services (Roh et al., 2017), while higher levels of social support tend to lead to more positive attitudes (Roh, Brown-Rice, Lee, et al., 2015). These findings showcase distinct patterns for correlates of mental health problem awareness and approaches to treatment and the need for caregivers and providers to appreciate how cultural issues and social support affect the response to mental health needs among indigenous older adults (Roh, Brown-Rice, Lee, et al., 2015).

Purpose of the study

This study examined mental and physical health symptoms through the first 10 months of the COVID-19 pandemic. A national Census Bureau survey was used to measure anxiety, depression, and physical health across time. The survey also contained measures of several social determinants of health. We supplemented and extended our findings by analyzing two, relatively, smaller data sets that include or solely focus on indigenous groups from the Alaska Department of Health and Social Services (DHSS), and the University of Washington’s Indigenous Wellness Research Institute (IWRI).

Our hypotheses are two-fold:

Hypothesis 1: (a) Over time, given the known impacts of chronic stress and disasters, there will be a significant increase in older adults’ reports of anxiety and depression, and (b) general health. (c) Rates of mental and general health problems will vary nationwide within and across groups.

Hypothesis 2: (a) The increase in reports of anxiety and depression and worse health among older race/ethnic adults will be inversely related to age, and (b) seen largely among those with significant financial strain and/or low income or lower wage occupational fields.

Methods

Data

We used three sources of data. The primary analyses of this report focus on data from the Census Bureau's Household Pulse Survey (HPS). Data from the HPS are publicly available here, and the HPS design potentially allows for generalization and inference to the national level. Briefly, the HPS was designed to generate timely data to capture the experiences of American Households during the COVID pandemic. In addition to basic demographic information, the survey collects data touching on multiple facets of life including education, employment, health housing, and other basic needs (e.g. food and transportation). The HPS data was collected over three phases starting April 23, 2020, and ending (for this study) February 15, 2021, with data released periodically (on average a few weeks after collection) to enable accelerated and ongoing analyses. In this report we focused on data collected in phase 1, 2, and 3 covering the period spanning April – middle of February 2021.

Given the scope of this report, analyses of HPS data were restricted to individuals ages 50 years and older, reporting race/ethnic background as Non-Hispanic Black (NHB), Non-Hispanic Asian (NHW), and Hispanic. We excluded individuals not reporting any of these three groups as their racial/ethnic background due to lack of specificity in inference (the HPS currently does not allow for more fine-grained distinction of other race/ethnic groups including American Indians/ Alaska Native [AI/AN] and Hawaiian or other Pacific Islanders [HPI]). Technical documentation for the HPS including integration of probability weights for appropriate generalizations to the target population can be found here, and survey instruments can be accessed here.

We supplemented findings from the HPS through two additional analyses. The first set of analyses uses survey data from the Alaska Department of Health and Social Services (DHSS) on the impact of COVID-19 on Alaskan families (<http://dhss.alaska.gov/dph/wcfh/Pages/mchepi/default.aspx>). These supplemental analyses attempted to assess levels of stress and mental health issues in subpopulations that were not explicitly available through the HPS, namely Alaska Natives and to a lesser extent Hawaiian natives.

The Alaska DHSS, Division of Public Health, launched a series of four short surveys to assess the impact of the COVID-19 pandemic on Alaskan families starting mid-April 2020. These surveys were promoted through mass media distribution, social media, and listservs. Information about these surveys was announced by the Alaska Chief Medical Officer on the evening of the launch of the first survey. This was followed by a press release with information on how to respond to the survey. Through these announcements, "Alaskans were invited to text a phone number to receive a link to the online survey, or to go to the Maternal Child Health Epidemiology Unit website to find the link if they wished to respond." The fourth survey, which included the information used in these supplemental studies, was sent to all Alaskans who had signed up for DHSS COVID alerts or who responded to additional promotion of the survey through Facebook posts and various listserv distributions. Data from these surveys are the outcome of a convenience sample of volunteer respondents and as such cannot be interpreted as generalizable to the total population of Alaska. To maximize the utilizable sample size, we focus on individuals 45 years and older who identified as "Alaska Native /American Indian" people, Asian, Black, "Hawaiian or Other Pacific Islanders," and Other.

The second set of analyses uses data from the University of Washington’s IWRI COVID-19 Communities of Color Needs Assessment. This study assessed social-cultural support and mental and behavioral health among American Indians, Alaskan Natives, Native Hawaiians and other Pacific Islanders residing in the US or its territories during the COVID-19 pandemic. Eligibility criteria for participation in the study included:

1. Identifying as American Indian, Alaskan Native, Native Hawaiian, or other Pacific Islander either alone or in combination with one or more races.
2. Being 18 years or older
3. Residing across the 50 United States and territories Puerto Rico and the U.S. Virgin Islands in the Caribbean Sea, Guam and the Northern Mariana Islands in the North Pacific Ocean, and American Samoa in the South Pacific Ocean

The surveys were conducted between December 2020 and March 2021 using a multipronged outreach approach with a Qualtrics panel and IWRI’s national network. To ensure a diverse and balanced sample the study considered tribal diversity and census-based sampling. The sampling frame was based on a stratified sample of 3,000 total participants recruited from four US Census Regions. To ensure adequate demographic representation, recruitment was balanced marginally across the total sample by gender and residential setting. The design required a minimum of 40% recruitment for female or male gender, targeted a 22% rural versus 78% urban split across the entire sample with a minimum 20% rural and 60% urban recruitment.

Outcomes

We considered two primary outcomes from the HPS:

1. General health status³
2. Anxiety or depression (past seven-days):
 - a. Anxiety measured using GAD-2 which includes two probes: (1) Feeling nervous, anxious or on edge and (2) Not being able to stop or control worrying
 - b. Depression measured using PHQ-2 which also includes two probes: (1) Little interest or pleasure in doing things and (2) Feeling down, depressed or hopeless
 - c. The two measures were combined into a single item (depression or anxiety) in line with previous coding whereby a person scoring ≥ 3 on either the sum of the anxiety or depression items was considered depressed/anxious (Twenge & Joiner, 2020).

In supplemental descriptive analyses using Alaska DHSS data we examined 10 items assessing emotional health. These items include two general questions about emotional health and change in health since the start of the COVID pandemic: (1) Rating of overall emotional health before the pandemic and, (2) Change in overall emotional health since the beginning of the pandemic. We also account for eight other items including:

Questions about personal emotional health:

1. being more irritable or easily angered than usual
2. being more sad or depressed than usual
3. being more anxious than usual

³ HPS data on general health status was collected only through December 2020.

Questions on other stressors:

1. worried about being infected with the virus
2. changes in my family routine have been stressful for me
3. being concerned about the stability of my living situation
4. being concerned about someone else's mental health
5. being concerned about increased violence in my home

Complementary analyses using IWRI COVID-19 Communities of Color Needs Assessment data attempted to mimic, as close as permissible with available data, the analytic process of the primary HPS analyses including outcomes and covariables selection. A detailed listing of the questions used in this study, as well as the response options, are provided in Supplemental Table 8.

We considered two primary outcomes from the IWRI data:

1. General health status (Fair/Poor vs. Excellent, Very Good, and Good),
2. Anxiety or depression (past two weeks):
 - a. Anxiety measured using two probes: (1) Feeling nervous, anxious or on edge and (2) Not being able to stop or control worrying
 - b. Depression measured also based on two probes: (1) Little interest or pleasure in doing things and (2) Feeling down, depressed or hopeless

The two measures were combined into a single item (depression or anxiety) in line with previous coding whereby a person scoring ≥ 3 on either the sum of the anxiety or depression items was considered depressed/anxious.

Covariables

Census Household Pulse Survey

We focus on 13 covariables from HPS grouped according to five domains including demographics, health enabling characteristics, employment status, healthcare access measures, basic needs, and health factors.

Demographic factors include five variables:

1. Age: treated continuously as well as categorically (50-64, 65-74, and 75+)
2. Sex: self-reported as male/female
3. Marital Status: treated categorically using (a) currently married, (b) divorced/widowed/separated, and (c) never married
4. Live alone: recoded based on number of individuals reported in household
5. Children below 18 years of age in household: based on respondent's report

Health enabling factors include:

1. Education: coded as a five-category indicator including (a) less than high school, (b) high school diploma, (c) some college, (d) college degree, and (e) more than college
2. Income: using an ordinal measure including nine groups (<25k-200k+, and not reported). Not reported was included to avoid relatively high numbers of data missing.

Employment measures included

1. Report of a recent household job loss: binary (no/yes) based on self-report
2. Expected household job loss: binary (no/yes) based on self-report

Healthcare access measures included

1. Insurance: based on self-reported source of insurance and includes (a) employer based, (b) self, (c) public, (d) other, and (e) none of the above
2. And two variables gauging:
 - a. delays in receipt of medical care due to the pandemic in the four weeks preceding the interview, and
 - b. delays in receiving medical care for reasons other than the pandemic.

Basic needs factors included

1. Household food sufficiency prior to March 13, 2020: binary (enough of the kinds of food wanted/enough but not always the kinds wanted vs. sometimes not enough to eat/often not enough to eat) based on self-report⁴
2. Household food sufficiency for last seven days: binary (enough of the kinds of food wanted/enough but not always the kinds wanted vs. sometimes not enough to eat/often not enough to eat) based on self-report
3. Food sufficiency confidence in next four weeks: binary (not at all confident/somewhat confident vs. moderately confident/very confident) based on self-report

Finally, in our multivariable modeling health factors included general health when examining anxiety or depression as an outcome, and mental health when examining fair/poor general health as an outcome. A detailed listing of the HPS questions and their response categories are provided as an appendix to this report (Supplemental Table 1).

University of Washington IWRI COVID-19 Communities of Color Needs Assessment data

Demographic factors include five variables:

1. Age: categorical (50-59, 60-69, and 70+) with groupings chosen to accommodate the smaller sample size.
2. Gender: self-reported as Male/Female/Other
3. Marital/Partnership Status: treated categorically using (a) yes for spouse, domestic partner, or romantic partner that currently lives, (b) no, otherwise
4. Number of people in household: recoded based on number of individuals reported in household and grouped into five categories.
5. Children below 18 years of age in household: based on respondent’s report

Health enabling factors include:

1. Education: coded as a five-category indicator including (a) less than high school, (b) high school diploma, (c) some college, (d) college degree, and (e) graduate degrees
2. Income: using an ordinal measure including 4 groups (<25k; 25-<50k, 50-<100k, 100k+). The more restricted number of groups was required given the sample size.

⁴ HPS data on food sufficiency prior to COVID and food sufficiency in the next four weeks (i.e. items 1 and 3 in the Basic needs factors) was collected only through December 2020.

Employment measures included:

1. Employment status: full-time, part-time, unemployed, student/other
2. Expected household job/income loss: binary (no/yes) based on self-report

Healthcare access measures included:

1. Two variables gauging:
 - a. Delays in receipt of medical care
 - b. Difficulties in obtaining needed medications

Basic needs factors included:

1. Having enough money: Not at all/a little, Moderately, Mostly, and Completely
2. Needing help with food: Binary measure (No/Yes)
3. Level of food worry: Not at all/a little vs. Moderate/Extreme
4. Having enough food: Enough vs. Not enough

We also considered four measures of social and behavioral risk, although these measures were not available in the HPS data.

Social/Behavioral risk factors included:

1. Lack of companionship measured using a three-category indicator including “Hardly ever,” “Some of the time,” and “Often”
2. Feeling isolated also using measured using a three-category indicator including “Hardly ever,” “Some of the time,” and “Often”
3. Frequency of suicidal thoughts over the past 30 days: Not at all vs. Several days/More than half the days/Nearly every day.
4. Serious consideration of suicide or self-harm in the past 30 days measured using a binary indicator (No/Yes).
5. Frequency of binge drinking, defined as 4+/5+ drinks daily for females and males (respectively), since March 2020: “Never,” “Once or twice,” “Monthly,” “Weekly,” or “Daily.”

A detailed listing of the IWRI questions used in this study and their response categories are provided as an appendix to this report (Supplemental Table 8).

Analytic plan

To address Hypothesis 1 and 2, we analyze data from the HPS following a four-step approach:

First, we provide characteristics (using the above listed variables) of the target subpopulation overall and by race/ethnic (Black, Asian, and Hispanic) groups.

Second, we estimate and plot crude prevalence for each of the outcome measures over time as well as by state for each race/ethnic group.

Third, we estimate the prevalence of each of the outcome measures across the variables included in the five covariable domains detailed above. For ease of interpretation, we estimate and plot the five top and bottom characteristics in terms of prevalence of anxiety and depression and general fair/poor health overall and by race ethnic groupings. Detailed estimates of the prevalence of these two outcomes across all the considered measures are in Supplementary Figures 1-4.

Fourth, we estimate a series of weighted logistic regressions to model (a) anxiety/depression and (b) fair/poor general health as a function of our covariables accounting for the probability weights of the HPS data. We fit two models for each outcome (Supplemental Table 3, 4):

- Model 1 includes crude unadjusted estimates of the odds ratios for each outcome for each race/ethnic group; we also tested for modifications in prevalence over time using interaction race/ethnicity and a biweekly indicator (treated both continuously and categorically).
- Model 2 is a fully adjusted model controlling for the **HPS covariables specified above**.

In post-hoc analyses, we calculate and visualize the average marginal probabilities and confidence intervals for crude and fully adjusted models for each considered outcome. In addition, we use Oaxaca decomposition techniques, adopted for binary outcomes, to allocate sources of differences in probability of anxiety/depression and fair/poor health, independently, between groups.

The primary models, post-hoc analyses, and Oaxaca decompositions focused on data collected through December 2020 to allow for incorporation of both general health and mental health data. However, in sensitivity analyses, for the mental health data (collected through February 2021), we repeated the models specified above using all data collected up to February 2015. Results derived from these analyses were largely unchanged relative to the primary models. The model parameters and Oaxaca decomposition estimates are presented in Supplemental Tables 5 and 6.

Characteristics of the target population

Census Household Pulse Survey (see Table 1 for details): We used data on n= 154,064 self-reporting Black (n=60,458 Asian (n=32,939), and Hispanic (n=60,667) participants ages 50 years and older.⁵ Average age was 61.5 years (Standard Deviation=7.2), 53.0% were females, 58% were married, 9.3% lived alone, 31.8% reported having children below 18-years of age living in the household, 49% reported a high-school education or less (17.6% for the latter), and 15.3% reported a household income below \$25,000.

Close to one in two (49.2%) reported a household job loss and slightly less than two in five (36.8%) reported expecting a job loss in the next few months. Overall, about 12.5% reported not having enough food pre (12.5%) and post (13.3%) the start of the COVID-19 pandemic, and 42.0% reported not being confident in having sufficient food over the next few weeks. More than a third (36.7%) and 30.5% reported delays in care due to COVID and not being able to get care independent of COVID, respectively.

Characteristics of the Alaska DHSS sample

Alaska DHSS survey: We used data on n=541 participants, 45-years and older. Close to two-fifths of these participants (n=429) were 45-64 years of age, and 112 reported being over the age of 65. In response to the question “How do you identify yourself? Select all that apply” Slightly more than half identified as AN/AI people (n=287), 13.5% reported Asian, 5% were Black, 4% were Hawaiian or Other Pacific Islanders, and the rest were grouped as “Other.”

Characteristics of the UW IWRI COVID-19 Communities of Color Needs Assessment sample

IWRI COVID-19 needs assessment survey (see Supplemental Table 8 for questions details): We used data from n=497 respondents who self-identified as Native American/American Indian (NA/AI), Alaska Native (AN), or First Nations, Inuit or Métis. The majority (n=479) identified as NA/AI and as such small sample size considerations prohibited subgroup analyses. Slightly more than half of the sample were 50-59 years old, and two-thirds were female. Slightly less than two-thirds (64%) were living with a spouse or domestic partner, 27% reported a household income below 25k, and 2 in 5 had a high school education (12.3%) or less (7.3%). Detailed characterization of the IWRI sample is provided in Supplemental Tables 9 and 10. Detailed visualizations of the Odds Ratios generated from the crude and fully adjusted logistic regression models for the mental health and general health outcomes are presented in Supplemental Figures 6, and 7.

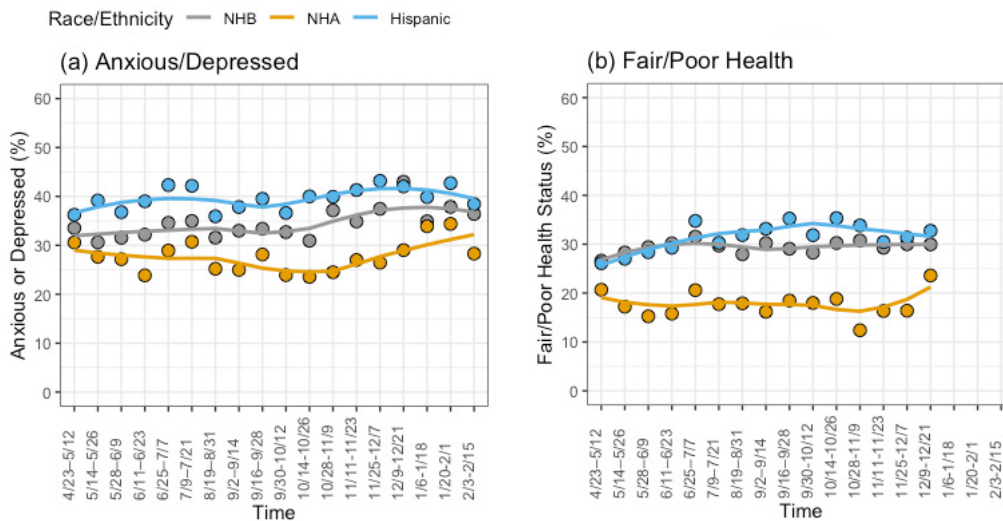
⁵ The n=154,064 includes data available through February 2021 for individuals with valid responses on the mental health outcomes of interest. The HPS discontinued data collection for specific variables, including general health status starting January 2021. The available unweighted n for the analyses of these data is n=137,300 including n=54,261 non-Hispanic Blacks, n=29,390 for non-Hispanic Asians, and n=53,649 for Hispanics.

Results

HPS Findings

Overall, close to one in three participants (28.2%) reported being in fair/poor health, a similar relative number (30.4%) met anxiety criteria, 25% met depression criteria, and slightly more than a third (35.5%) met criteria for either anxiety or depression.

Older Hispanics had the highest prevalence of anxiety or depression (39.5%) and suboptimal (fair/poor) general health (31.0%). Blacks, overall, had similar rates of subpar general health (29.4%) compared to Hispanics and their rates of mental health problems (34.0%) were second to Hispanic older adults. Asians had relatively lower levels of both mental health (27.8%) and physical health issues (17.8%).



Time trends in mental and physical health of older minorities (Hypotheses 1a and 1b)

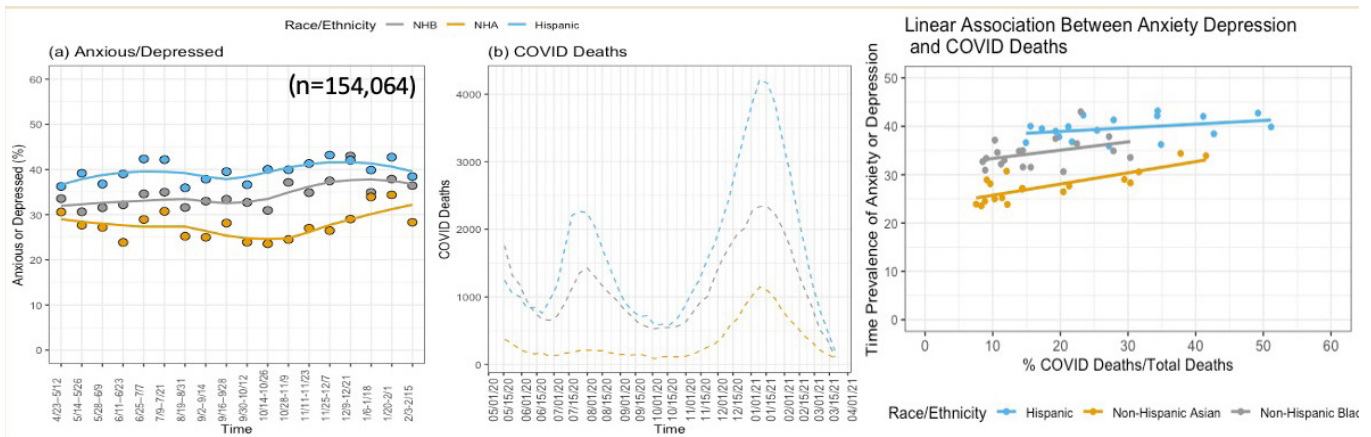
We found a clear differentiation in the health levels between the considered groups, whereby over time older Hispanics had higher levels of mental health reports compared to both Blacks and Asians. Similar differences emerged in the prevalence of fair/poor health reports between Hispanic and Asian older adults. Hispanics and Blacks had largely similar prevalence rates of fair/poor physical health.

The time estimates for anxiety or depression suggested a curvilinear trend in the prevalence; increasing during the summer months of 2020, dropping down to starting levels by the end of the summer months and into the beginning of fall, then picking up again by winter.

Overall, we found evidence for a linear increase in the prevalence of fair/poor general health over time. Subgroup analyses showed that these trends were specific to Hispanics older adults, whereas those for Blacks and Asians remained relatively stable over the examined period. Further testing is required to inferentially assess these trends and to link them to time and geographic policy and health specific inputs.

Trends in mental health of older minorities track COVID-19 death rates

Time trends in prevalence of anxiety or depression descriptively tracked with time trends in COVID deaths rates among older minority adults as extracted from CDC data (<https://data.cdc.gov/d/tpcp-uiv5/visualization>; data extracted through March 24, 2021). This suggests that, at least partially, rates of mental health status were sensitive to the ebbs and flows of the effects of the pandemic on mortality.



Additional aggregate level analyses linking time period specific rates of COVID deaths (relative to overall reported Deaths in the same time period) suggested linear associations between anxiety/depression rates and COVID specific mortality rates ($b=0.15$, $SE=0.03$; $p<0.01$). Group specific estimates indicated that the association was specifically pronounced among Asians ($b=0.23$, $p<.001$), but less sensitive in older Blacks ($b=0.17$, $p=0.11$), and Hispanics ($b=0.07$, $p=0.13$). These data indicate that the variability in determinants of anxiety/depression rates within groups are more complex than overall rates of deaths in a group and potentially linked to subgroup and individual level characteristics. Importantly, modeling aggregate level data is limited by the problem of ecological fallacy (Piantadosi, Byar, & Green, 1988); whereby serious errors can occur by relying on analyses of aggregate data. More complex modeling of individual data nested within time and geographic context is required to better assess these associations.

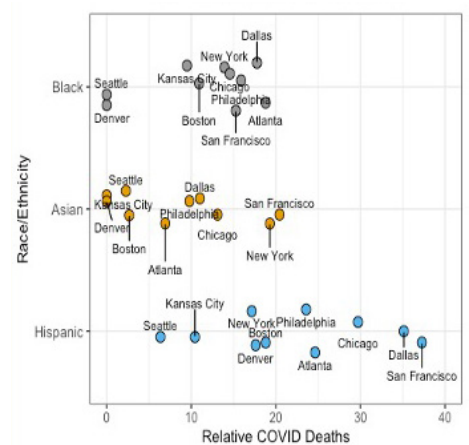
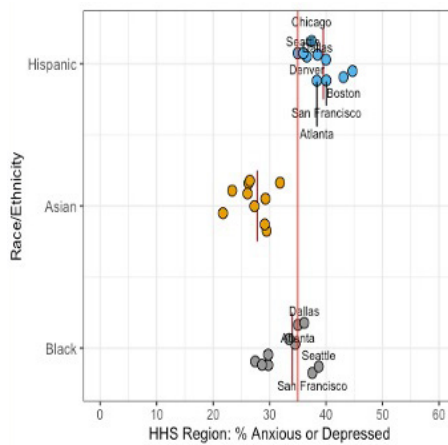
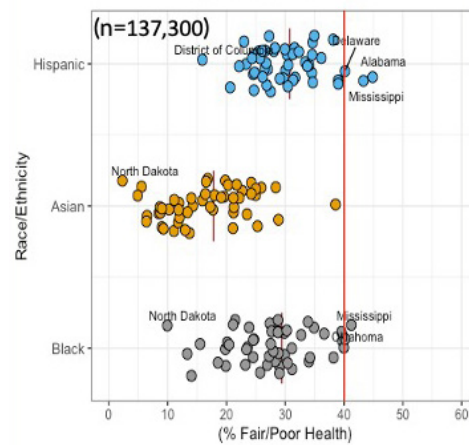
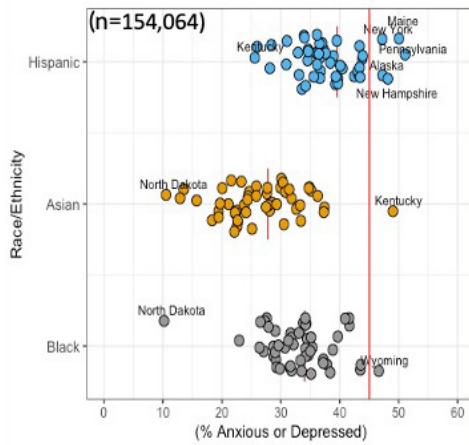
National variability in mental and physical health levels among older minorities (Hypothesis 1c)

Data analyzed from the HPS also indicates that the prevalence of mental and general health problems among older minority adults are not uniform across the nation. The number of participants across states for each race/ethnic groups were not uniform and in some cases a relatively slow number of respondents provided data needed to generate these estimates (see Supplemental Table 2a for state specific unweighted Ns). While the data points to within and across race ethnic group variability in the prevalence of mental health by state residence, more data is required to inferentially ascertain the level of variability within racial/ethnic groups and across states.

With this caveat in mind, the HPS data points to a notable spread in prevalence of mental health problems and sub-par general health across the states. The variability in rates across states was noted for all three considered race/ethnic groups (detailed state specific estimates and confidence intervals are provided in Supplemental Table 2b).

In addition to the variation in prevalence across states, the data indicates that the relative placements of states differed for each of the considered groups. Higher levels of stress were particularly noticeable for Hispanic older adults in north-eastern states, and in midwestern states for Black older adults. The patterns for physical health were less discernable by region and yet southern states had noticeable representation.

These variations point to a complicated portrait of health needs across the nation. The results suggest that resolving mental and physical health problems, which have likely worsened in the era of COVID-19, require coordinated federal and state level efforts.



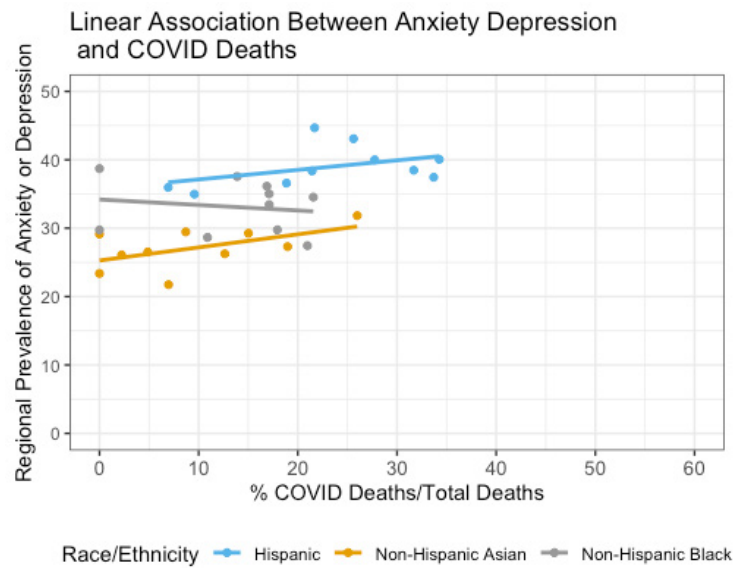
Correspondence between region (based on department of health and human services designated) and relative COVID-19 death and prevalence of mental health problems

To enhance the precision of point estimates derived from the State level data above and allow for geographic comparisons with COVID deaths rates, we generated prevalence estimates based on Department of Health and Human Services (HHS) regions (detailed HHS region specific estimates and confidence intervals are provided in Supplemental Table 2c). As with the state level data above, we found race/ethnic specific regional variations in the prevalence of anxiety and depression based on HPS data. We also calculated regional rates of COVID deaths (relative to overall deaths in the region) using CDC data, and plotted these estimates by race/ethnic groups. Descriptively, we found no evidence for a direct correspondence between these two variables.

Linear association between mental health and COVID deaths – Region based estimates

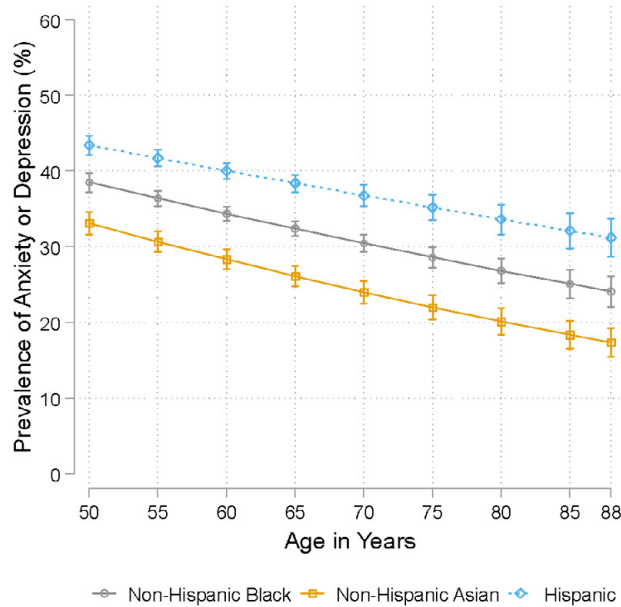
On aggregate, we found no evidence for a direct association between overall regional estimates of relative COVID deaths and regional prevalence of anxiety and depression ($b=0.10$; $p=0.20$). Race/ethnic specific analyses showed that these associations were similarly non-significant for the individual groups.

The findings suggest that the factors explaining state and regional level differences between groups are more complex than can be explained solely by rates of COVID deaths. As with the time level data presented above, modeling aggregate level data is limited by the problem of ecological fallacy. More complex modeling of individual data nested within time and geographic context is required to better assess these associations.



A general note on aging and mental health (hypothesis 2a)

The overall findings from the HPS suggest higher resilience against mental health problems that comes with aging. The prevalence of anxiety or depression decreased consistently with age. Indeed, the estimates indicate that whereas two in five adults aged 50 years reported mental health problems, that rate dropped to one in four among adults age 75 and older. The trends were consistent across all three racial/ethnic groups considered.

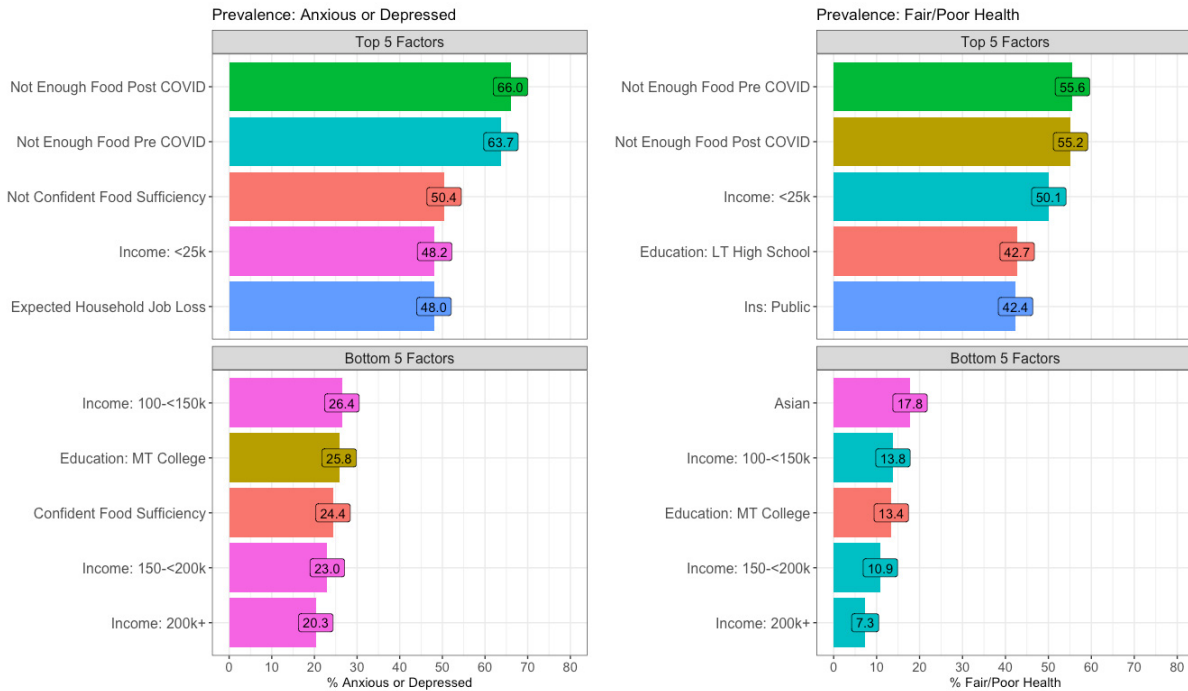


An inequitable distribution of mental and physical health in the COVID era (Hypothesis 2b)

Worse mental and physical health outcomes were more concentrated in lower socioeconomic strata of the older communities of color.

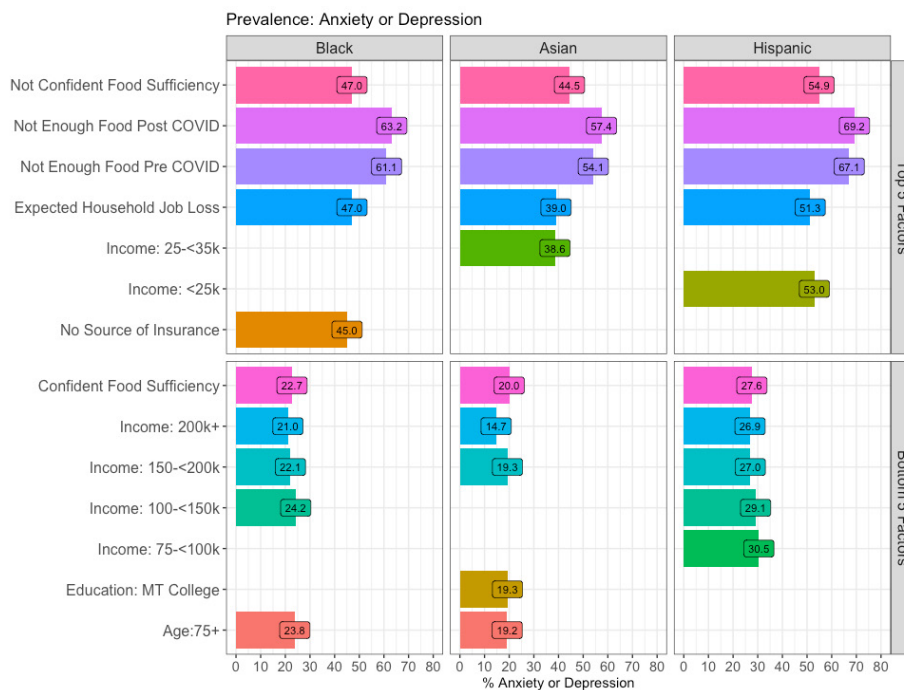
Indeed the most vulnerable groups, with majorities reporting mental health problems, included those reporting “not enough food” both during (66.0%) and prior to the COVID (63.7%) pandemic. Similarly, high rates of mental health issues are found among respondents with low confidence in food sufficiency (50.4%), as well as individuals in households making <\$25,000 a year (48.2%), and those with concerns about potential job losses (48.0%).

As expected, individuals with high levels of household income (exceeding \$100,000 a year) and with a college education or higher fared much better compared to their less socioeconomically advantaged counterparts.

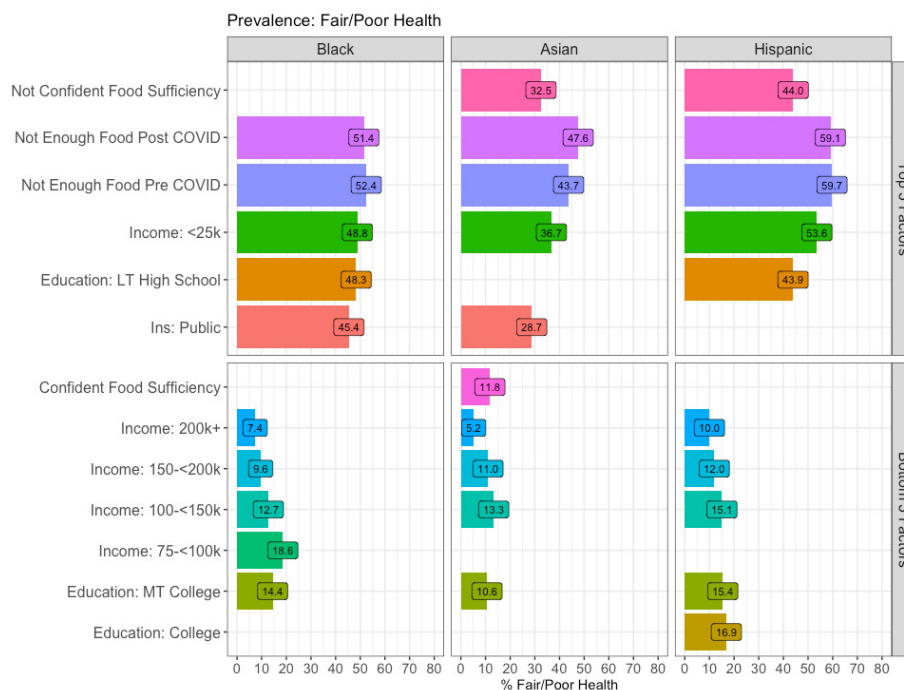


Food needs were also driving factors for fair/poor general health (55.6% and 55.2% before and during COVID, respectively). Income and education were also protective against subpar general health.

Variations in mental health problems within racial and ethnic groups (Hypothesis 2b)



Basic food concerns drove higher rates of mental health problems within Blacks, Asians, and Hispanic older adults. Close to three in five Black and Asian older adults reporting “not enough food” pre and post COVID also reported significant symptoms of anxiety or depression. Those rates approached 70% among older Hispanics. Expected household job losses among Black, Hispanics, and Asian older adults ranked in the top five factors associated with significant mental health problems. Additionally, more than half of Hispanic older adults with income below \$25,000 per year had significant problems. And 45% of Black older adults with no source of insurance also had significant mental health problems.



The same factors linked to elevated prevalence of significant mental health issues were also associated with reporting fair/poor overall health conditions, in large part equally among Blacks and Hispanics. The prevalence of fair/poor health among older Blacks and Hispanics with concerns about basic food needs, and lower income and education levels approached or exceeded 50%. Basic food needs were also conducive to elevated rates of subpar health among Asians, but the reported rates within each factor were lower in this group compared to Blacks and Hispanics.

Prevalence of top drivers of mental and general health within racial/ethnic groups

The analyses so far point to socioeconomic factors as critical determinants of mental and general health during the pandemic. These findings are in line with decades of work highlighting the role of social determinants in health and health disparities. In light of this, it is important to highlight the prevalence of some of these determinants among older race/ethnic minorities.

	Black %(SE)	Asian %(SE)	Hispanic %(SE)	Total %(SE)
Not Enough Food Pre COVID	12.88 (0.36)	5.70 (0.44)	14.42 (0.45)	12.49 (0.26)
Not Enough Food Post COVID	13.48 (0.34)	5.99 (0.38)	15.57 (0.41)	13.28 (0.24)
Not Confident Food Sufficiency	45.29 (0.52)	29.12 (0.73)	43.43 (0.58)	41.94 (0.35)
Income <25K	16.74 (0.36)	8.44 (0.42)	16.28 (0.39)	15.28 (0.24)
Expected HH Job Loss	32.71 (0.42)	34.42 (0.68)	41.09 (0.50)	36.76 (0.30)
LTHS Education	9.78 (0.36)	12.45 (0.76)	26.06 (0.55)	17.56 (0.32)
Public Insurance	18.82 (0.36)	14.92 (0.54)	17.95 (0.39)	17.84 (0.24)

The HPS data indicates that more than one in ten older adults of color have subpar access to basic needs such as food (12.5% pre COVID, and 13.3% post COVID). These rates were more elevated (2 to 2.5 folds higher) in Hispanic and Black older adults compared to Asians. Additionally, slightly more than four in ten reported low or no confidence in food sufficiency (42.0%) and had expectations for a household job loss (36.8%). The average prevalence of households with incomes below 25k was 15.3%, and close to two in ten older adults reported lower than high school education (17.6%) or receiving public insurance (e.g. Medicaid) coverage (17.8%).

Mediators of group differences in mental and physical health of older minorities (Hypothesis 2b)

We explored the extent to which differences in demographics, health enabling characteristics, employment status, healthcare access measures, basic needs, and health factors contribute to differences in reported rates of (a) mental health problems and (b) subpar general health between Blacks, Asians, and Hispanics.

Demographic factors included age, gender, marital status, living alone, and having children below 18 years of age living in the household. Health enabling factors included education and income. Employment measurement included reporting a household job loss, and expectation of a household job loss. Healthcare access included insurance status, reported delays in care due to COVID, and reported problems in access not related to COVID). Basic needs factors included not having enough food pre and post COVID, as well as reporting low confidence in food sufficiency. Finally, health factors included general health when examining anxiety or depression as an outcome, and mental health when examining fair/poor general health as an outcome.

Group differences in anxiety or depression

Difference between Blacks and Asians was 6.5% (factors included in our model explained all the differences between these two groups; see Oaxaca decomposition estimates in Table 2 for specific factors contributions). Differences were driven primarily by basic need factors (39.7%), followed by general health factors (27.5%), enabling factors (13.7%), demographics (12.7%) and healthcare access (8.4%).

Differences between Blacks and Hispanics was estimated at 5.8%. Demographic factors were more advantageous for Hispanics, but employment differences were more advantageous for Blacks. Overall our models explained little in terms of the differential rates between these two groups.

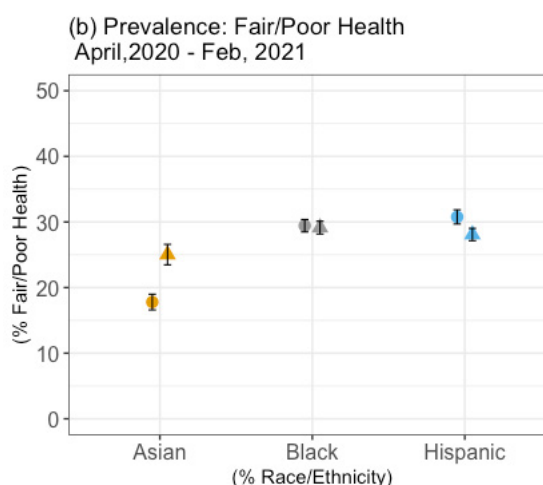
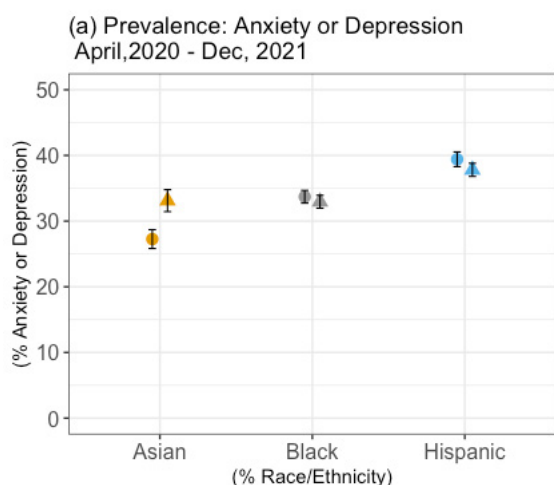
Differences between Hispanics and Asians was 12.3% (70% of this difference was explained by the factors included in our model). Basic needs and general health differences were the primary contributors (34.3% and 28.6%) followed by enabling factors (11.1%), healthcare access factors (10.6%), and employment (8.7%) and other demographic factors (6.7%).

Group differences in general health

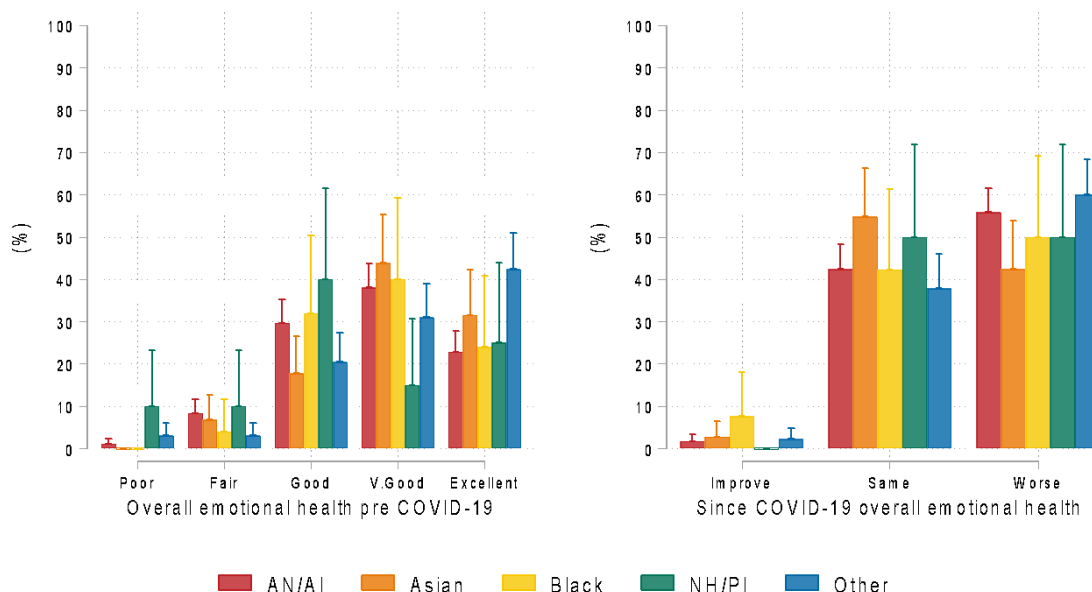
Differences between Black and Asians in general health was 11.4% (73% of the rate differences explained by our model covariates). In particular, 58.4% of the explained differences were due to enabling factors followed by basic need and healthcare access differences.

The difference in reported rates between Blacks and Hispanics was low. The difference between Hispanics and Asians was 12.8 (%) with 85% explained by model covariates. Enabling factors (54.9%) followed by basic need (17.9%) and mental health factors (16.5%) explained the majority of the explained differences between the groups

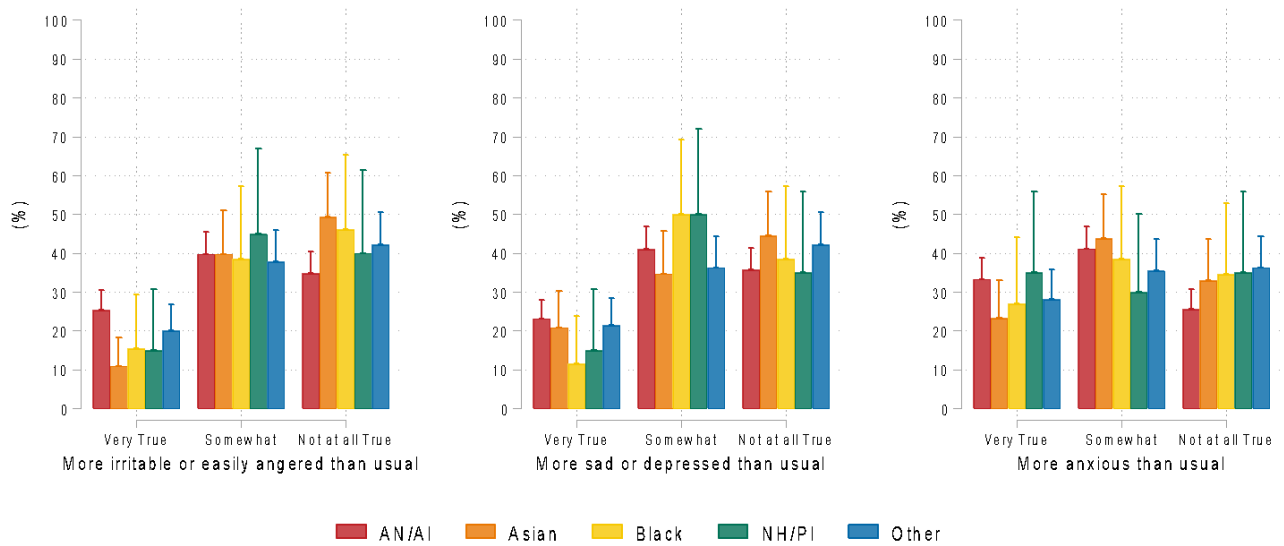
Model ● Unadjusted ▲ Adjusted



Alaska DHSS COVID Survey



Slightly more than one in two participants indicated that their “overall emotional health” has gotten worse since the COVID-19 pandemic began, and four in five reported being worried (somewhat and very) about being infected with the virus (estimated rates and confidence intervals are presented in Supplemental Table 7). Overall, the estimated rates were inferentially comparable across the considered groups.



Three in five participants (60.5%) reported being more irritable and easily angered than usual (somewhat of very true). A similar number (61.4%) reported being more sad or depressed than usual, and nearly 70% reported being more anxious than usual. Overall, the estimated rates were inferentially comparable across the considered groups.

An overwhelming majority of respondents (85%) reported being stressed by changes to family routine, 83% reported being concerned about someone else’s mental health, and close to half (45%) were concerned about the stability of their living conditions (Supplemental Figure 5).

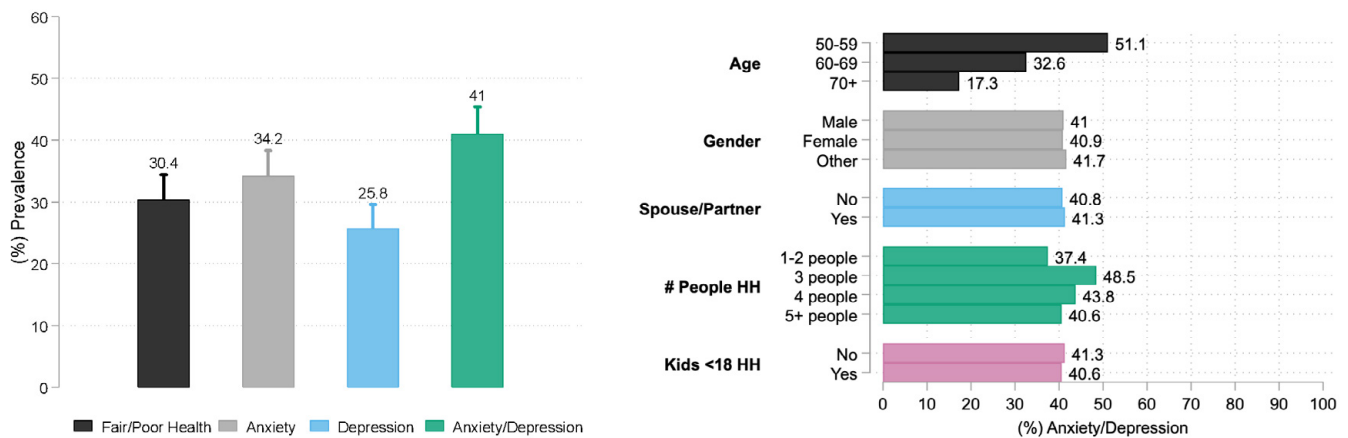
University of Washington IWRI COVID-19 Communities of Color Needs Assessment survey

University of Washington IWRI COVID-19 Communities of Color Needs Assessment data

We found similarly elevated levels of mental health problems among IWRI survey participants. Overall, one in three indigenous participants (30.4%) reported being in fair/poor health, slightly more than a third (34.2%) met anxiety criteria, 25.8% met depression criteria, and two in five respondents (41.0%) met criteria for either anxiety or depression.

Rates of mental health problems declined with age. The prevalence of anxiety or depression among participants 50-59 years old was 51.1% and declined to 17.3% among adults 70 years and older.

The prevalence rates of mental health issues were largely similar across gender groups, did not differ by spousal/partnership status, or based on having kids <18-years of age in the household.

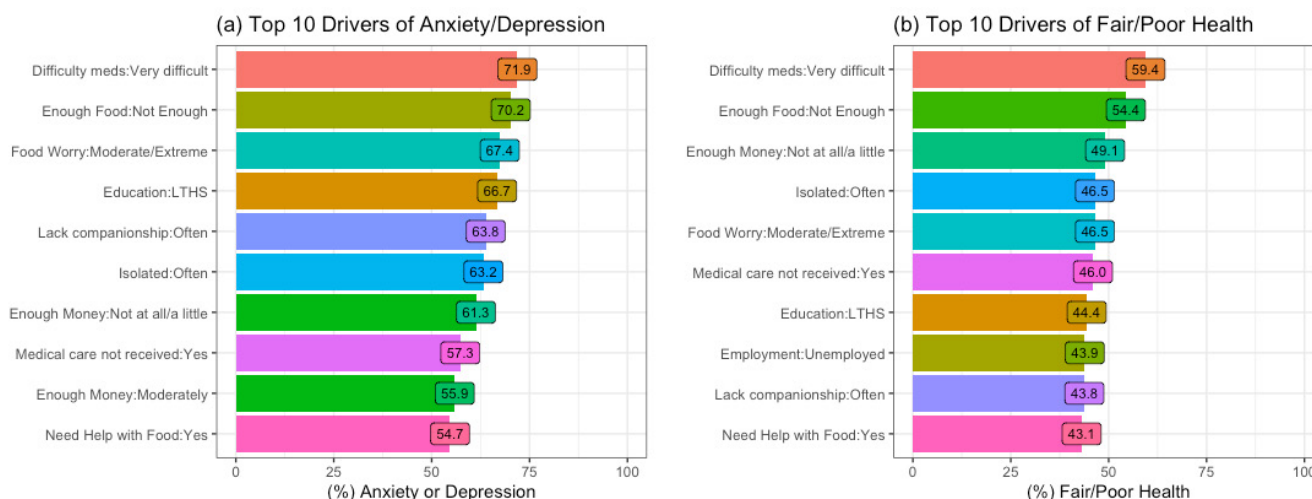


Inequities in the distribution of mental and physical health problems within indigenous populations

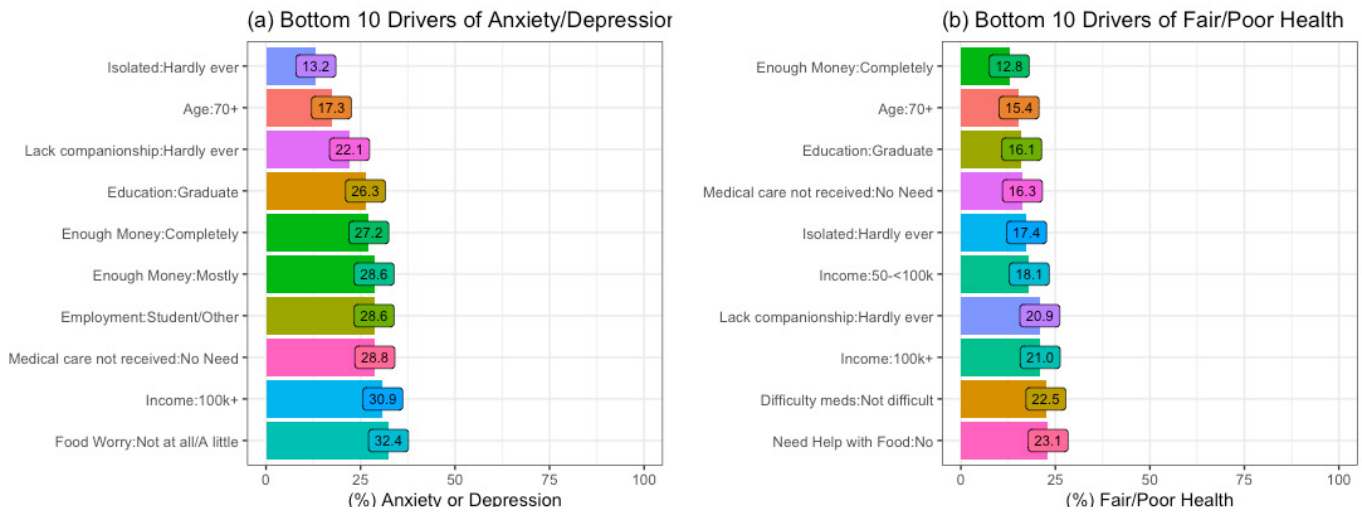
As with findings from the HPS we found that worse mental and physical health outcomes had higher concentrations in socioeconomically vulnerable indigenous subgroups (estimates for all considered variables are provided in Supplemental Figures 8 and 9).

Indeed, the most vulnerable groups, with majorities reporting mental health problems, included those reporting “not enough food” during the pandemic (70.2%) and moderate/extreme food worry (67.4%). Similarly, high rates of mental health issues are found among respondents with less than high school education (66.7%), reporting not having enough money (61.3% for those reporting not at all/a little; and 55.9% reporting moderately) and needing help with food (54.7%).

The IWRI data highlighted several additional critical mental health risks in indigenous populations. Older participants reporting difficulties in obtaining medications had acutely high levels of anxiety or depression (71.9%), and so did those reporting that they required medical care, but care was not received (57.3). As important, we found evidence to link social risk factors to elevated rates of mental and physical health problems. Nearly two-thirds of older adults reporting “often” lacking companionship (63.8%) and “often” feeling isolated (63.2%), had elevated symptoms of anxiety/depression, and more than two in five reported having subpar health (46% for the often isolated, and 44% for those often lacking companionship).



In line with literature on the health of indigenous population, social support indicators (reporting hardly ever being isolated and hardly ever lacking companionship) were leading protective factors against mental and general health problems. As indicated above, older age was also protective with only 17.3% of adults 70+ years meeting criteria for elevated symptoms of anxiety/depression (vs. 40% overall). As could be expected, higher levels of education, having enough monetary resources, and minimal concerns with satisfying basic (e.g. food worry) and medical needs were also associated with lower levels of mental health problems.



Prevalence of top drivers of mental and general health in indigenous populations

As with other older minorities, the analyses so far point to elevated rates of mental health problems and subpar general health in indigenous groups and suggest that socioeconomic factors are critical determinants of health during the pandemic. Given the critical contributions of these factors to subpar health, in the following section we highlight the prevalence of some of these determinants among the sample indigenous groups.

In line with HPS data, more than two in five individuals were expecting a job or income loss in the household (45.25%), more than a third (36.4%) reported needing help with food, and close to one in ten and three in ten reported not having enough food, and being moderately or extremely worried about food, respectively.

Risk Factor	%(SE)
Income <25k	26.84 (2.01)
LTHS Education	7.27 (1.17)
Expected job/income loss	45.25 (2.24)
Enough Money: Not at all/a little	21.46 (1.85)
Need Help with Food	36.42 (2.16)
Moderate/Extreme Food Worry	28.29 (2.11)
Not Enough Food	11.52 (1.44)

Unlike the HPS data, the IWRI data also allowed us the opportunity to examine the prevalence of social risk factors among indigenous older adults. We found high rates of social isolation (three in ten) and loneliness (two in ten) among older indigenous adults. Particularly worrisome were the high rates of suicidal ideation, with two in ten older adults reporting having thought about suicide or self-harm in the past 30-days and one in ten describing these thoughts as serious considerations.

Risk Factor	Risk Group	%(SE)
Often lack companionship		21.38 (1.85)
Often isolated		29.33 (2.06)
Frequency of suicidal thoughts	Several days/> Half/Near daily	19.56 (1.78)
Serious consideration of suicide		10.48 (1.38)
Alcohol consumption (4+/5+)	Weekly	6.06 (1.07)
	Daily or almost daily	4.24 (0.91)

Discussion

The results of our analyses of national data using the HPS, the IWRI COVID needs assessment in indigenous population, and state level data from the Alaska DHSS supported findings from both disaster and chronic stress research. Disaster research and chronic stress research indicated that mental health symptoms were impacted most by the resources people had available to them. That is, the effects of a disaster and/or chronic stress were greatly influenced by how well people's basic needs were met.

The COVID pandemic has elements of both a disaster and a chronic stressor. First, the pandemic came suddenly and unexpectedly and disrupted everyday life—elements consistent with a disaster. Second, the pandemic required high levels of vigilance and had an unpredictable course during the 10-month time period we studied. These two elements are consistent with chronic stress. Our major findings:

- (1) Mental health symptoms demonstrated modest curvilinear pattern during the pandemic. Indeed, while there was some modest worsening of mental health symptoms during the first half of the study time frame, these dropped back to baseline levels midcourse and increased again into the final months of the considered time frame (coinciding increase in COVID specific death rates and with initial stages of pre-vaccine national rollout);
- (2) We found evidence for notable variabilities within and across groups by geographic location. These geographic variabilities were not specifically driven by variations in COVID-19 deaths. However, our modeling of the associations between mental health and COVID-19 death was relatively limited. More comprehensive techniques geared towards addressing the complexities of modeling nested data structures (geography and time) might be required;
- (3) High levels of mental health symptoms were particularly exaggerated through social determinants of health and especially so through insufficiency of basic needs including food and employment insecurity. The highest levels of mental health symptoms were found in those who did not have enough food for their household and those with low income and/or job loss and lack of insurance. Nearly two-thirds of those without enough food in their household pre and post COVID had elevated mental health symptoms. Nearly half of those with incomes less than \$25,000 per year and/or expected a job loss in their household and/or had no health insurance reported significant mental health symptoms. Thus, the pandemic exacerbated already existing vulnerabilities in older Hispanic, Non-Hispanic Black Non-Hispanic Asian, and indigenous older adults;
- (4) Middle aged adults were more vulnerable to mental health problems compared to older adults and consistently so across communities of color; in line with existing research, this finding provides support for increased resilience with age;
- (5) Among indigenous groups, social support was positively linked to better mental health; isolated and lonely older adults were particularly vulnerable to mental health complications. With the current data, however, we could not fully explore mechanisms of resilience development and potentially enhanced ability to cope. Future analyses are required to clarify these mechanisms and test differences across groups.

To conclude, only Hypothesis Two of our study was strongly supported. Those with financial strain as evidenced by the social determinants of health highlighted above were the most vulnerable to mental health symptoms.

Implications for Interventions and Policy

These national and state level data on Hispanics, Non-Hispanic Blacks, Non-Hispanic Asians, and indigenous older adults have significant implications for policy and interventions:

First, the data points to alarmingly high rates of mental health symptoms among all older adults of color (slightly more than a third overall). Nearly three in ten Asian older adults, slightly more than one in three Black older adults and two in five Hispanic and Indigenous older adults met this study's criteria for anxiety or depression. Overall, where available the data indicate that the high rates of mental health symptoms trended higher during the summer months of 2020 before returning to baseline levels by September. Evidence of "pandemic fatigue" was apparent starting in the winter months with increased rates tracking with increased death rates and peaking around January 2021. State level data

from Alaska provided further evidence that similarly high levels of mental strain were evident among older AN/Al and HPIs, with more than half reporting worsening mental health during COVID, and close to two-thirds or higher reporting symptoms of irritability/anger, sadness or depression, or higher anxiety than normal.

Second, Hispanics (31%), indigenous elders (30%), and Non-Hispanic Blacks (29.5%) reported worse general health than did Non-Hispanic Asians (17.8%). Where time trends were available, they suggest that Hispanics showed worsening physical health over time. The rates for Non-Hispanic Blacks and Asians remained relatively stable. Particularly worrisome are the close to 20% and 15% of older Hispanics and Blacks, with comorbid subpar general and mental health problems. These subgroups might be particularly vulnerable to economic, social, and health conditions resulting from a protracted pandemic. While not within the scope of this work, continued health surveillance of these subgroups is especially warranted, as data from the vaccination rollout becomes available and during the post-pandemic period, in order to minimize longer term effects of the pandemic and develop policy interventions that could potentially ameliorate their well-being. Data from IWRI also highlighted the vulnerability of older adults with low levels of social support and the pronounced rates of indigenous older adults (20-30%) who felt isolated or lonely. While these statistics were not available through IWRI data, future work and data collection should assess these risks in other groups and focus on the implications of social risk and lack of social support to the health of older minorities.

Third, the data underscore the heterogeneity of mental and physical health conditions across groups and regions of the country. Both geographic and within group heterogeneities are important to keep in mind regarding mental and physical health among diverse groups. One size fits all policy solutions are likely insufficient to alleviate these within group differences, and multidimensional interventions with federal, state, and local components are likely required.

Fourth, significant mental health symptoms were found most when basic needs were not being met. These findings were similar to pre-pandemic conditions as well. For example, two-thirds of all of those in the sample who did not have enough food reported significant mental health problems. Almost half of those with very low income (less than \$25,000 per year), a lack of insurance and expected or actual job loss reported significant mental health symptoms. Additionally, although the level of self-reported physical health problems was slightly lower than mental health symptoms, the patterns were similar. Those with the highest rates of fair or poor health lacked enough food, income and employment. Fragmentation of attention and dissipation or redirection of resources and help, particularly with regards to basic needs, in the post pandemic era can aggravate some of these geographic and within group disparities.

Fifth, there were relatively high rates (one-quarter to one-third) of significant mental health symptoms even among those with average or above average income, food security and employment. This reflects a relatively high level of stress for diverse older adults even when the basic necessities of life are being met.

Sixth, the oldest individuals (over 70-75 years of age) had the lowest rate of significant mental health symptoms (28% in HPS and 17% among indigenous groups). Thirty-eight percent of those individuals ages 50-64 years (51% among 50-59 in IWRI) reported significant mental health problems as did 32% of those 65-74 years (32% among 60-60 in IWRI). The need to “reframe” aging and to combat ageism is highlighted in these data. The oldest racial/ethnic adults are resilient, and the data indicate that they suffer the lowest rate of overall mental health symptoms.

In conclusion, it is important to remember that great heterogeneity exists within each of the age groups identified above.

Tables

Table 1.
HPS Sample Characteristics

	Black	Asian	Hispanic	Total	
Age Mean (SD)	61.42(6.63)	61.53(8.54)	61.66(7.10)	61.55(7.18)	p=0.12
Sex % (SE)					
Male	43.39 (0.45)	51.32 (0.68)	48.65 (0.49)	46.97 (0.30)	p<0.001
Female	56.61 (0.45)	48.68 (0.68)	51.35 (0.49)	53.03 (0.30)	
Insurance % (SE)					
Employer	51.61 (0.44)	58.33 (0.70)	46.37 (0.49)	50.24 (0.30)	p<0.001
Self	5.50 (0.21)	8.00 (0.32)	6.56 (0.25)	6.36 (0.15)	
Public	18.82 (0.36)	14.92 (0.54)	17.95 (0.39)	17.84 (0.24)	
Other	0.35 (0.04)	0.52 (0.07)	0.83 (0.09)	0.59 (0.05)	
None of the above	23.71 (0.37)	18.24 (0.63)	28.28 (0.47)	24.96 (0.28)	
Education % (SE)					
Less than High School	9.78 (0.36)	12.45 (0.76)	26.06 (0.55)	17.56 (0.32)	p<0.001
High School	35.57 (0.47)	15.87 (0.59)	33.08 (0.47)	31.48 (0.30)	
Some College	31.11 (0.35)	19.91 (0.46)	23.61 (0.33)	26.03 (0.21)	
College	12.02 (0.19)	24.03 (0.46)	9.18 (0.18)	12.54 (0.13)	
More than college	11.53 (0.19)	27.73 (0.49)	8.06 (0.15)	12.39 (0.13)	
Income % (SE)					
<25k	16.74 (0.36)	8.44 (0.42)	16.28 (0.39)	15.28 (0.24)	p<0.001
25-<35k	12.59 (0.33)	6.97 (0.38)	11.95 (0.35)	11.45 (0.21)	
35-<50k	10.90 (0.27)	8.84 (0.43)	11.55 (0.31)	10.89 (0.19)	
50-<75k	13.90 (0.30)	11.87 (0.42)	13.68 (0.33)	13.50 (0.20)	
75-<100k	8.36 (0.22)	9.93 (0.39)	8.80 (0.29)	8.80 (0.17)	
100-<150k	7.79 (0.21)	14.24 (0.39)	7.35 (0.19)	8.56 (0.13)	
150-<200k	3.49 (0.14)	7.78 (0.26)	3.18 (0.14)	3.99 (0.09)	
200k+	2.33 (0.09)	12.28 (0.43)	3.21 (0.12)	4.22 (0.10)	
not reported	23.90 (0.36)	19.65 (0.59)	24.00 (0.43)	23.31 (0.26)	
Live Alone % (SE)					
No	87.78 (0.21)	93.48 (0.27)	92.26 (0.19)	90.67 (0.13)	p<0.001
Yes	12.22 (0.21)	6.52 (0.27)	7.74 (0.19)	9.33 (0.13)	
Kids <18 Household % (SE)					
No	69.08 (0.42)	71.23 (0.66)	66.41 (0.49)	68.19 (0.30)	p<0.001
Yes	30.92 (0.42)	28.77 (0.66)	33.59 (0.49)	31.81 (0.30)	
Marital Status % (SE)					
Married	48.45 (0.44)	74.43 (0.65)	60.75 (0.49)	57.93 (0.30)	p<0.001
Wid/Div/Sep	35.40 (0.42)	19.05 (0.61)	29.97 (0.45)	30.48 (0.28)	
Never Married	16.15 (0.32)	6.52 (0.34)	9.28 (0.32)	11.59 (0.20)	

	Black	Asian	Hispanic	Total	
Household Job Loss % (SE)					
No	53.55 (0.44)	54.56 (0.69)	47.08 (0.49)	50.77 (0.30)	p<0.001
Yes	46.45 (0.44)	45.44 (0.69)	52.92 (0.49)	49.23 (0.30)	
Expected Household Job Loss % (SE)					
No	67.29 (0.42)	65.58 (0.68)	58.91 (0.50)	63.24 (0.30)	p<0.001
Yes	32.71 (0.42)	34.42 (0.68)	41.09 (0.50)	36.76 (0.30)	
Not Enough Food Pre COVID* % (SE)					
No	87.12 (0.36)	94.30 (0.44)	85.58 (0.45)	87.51 (0.26)	p<0.001
Yes	12.88 (0.36)	5.70 (0.44)	14.42 (0.45)	12.49 (0.26)	
Not Enough Food Post COVID % (SE)					
No	86.52 (0.34)	94.01 (0.38)	84.43 (0.41)	86.72 (0.24)	p<0.001
Yes	13.48 (0.34)	5.99 (0.38)	15.57 (0.41)	13.28 (0.24)	
Not Confident Food Sufficiency* % (SE)					
No	54.71 (0.52)	70.88 (0.73)	56.57 (0.58)	58.06 (0.35)	p<0.001
Yes	45.29 (0.52)	29.12 (0.73)	43.43 (0.58)	41.94 (0.35)	
Fair/Poor Health* % (SE)					
No	70.58 (0.49)	82.21 (0.61)	69.23 (0.55)	71.80 (0.33)	p<0.001
Yes	29.42 (0.49)	17.79 (0.61)	30.77 (0.55)	28.20 (0.33)	
Anxiety % (SE)					
No	71.08 (0.44)	76.40 (0.63)	65.85 (0.51)	69.57 (0.30)	p<0.001
Yes	28.92 (0.44)	23.60 (0.63)	34.15 (0.51)	30.43 (0.30)	
Depression % (SE)					
No	76.29 (0.42)	80.90 (0.60)	72.03 (0.49)	75.10 (0.29)	p<0.001
Yes	23.71 (0.42)	19.10 (0.60)	27.97 (0.49)	24.90 (0.29)	
Anxiety or Depression					
No	65.97 (0.46)	72.17 (0.67)	60.48 (0.53)	64.48 (0.32)	p<0.001
Yes	34.03 (0.46)	27.83 (0.67)	39.52 (0.53)	35.52 (0.32)	
Delayed Care COVID					
No	65.45 (0.45)	65.13 (0.68)	60.84 (0.53)	63.33 (0.32)	p<0.001
Yes	34.55 (0.45)	34.87 (0.68)	39.16 (0.53)	36.67 (0.32)	
Not Get Care Not COVID Related					
No	69.41 (0.45)	74.31 (0.62)	67.72 (0.51)	69.42 (0.31)	p<0.001
Yes	30.59 (0.45)	25.69 (0.62)	32.28 (0.51)	30.58 (0.31)	

Note: prevalence rates and standard errors are calculated using data as is (i.e. not imputing for missing values) as such the n varies by indicator. The HPS stopped collecting data on certain indicators (see *) after December 2020.

Table 2.

Oaxaca decomposition of differences: HPS

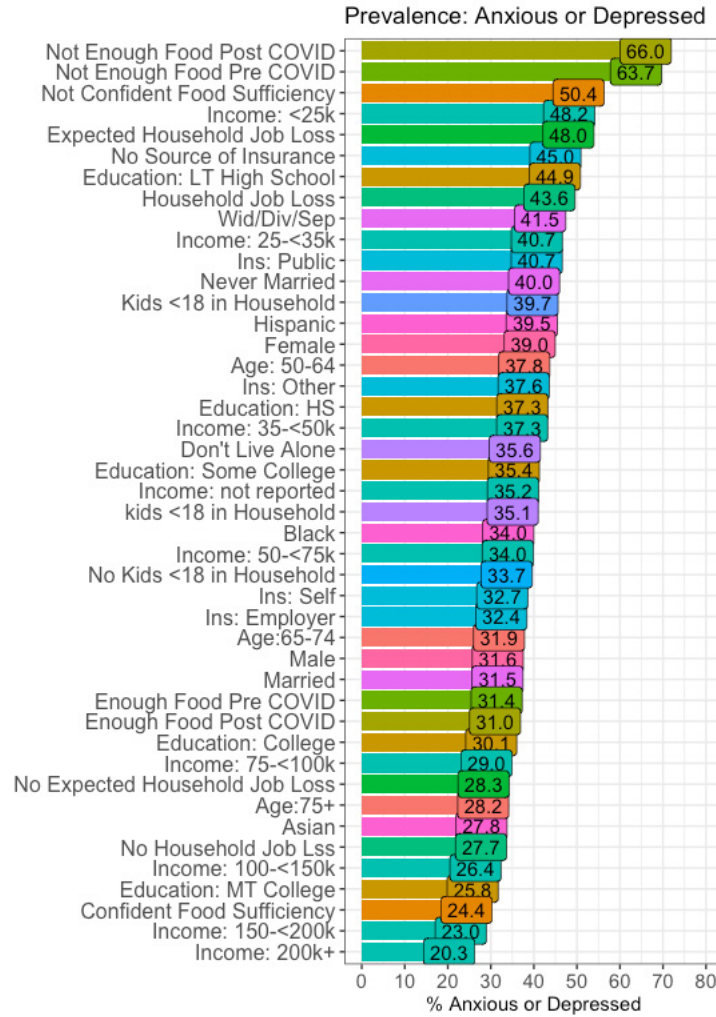
Decomposition	Anxiety or Depression			Fair/Poor Health		
	Prob	(%)	p-value	Prob	(%)	p-value
Black vs. Asians						
Crude Difference in Prevalence	-0.065	-6.5		-0.114	-11.4	
Explained Difference in Prevalence	-0.073	-7.3		-0.083	-8.3	
Unexplained Difference in Prevalence	0.008	0.8		-0.031	-3.1	
	% Explained Difference					
Demographics	-0.009	12.7	0.0003	-0.003	3.5	0.1761
Enabling Factors	-0.010	13.7	0.0059	-0.048	58.4	0.0000
Employment	0.001	-1.0	0.4023	0.000	-0.2	0.6751
Access Factors	-0.005	7.4	0.0011	-0.008	9.2	0.0000
Need Factors	-0.029	39.7	0.0000	-0.016	19.0	0.0000
Health Factors	-0.020	27.5	0.0000	-0.008	10.1	0.0000
Black vs. Hispanics						
Crude Difference in Prevalence	0.058	5.8		0.014	1.4	
Explained Difference in Prevalence	0.008	0.8		0.025	2.5	
Unexplained Difference in Prevalence	0.049	4.9		-0.010	-1.0	
	% Explained Difference					
Demographics	-0.007		0.0000	-0.002		0.1554
Enabling Factors	-0.002		0.4658	0.013		0.0000
Employment	0.009		0.0000	0.000		0.6619
Access Factors	0.005		0.0015	0.003		0.0283
Need Factors	0.001		0.6061	0.001		0.5307
Health Factors	0.003		0.0474	0.011		0.0000
Hispanic vs. Asian						
Crude Difference in Prevalence	-0.123	-12.3		-0.128	-12.8	
Explained Difference in Prevalence	-0.087	-8.7		-0.108	-10.8	
Unexplained Difference in Prevalence	-0.036	-3.6		-0.021	-2.1	
	% Explained Difference					
Demographics	-0.006	6.7	0.0006	-0.002	1.5	0.2108
Enabling Factors	-0.010	11.1	0.0234	-0.059	54.9	0.0000
Employment	-0.008	8.7	0.0000	0.000	0.0	0.9424
Access Factors	-0.009	10.6	0.0000	-0.009	8.7	0.0000
Need Factors	-0.030	34.3	0.0000	-0.019	17.9	0.0000
Health Factors	-0.025	28.6	0.0000	-0.018	16.9	0.0000

Appendix

Supplemental Material

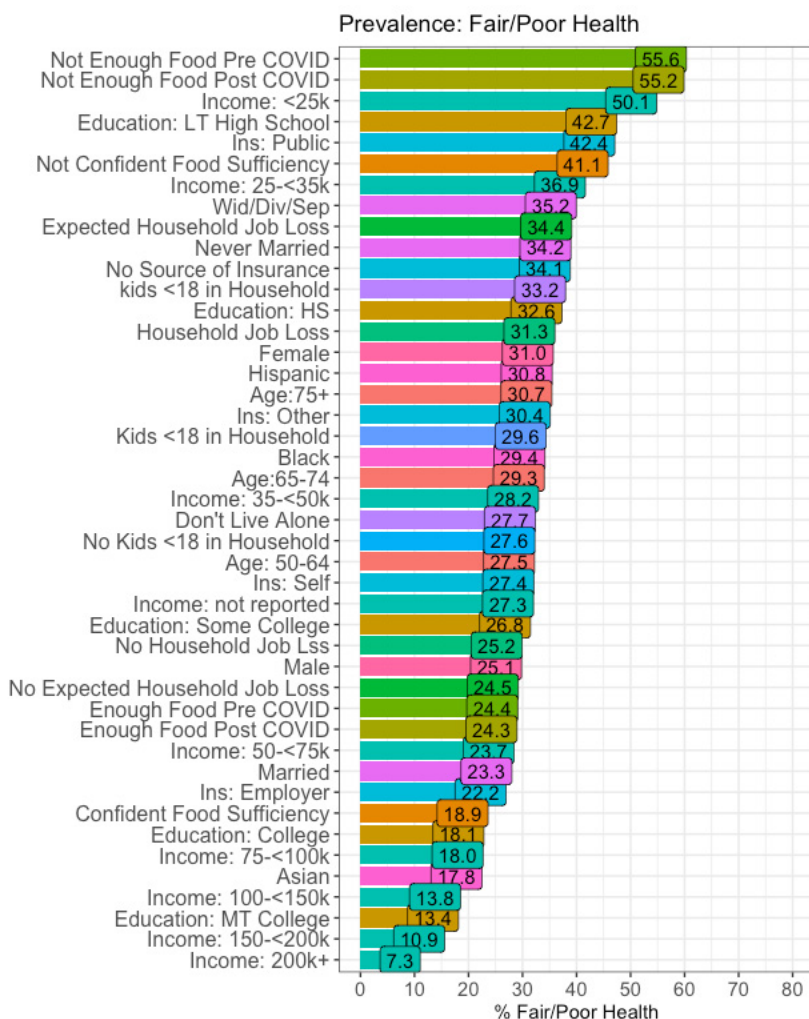
Supplemental Figure 1.

Prevalence of Anxiety or Depression across different characteristics pertaining to **demographic, health enabling, employment, healthcare access, basic needs, and health characteristics.**



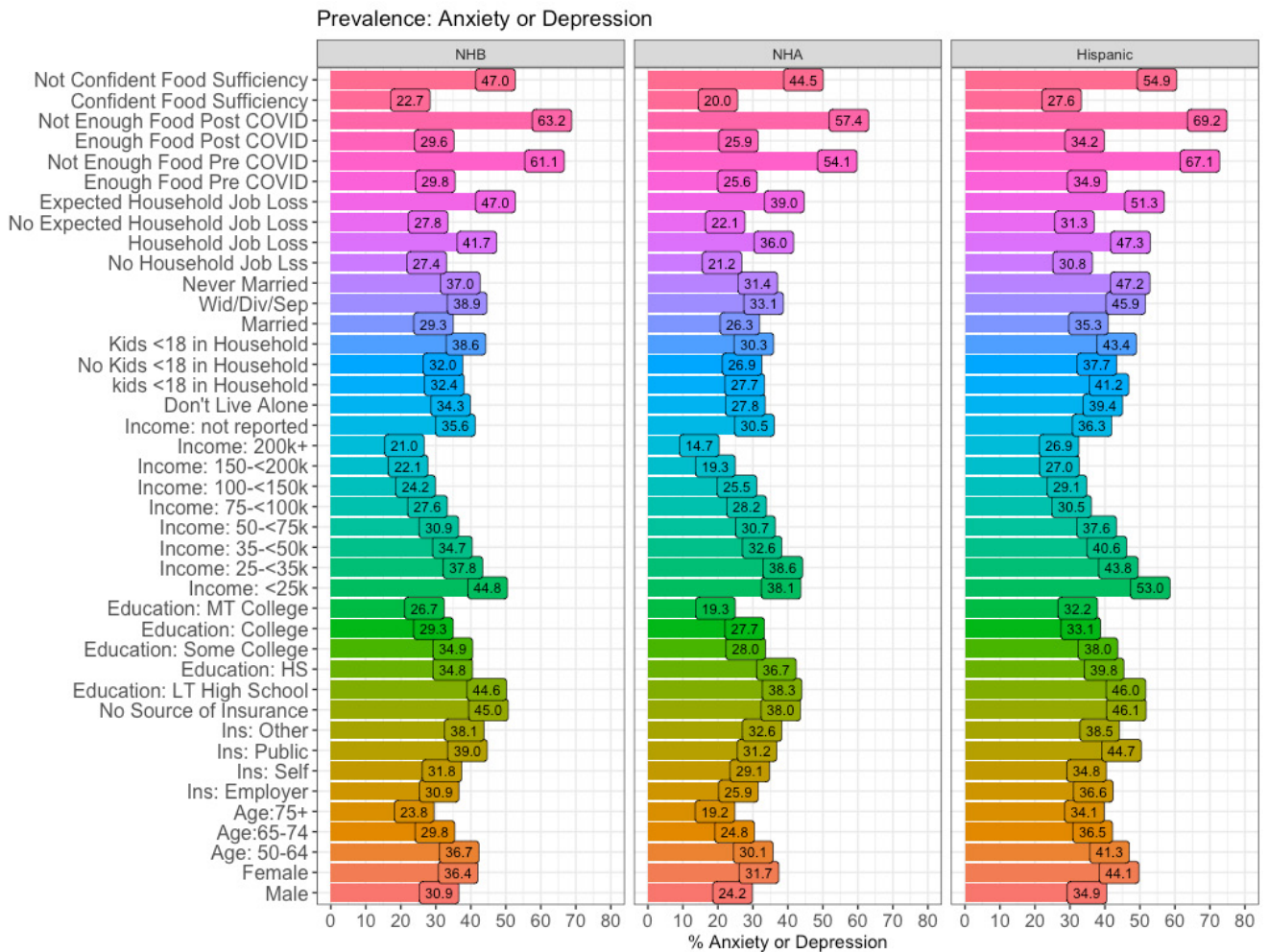
Supplemental Figure 2.

Prevalence of Fair/Poor Health across characteristics pertaining to **demographic, health enabling, employment, healthcare access, basic needs, and health characteristics.**



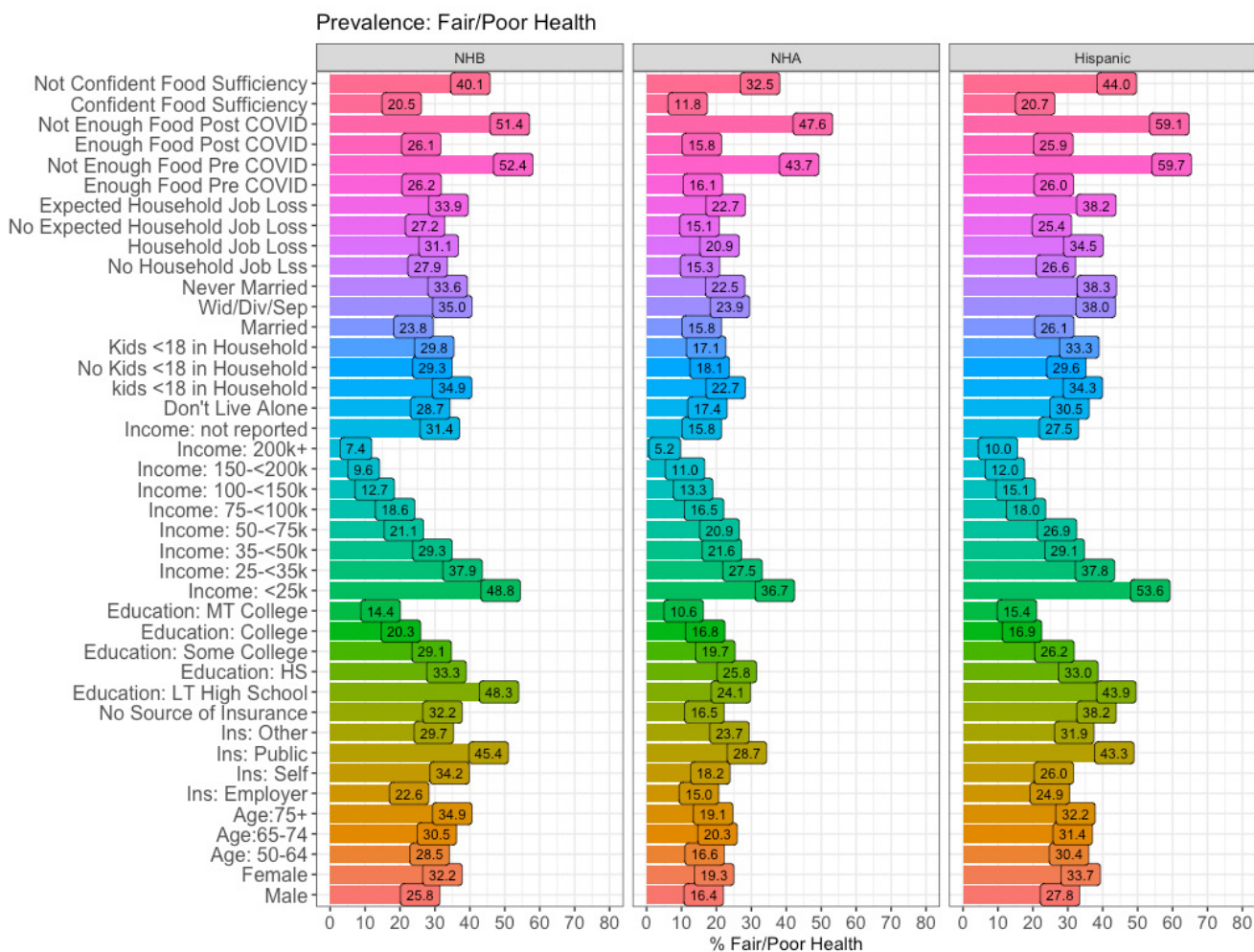
Supplemental Figure 3.

Race/ethnic specific prevalence of anxiety or depression across different characteristics pertaining to **demographic, health enabling, employment, healthcare access, basic needs, and health characteristics.**



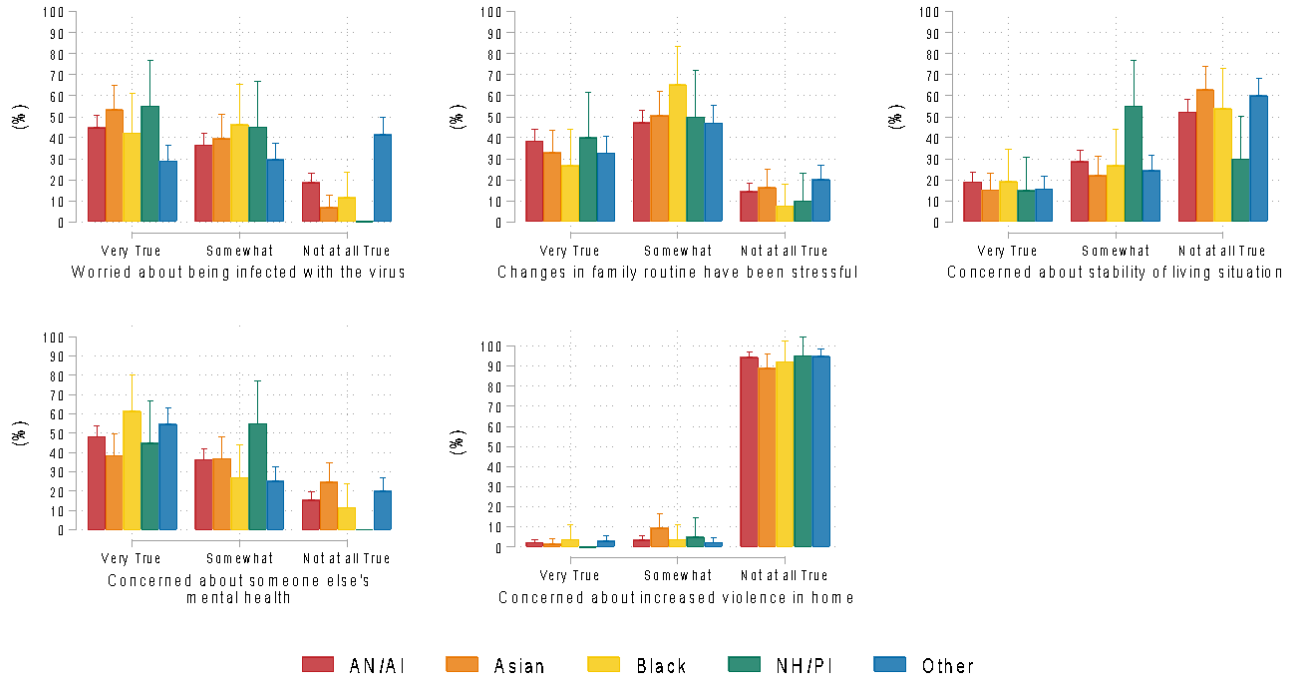
Supplemental Figure 4.

Race/ethnic specific prevalence of fair/poor health across characteristics pertaining to **demographic, health enabling, employment, healthcare access, basic needs, and health characteristics.**



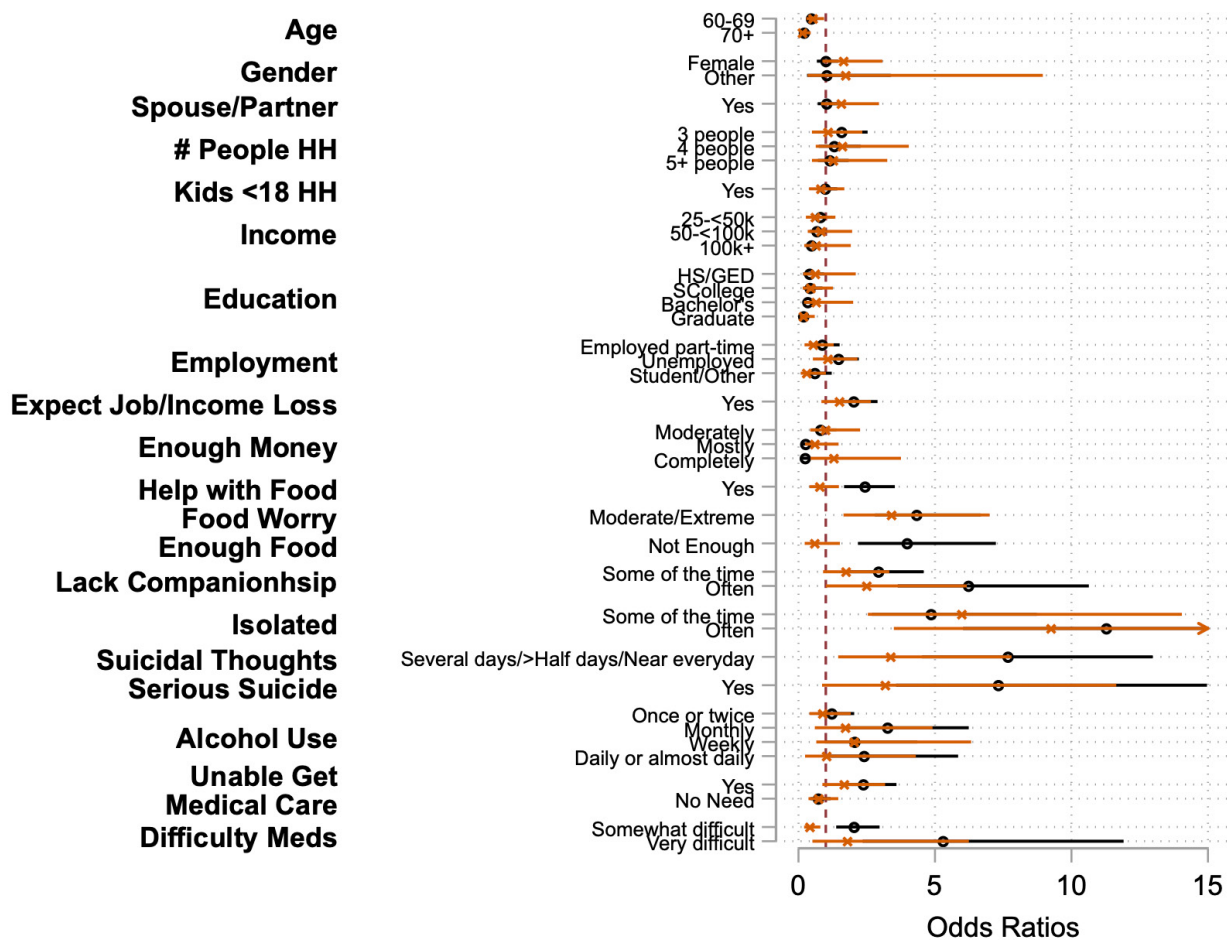
Supplemental Figure 5.

Race/ethnic specific estimates of other stressors identified in the Alaska DHSS survey.



Supplemental Figure 6.

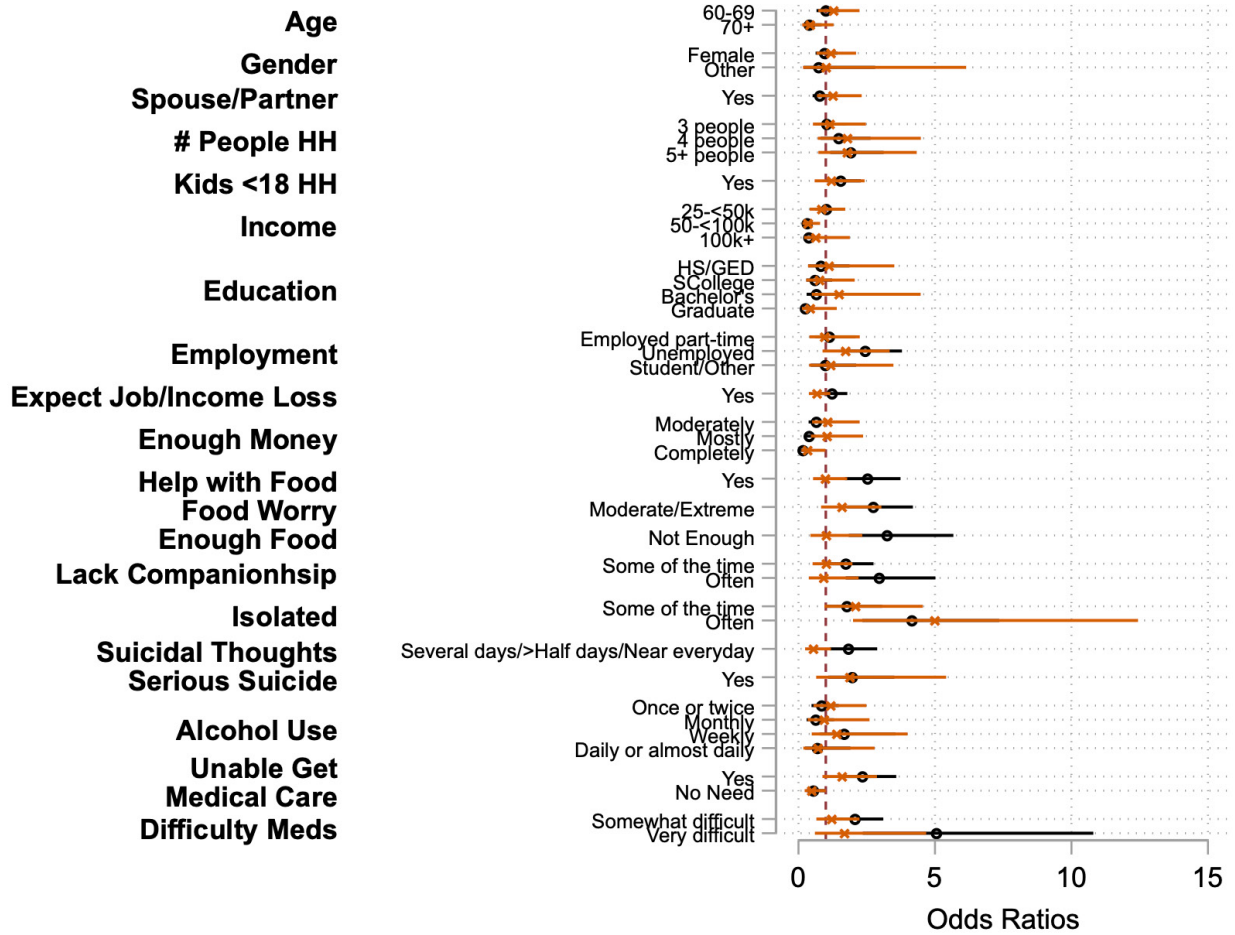
Plot of unadjusted (crude) and fully adjusted odds ratios for the correlates of anxiety/depression. Results are based on data from the IWRI COVID survey.



Note: Estimates in black represent odds ratios (and 95% confidence intervals) derived from crude logistic regression models (each predictor estimated independently). Estimates in brown represent odds ratios (and 95% confidence intervals) derived from fully adjusted logistic regression models (all predictors included in the model simultaneously).

Supplemental Figure 7.

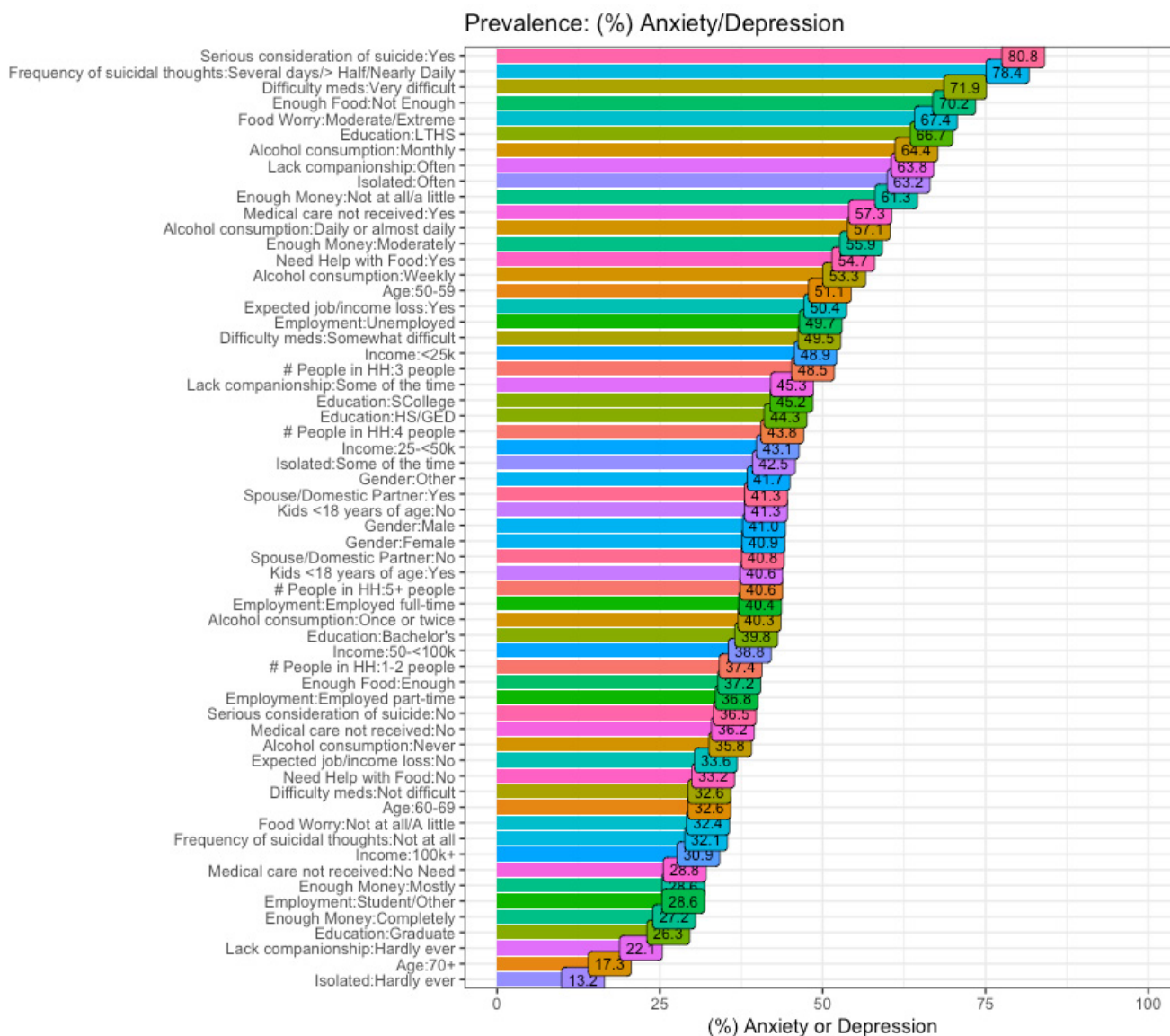
Plot of unadjusted (crude) and fully adjusted odds ratios for the correlates of fair/poor health. Results are based on data from the IWRI COVID survey.



Note: Estimates in black represent odds ratios (and 95% confidence intervals) derived from crude logistic regression models (each predictor estimated independently). Estimates in brown represent odds ratios (and 95% confidence intervals) derived from fully adjusted logistic regression models (all predictors included in the model simultaneously).

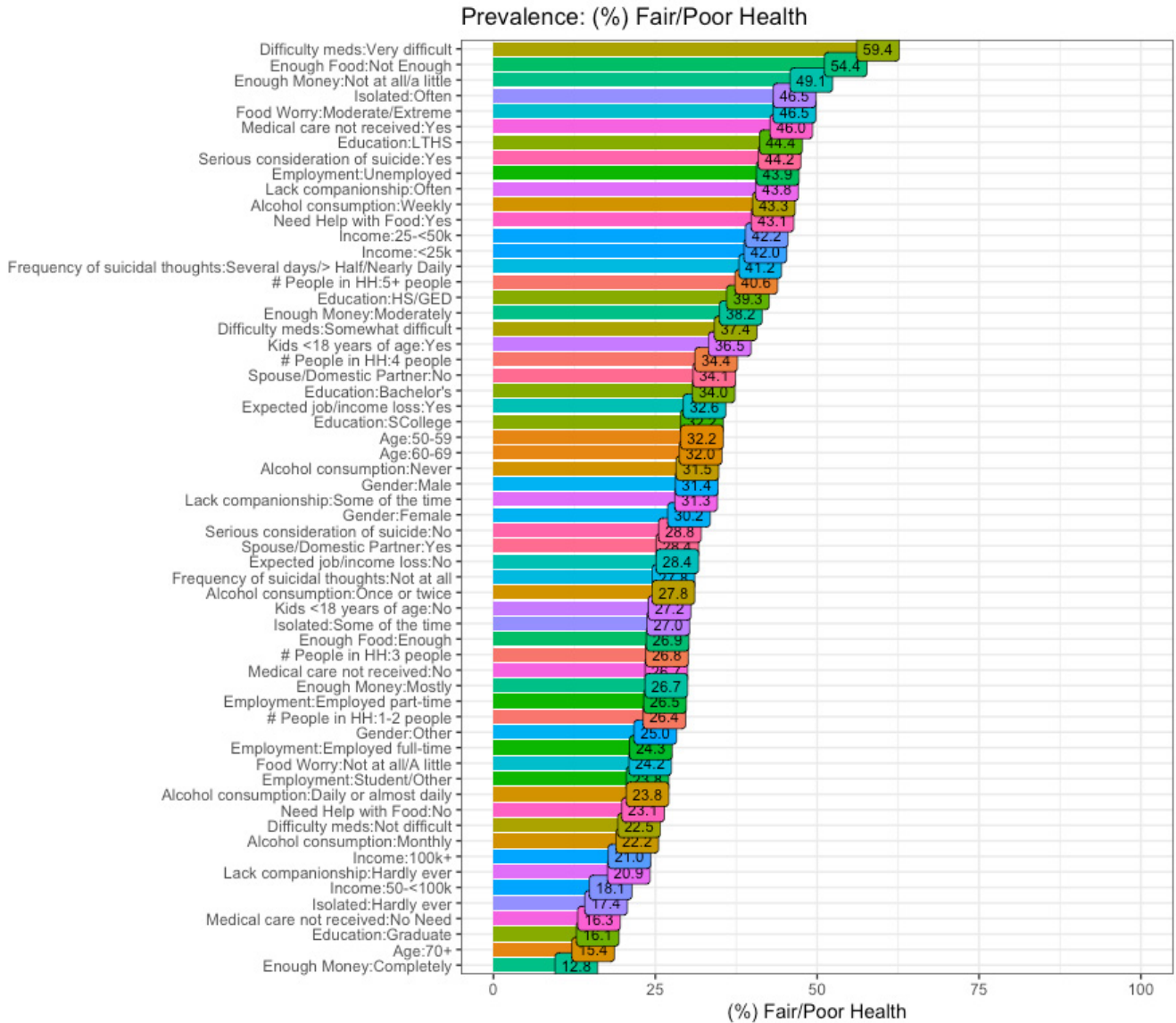
Supplemental Figure 8.

Prevalence of anxiety or depression across different characteristics pertaining to **demographic, health enabling, employment, healthcare access, basic needs, and health characteristics**. Results are based on data from the **IWRI COVID-19 indigenous population needs assessment**.



Supplemental Figure 9.

Prevalence of fair/poor health across different characteristics pertaining to **demographic, health enabling, employment, healthcare access, basic needs, and health characteristics. Results based on data from the IWRI COVID-19 indigenous population needs assessment.**



Supplemental Table 1.

Variables used from the Census Household Pulse Survey

Variable	Description	Question Wording
TBIRTH_YEAR	Year of birth	What year were you born? Please enter a number.
	1932-2002	
	All persons born before 2002	
	Top coded 1932-2002	
EGENDER	Gender	Are you... Select only one answer.
	1) Male 2) Female	
	All persons born before 2002	
RHISPANIC	Hispanic origin	Are you of Hispanic, Latino, or Spanish origin? - Selected Choice
	1) No, not of Hispanic, Latino, or Spanish origin 2) Yes, of Hispanic, Latino, or Spanish origin	
	All persons born before 2002	
RRACE	Race	What is your race? Please select all that apply. - Selected Choice
	1) White, Alone 2) Black, Alone 3) Asian, Alone 4) Any other race alone, or race in combination	
	All persons born before 2002	
EEDUC	Educational attainment	What is the highest degree or level of school you have completed? Select only one answer.
	1) Less than high school 2) Some high school 3) High school graduate or equivalent (for example GED) 4) Some college, but degree not received or is in progress 5) Associate's degree (for example AA, AS) 6) Bachelor's degree (for example BA, BS, AB) 7) Graduate degree (for example master's, professional, doctorate)	
	All persons born before 2002	
MS	Marital status	What is your marital status? Select only one answer.
	1) Now married 2) Widowed 3) Divorced 4) Separated 5) Never married -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	

Variable	Description	Question Wording
THHLD_NUMPER	Total number of people in household	How many total people – adults and children – currently live in your household, including yourself? Please enter a number.
	(1-40) number of people (whole number)	
	All persons born before 2002	
THHLD_NUMKID	Total number of people under 18-years-old in household	How many people under 18-years-old currently live in your household? Please enter a number.
	(0-40) number of people under 18 (whole number)	
	All persons born before 2002	
WRKLOSS	Recent household job loss	Have you, or has anyone in your household experienced a loss of employment income since March 13, 2020? Select only one answer.
	1) Yes 2) No -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
EXPTLOSS	Expected household job loss	Do you expect that you or anyone in your household will experience a loss of employment income in the next 4 weeks because of the coronavirus pandemic? Select only one answer.
	1) Yes 2) No -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
PRIFOODSUF	Food Sufficiency prior to March 13, 2020	Getting enough food can also be a problem for some people. Which of these statements best describes the food eaten in your household before March 13, 2020? Select only one answer.
	1) Enough of the kinds of food (I/we) wanted to eat 2) Enough, but not always the kinds of food (I/we) wanted to eat 3) Sometimes not enough to eat 4) Often not enough to eat -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	

Variable	Description	Question Wording
CURFOODSUF	Household food sufficiency for last 7 days	In the last 7 days, which of these statements best describes the food eaten in your household? Select only one answer.
	1) Enough of the kinds of food (I/we) wanted to eat 2) Enough, but not always the kinds of food (I/we) wanted to eat 3) Sometimes not enough to eat 4) Often not enough to eat -99) Question seen but category not selected -88) Missing / Did not report	
FOODCONF	All persons born before 2002	How confident are you that your household will be able to afford the kinds of food you need for the next four weeks? Select only one answer.
	Food sufficiency confidence in next four weeks 1) Not at all confident 2) Somewhat confident 3) Moderately confident 4) Very confident -99) Question seen but category not selected -88) Missing / Did not report	
HLTHSTATUS	TBD	Would you say your health in general is excellent, very good, good, fair, or poor? Select only one answer.
	General health status 1) Excellent 2) Very good 3) Good 4) Fair 5) Poor -99) Question seen but category not selected -88) Missing / Did not report	
ANXIOUS	All persons born before 2002	Over the last 7 days, how often have you been bothered by the following problems ... Feeling nervous, anxious, or on edge? Would you say not at all, several days, more than half the days, or nearly every day? Select only one answer.
	Frequency of anxiety over previous 7 days 1) Not at all 2) Several days 3) More than half the days 4) Nearly every day -99) Question seen but category not selected -88) Missing / Did not report	
WORRY	All persons born before 2002	Over the last 7 days, how often have you been bothered by the following problems ... Not being able to stop or control worrying? Would you say not at all, several days, more than half the days, or nearly every day? Select only one answer.
	Frequency of worry over previous 7 days 1) Not at all 2) Several days 3) More than half the days 4) Nearly every day -99) Question seen but category not selected -88) Missing / Did not report	

Variable	Description	Question Wording
INTEREST	Frequency of having little interest in things over previous 7 days	Over the last 7 days, how often have you been bothered by ... having little interest or pleasure in doing things? Would you say not at all, several days, more than half the days, or nearly every day? Select only one answer.
	1) Not at all 2) Several days 3) More than half the days 4) Nearly every day -99) Question seen but category not selected -88) Missing / Did not report	
DOWN	Frequency of feeling depressed over previous 7 days	Over the last 7 days, how often have you been bothered by ... feeling down, depressed, or hopeless? Would you say not at all, several days, more than half the days, or nearly every day? Select only one answer.
	1) Not at all 2) Several days 3) More than half the days 4) Nearly every day -99) Question seen but category not selected -88) Missing / Did not report	
HLTHINS1	Health Insurance Coverage- Insurance through a current or former employer or union (through yourself or another family member)	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - Insurance through a current or former employer or union (through yourself or another family member)
	1) Category marked- Insurance through a current or former employer or union (through yourself or another family member) 2) Category marked "No" -99) Question seen but category not selected -88) Missing / Did not report	
HLTHINS2	Health Insurance Coverage- Insurance purchased directly from an insurance company, including marketplace coverage (through yourself or another family member)	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - Insurance purchased directly from an insurance company, including marketplace coverage (through yourself or another family member)
	1) Category marked-Insurance purchased directly from an insurance company, including marketplace coverage (through yourself or another family member) 2) Category marked "No" -99) Question seen but category not selected -88) Missing / Did not report	
HLTHINS3	Health Insurance Coverage- Medicare, for people 65 and older, or people with certain disabilities	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - Medicare, for people 65 and older, or people with certain disabilities
	1) Category marked-Medicare, for people 65 and older, or people with certain disabilities 2) Category marked "No" -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	

Variable	Description	Question Wording
HLTHINS4	Health Insurance Coverage- Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability
	1) Category marked-Medicaid, Medical Assistance, or any kind of government-assistance plan for those with low incomes or a disability -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
HLTHINS5	Health Insurance Coverage- TRICARE or other military health care	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - TRICARE or other military health care
	1) Category marked-TRICARE or other military health care 2) Category marked "No" -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
HLTHINS6	Health Insurance Coverage- VA (including those who have ever used or enrolled for VA health care)	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - VA (including those who have ever used or enrolled for VA health care)
	1) Category marked-VA (including those who have ever used or enrolled for VA health care) 2) Category marked "No" -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
HLTHINS7	Health Insurance Coverage- Indian Health Service	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - Indian Health Service
	1) Category marked-Indian Health Service 2) Category marked "No" -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
HLTHINS8	Health Insurance Coverage- Other	Are you currently covered by any of the following types of health insurance or health coverage plans? Mark Yes or No for each. - Other
	1) Category marked- Other 2) Category marked "No" -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	

Variable	Description	Question Wording
DELAY	Delayed medical care in last 4 weeks due to pandemic	At any time in the last 4 weeks, did you DELAY getting medical care because of the coronavirus pandemic? Select only one answer.
	1) Yes 2) No -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
NOTGET	Delayed medical care for something not related to pandemic	At any time in the last 4 weeks, did you need medical care for something other than coronavirus, but DID NOT GET IT because of the coronavirus pandemic? Select only one answer.
	1) Yes 2) No -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	
INCOME	Total household income (before taxes)	In 2019 what was your total household income before taxes? Select only one answer.
	1) Less than \$25,000 2) \$25,000 - \$34,999 3) \$35,000 - \$49,999 4) \$50,000 - \$74,999 5) \$75,000 - \$99,999 6) \$100,000 - \$149,999 7) \$150,000 - \$199,999 8) \$200,000 and above -99) Question seen but category not selected -88) Missing / Did not report	
	All persons born before 2002	

Variable	Description	Question Wording
EST_ST	State '01='Alabama' '02='Alaska' '04='Arizona' '05='Arkansas' '06='California' '08='Colorado' '09='Connecticut' '10='Delaware' '11='District of Columbia' '12='Florida' '13='Georgia' '15='Hawaii' '16='Idaho' '17='Illinois' '18='Indiana' '19='Iowa' '20='Kansas' '21='Kentucky' '22='Louisiana' '23='Maine' '24='Maryland' '25='Massachusetts' '26='Michigan' '27='Minnesota' '28='Mississippi' '29='Missouri' '30='Montana' '31='Nebraska' '32='Nevada' '33='New Hampshire' '34='New Jersey' '35='New Mexico' '36='New York' '37='North Carolina' '38='North Dakota' '39='Ohio' '40='Oklahoma' '41='Oregon' '42='Pennsylvania' '44='Rhode Island' '45='South Carolina' '46='South Dakota' '47='Tennessee' '48='Texas' '49='Utah' '50='Vermont' '51='Virginia' '53='Washington' '54='West Virginia' '55='Wisconsin' '56='Wyoming'	-
PWEIGHT	Person level probability weight	-

Supplemental Table 2a.

Unweighted state level sample sizes underlying HPS analyses.

	Overall Unweighted Ns (Anxiety or Depression Analyses)			Overall Unweighted Ns (Fair/Poor Analyses)		
	Black	Asian	Hispanic	Black	Asian	Hispanic
Alabama	1,897	144	361	1,752	132	331
Alaska	278	456	703	251	392	626
Arizona	673	537	2,527	612	457	2,234
Arkansas	930	115	350	813	105	311
California	3,576	7,652	9,625	3,157	6,800	8,446
Colorado	472	355	1,614	419	317	1,414
Connecticut	760	427	985	668	376	871
Delaware	1,743	331	502	1,574	299	451
District of Columbia	3,243	232	572	2,893	204	520
Florida	2,544	758	6,642	2,327	681	5,921
Georgia	4,695	568	960	4,232	529	872
Hawaii	134	5,324	1,205	119	4,866	1,098
Idaho	60	153	711	54	140	630
Illinois	1,703	857	1,189	1,539	767	1,055
Indiana	816	182	489	734	161	427
Iowa	182	131	330	167	118	302
Kansas	393	193	588	343	163	515
Kentucky	758	119	321	691	106	288
Louisiana	2,269	157	648	2,068	149	597
Maine	78	64	250	72	62	225
Maryland	4,605	983	1,017	4,077	865	892
Massachusetts	796	873	1,185	711	778	1,058
Michigan	2,064	522	642	1,851	470	558
Minnesota	347	319	420	314	283	374
Mississippi	2,032	86	277	1,860	76	263
Missouri	936	175	436	848	159	387
Montana	50	80	345	45	70	321
Nebraska	317	140	444	283	132	400
Nevada	1,020	989	1,569	914	887	1,406
New Hampshire	116	220	343	104	186	301
New Jersey	1,459	1,193	1,493	1,310	1,066	1,307
New Mexico	300	215	4,304	266	186	3,652
New York	1,747	822	1,767	1,594	732	1,597
North Carolina	1,914	315	611	1,708	286	558
North Dakota	42	57	152	33	53	127
Ohio	1,076	227	402	978	208	369
Oklahoma	569	156	545	503	137	492
Oregon	237	517	837	218	466	730
Pennsylvania	1,664	490	786	1,521	433	689
Rhode Island	340	151	575	321	136	528

	Overall Unweighted Ns (Anxiety or Depression Analyses)			Overall Unweighted Ns (Fair/Poor Analyses)		
	Black	Asian	Hispanic	Black	Asian	Hispanic
South Carolina	1,831	163	481	1,636	141	439
South Dakota	41	45	212	39	41	206
Tennessee	1,334	153	415	1,187	135	375
Texas	4,489	2,035	6,109	3,983	1,766	5,343
Utah	85	290	972	73	246	848
Vermont	61	78	234	55	75	215
Virginia	2,435	1,044	1,066	2,148	930	924
Washington	652	1,552	1,317	572	1,359	1,143
West Virginia	271	96	267	245	87	234
Wisconsin	382	133	414	341	116	361
Wyoming	42	65	458	38	61	418
Total	60,458	32,939	60,667	54,261	29,390	53,649

Supplemental Table 2b.

Weighted state level prevalence of anxiety or depression and fair/poor health. Results are based on data from the HPS.

	Anxiety or Depression			Fair/Poor Health		
	% [95% CI]			% [95% CI]		
	Black	Asian	Hispanic	Black	Asian	Hispanic
Alabama	37.21 [33.07,41.54]	19.43 [9.447,35.79]	36.64 [27.08,47.38]	34.00 [29.61,38.69]	8.485 [4.292,16.09]	44.85 [32.81,57.53]
Alaska	33.79 [22.79,46.88]	33.41 [23.28,45.34]	47.24 [37.46,57.23]	15.52 [10.2,22.91]	24.21 [13.44,39.67]	39.2 [28.44,51.11]
Arizona	34.3 [26.3,43.31]	30.11 [23.37,37.82]	36.04 [32.47,39.77]	27.71 [19.33,38.01]	19.8 [13.45,28.17]	30.3 [26.42,34.47]
Arkansas	34.45 [29.24,40.07]	25.12 [16.3,36.63]	39.7 [31.71,48.29]	39.68 [33.5,46.21]	11.07 [5.801,20.09]	38.97 [30.22,48.49]
California	37.83 [33.85,41.97]	27.63 [25.19,30.2]	40.47 [38.01,42.98]	29.03 [24.93,33.5]	17.96 [15.86,20.29]	30.05 [27.48,32.75]
Colorado	29.05 [22.33,36.82]	21.11 [15.38,28.28]	37.25 [32.46,42.3]	29.87 [22.03,39.1]	14.27 [8.915,22.06]	25.49 [21.1,30.44]
Connecticut	27.59 [22.16,33.78]	22.51 [16.73,29.57]	43.35 [36.92,50.02]	21.47 [16.21,27.88]	8.747 [5.47,13.7]	31.58 [25.04,38.94]
Delaware	27.3 [23.86,31.03]	18.34 [12.71,25.74]	36.08 [27.31,45.89]	27.38 [23.36,31.81]	11.77 [7.642,17.71]	40.15 [29.52,51.79]
District of Columbia	31.53 [28.48,34.74]	19.44 [12.09,29.74]	28.14 [21.47,35.93]	24.68 [21.51,28.13]	9.011 [4.805,16.27]	15.9 [10.22,23.89]
Florida	35.12 [30.95,39.53]	28.1 [21.62,35.64]	39.49 [36.86,42.19]	28.26 [24.29,32.59]	21.2 [14.21,30.41]	27.5 [24.72,30.46]
Georgia	34.64 [31.76,37.64]	23.77 [17.46,31.5]	38.92 [33.07,45.11]	29.9 [26.81,33.19]	20.29 [13.54,29.27]	34.51 [28.47,41.09]
Hawaii	28.74 [18.27,42.13]	22.7 [20.47,25.09]	37.03 [32.04,42.31]	19.81 [11.35,32.28]	15.92 [13.99,18.05]	23.33 [19.09,28.19]
Idaho	39.66 [21.81,60.78]	34.84 [23.44,48.28]	39.26 [33.02,45.87]	19.88 [6.571,46.68]	28.38 [16.98,43.42]	31.25 [25.04,38.23]
Illinois	31.64 [27.75,35.82]	32.63 [26.8,39.06]	36.56 [31.17,42.31]	27.67 [23.65,32.09]	21.11 [16.61,26.44]	28.05 [23.24,33.42]
Indiana	31.82 [26.7,37.42]	27.72 [14.87,45.72]	43.81 [35.83,52.12]	28.84 [23.59,34.73]	25.92 [13.94,43.05]	24.64 [18.33,32.27]
Iowa	32.14 [22.8,43.18]	29.96 [19.74,42.64]	33.59 [25.9,42.26]	39.54 [28.11,52.24]	11.97 [5.811,23.05]	33.37 [24.11,44.12]
Kansas	30.71 [22.65,40.16]	35.16 [24.6,47.39]	34.63 [27.99,41.93]	28.85 [20.86,38.4]	13.7 [7.087,24.84]	34.06 [26.31,42.78]
Kentucky	35.35 [29.73,41.4]	49.02 [27.9,70.49]	25.57 [19.01,33.47]	32.71 [27.2,38.73]	24.96 [11.3,46.5]	30.5 [22.14,40.39]
Louisiana	41.63 [37.68,45.7]	37.4 [24.76,52.04]	42.46 [35.02,50.25]	34.89 [30.76,39.27]	10.24 [5.287,18.9]	29.68 [23.53,36.66]
Maine	31.82 [19.37,47.55]	22.55 [10.66,41.54]	50.03 [37.52,62.54]	25.74 [13.69,43.11]	9.286 [2.244,31.34]	24.56 [15.59,36.47]

	Anxiety or Depression			Fair/Poor Health		
	% [95% CI]			% [95% CI]		
	Black	Asian	Hispanic	Black	Asian	Hispanic
Maryland	28.81 [26.32,31.43]	28.52 [23.76,33.81]	32.92 [27.61,38.7]	23.63 [21.02,26.45]	19.59 [14.65,25.68]	27.02 [21.57,33.25]
Massachusetts	27.1 [22.74,31.96]	21.58 [17.06,26.92]	43.12 [37.8,48.6]	21.14 [16.6,26.53]	12.02 [8.441,16.83]	33.75 [28.13,39.86]
Michigan	34.19 [30.47,38.12]	22.28 [16.18,29.84]	37.61 [30.23,45.63]	34.22 [30.2,38.48]	19.11 [9.387,35.02]	31.66 [23.13,41.65]
Minnesota	29.18 [22.34,37.11]	33.28 [22.59,46.01]	25.99 [19.53,33.68]	23.39 [17.34,30.77]	22.66 [12.83,36.84]	20.63 [14.76,28.07]
Mississippi	43.49 [38.81,48.29]	30.35 [14.62,52.58]	43.05 [29.65,57.54]	41.24 [36.22,46.46]	21.74 [8.724,44.66]	43.3 [28.9,58.93]
Missouri	27.92 [23.47,32.84]	22.22 [14.53,32.44]	36.75 [29.28,44.93]	24.55 [20.2,29.48]	5.56 [2.834,10.62]	24.76 [18.21,32.73]
Montana	26.39 [11.93,48.69]	23.29 [11.65,41.15]	31.02 [21.76,42.11]	38.2 [18.5,62.74]	21.26 [9.439,41.16]	22.99 [14.91,33.7]
Nebraska	29.02 [22.44,36.61]	34.74 [22.51,49.37]	33.91 [27.1,41.46]	23.86 [17.75,31.27]	13.39 [6.759,24.79]	28.23 [21.44,36.17]
Nevada	38.82 [33.92,43.96]	30.78 [25.78,36.28]	43.36 [39.18,47.64]	33.85 [28.38,39.8]	17.7 [13.76,22.47]	32.31 [27.93,37.02]
New Hampshire	34.24 [22.47,48.32]	13.52 [8.462,20.92]	48.17 [38.68,57.79]	13.34 [6.438,25.62]	6.503 [3.215,12.71]	29.94 [19.73,42.63]
New Jersey	37.2 [32.73,41.89]	24.64 [20.25,29.64]	39.71 [35.1,44.5]	26.92 [22.43,31.94]	16.41 [12.21,21.71]	26.83 [22.41,31.77]
New Mexico	33.35 [23.31,45.15]	30.53 [20.13,43.39]	39.32 [36.15,42.59]	18.54 [12.61,26.42]	25.29 [14.15,41]	29.06 [25.88,32.46]
New York	33.53 [28.9,38.5]	36.26 [30.05,42.96]	47.19 [42.58,51.86]	29 [23.98,34.59]	22.18 [17.08,28.29]	34.64 [30.2,39.36]
North Carolina	34.22 [29.98,38.72]	20.05 [11.9,31.78]	28.38 [22.49,35.12]	28.75 [24.47,33.46]	25 [12.83,43.04]	22.15 [16.48,29.1]
North Dakota	10.17 [3.347,27.02]	10.52 [4.444,22.92]	30.92 [19.01,46.03]	9.952 [2.981,28.44]	2.312 [.5596,9.051]	26.48 [14.29,43.75]
Ohio	35.01 [29.82,40.59]	25.86 [17.42,36.57]	43.9 [34.52,53.74]	30.25 [24.82,36.29]	11.12 [4.691,24.13]	34.56 [25.18,45.31]
Oklahoma	35.12 [28.44,42.44]	24.08 [12.62,41.07]	33.09 [26.47,40.45]	40.16 [32.25,48.62]	23.48 [11.16,42.85]	26.14 [19.72,33.78]
Oregon	41.57 [32.41,51.36]	24.46 [17.6,32.91]	36.62 [31.04,42.59]	28.76 [20.2,39.17]	14.03 [9.341,20.55]	31.35 [25.2,38.23]
Pennsylvania	29.29 [25.51,33.38]	27.9 [20.36,36.95]	51.09 [43.88,58.25]	31.14 [26.7,35.96]	8.688 [5.641,13.15]	38.13 [30.55,46.34]
Rhode Island	26.56 [19.36,35.26]	31.81 [21.74,43.93]	36.15 [29.39,43.5]	20.12 [14.23,27.65]	16.81 [9.234,28.64]	26.57 [20.61,33.54]
South Carolina	33.05 [29.29,37.03]	37.29 [23.71,53.22]	40.08 [30.99,49.9]	27.27 [23.55,31.33]	11.87 [4.921,25.96]	39.01 [29.17,49.83]

	Anxiety or Depression			Fair/Poor Health		
	% [95% CI]			% [95% CI]		
	Black	Asian	Hispanic	Black	Asian	Hispanic
South Dakota	31.62 [13.25,58.33]	22.11 [8.685,45.87]	34.61 [24.37,46.51]	14.05 [2.351,52.62]	24.21 [8.935,50.97]	30.43 [20.06,43.25]
Tennessee	29.81 [25.78,34.18]	27.48 [15.35,44.2]	36.45 [27.86,45.99]	27.98 [23.77,32.63]	21.17 [7.877,45.75]	34.95 [25.88,45.25]
Texas	34.16 [31.38,37.04]	29.3 [24.92,34.09]	38.41 [35.67,41.21]	31.11 [27.99,34.41]	17.24 [13.56,21.65]	34.67 [31.72,37.75]
Utah	43.57 [28.47,59.96]	31.43 [21.07,44.02]	36.16 [31.06,41.6]	36.62 [21.86,54.4]	9.021 [4.226,18.22]	26.75 [21.36,32.93]
Vermont	29.6 [17.15,46.06]	22.65 [12.7,37.08]	43.46 [32.22,55.41]	23.22 [10.93,42.69]	6.393 [2.718,14.31]	25.71 [16.06,38.49]
Virginia	31.27 [27.41,35.41]	24.35 [19.87,29.47]	34.21 [28.66,40.24]	27.53 [23.45,32.01]	12.97 [9.516,17.44]	24.67 [19.41,30.8]
Washington	38.38 [31.25,46.06]	25.84 [22.12,29.94]	34 [29.47,38.84]	24.57 [19.1,31.01]	16.54 [12.84,21.03]	24.34 [19.52,29.91]
West Virginia	22.94 [15.46,32.64]	15.71 [6.488,33.35]	34.53 [25.39,44.98]	20.44 [12.85,30.94]	38.55 [10.81,76.45]	27.26 [18.22,38.66]
Wisconsin	40.91 [32.89,49.45]	19.7 [12.45,29.73]	34.63 [27.41,42.64]	39.96 [31.31,49.29]	4.909 [2.049,11.3]	36.13 [27.97,45.17]
Wyoming	46.62 [24.35,70.32]	12.89 [5.128,28.84]	35.6 [28.63,43.23]	30.39 [14.05,53.84]	28.84 [7.695,66.34]	26.07 [19.48,33.96]
Total	34.03 [33.13,34.93]	27.83 [26.54,29.16]	39.52 [38.49,40.55]	29.42 [28.48,30.39]	17.79 [16.63,19.02]	30.77 [29.7,31.87]

Supplemental Table 2c.

Weighted Department of Health and Human Services regions level prevalence of anxiety or depression and fair/poor health. Results are based on data from the HPS.

	Anxiety or Depression			Fair/Poor Health		
	% [95% CI]			% [95% CI]		
	Black	Asian	Hispanic	Black	Asian	Hispanic
Boston	27.45 [24.21,30.93]	21.75 [18.42,25.49]	43.08 [39.54,46.7]	21.15 [17.89,24.83]	10.95 [8.403,14.14]	31.76 [28.06,35.71]
New York	34.54 [30.92,38.35]	31.84 [27.56,36.44]	44.68 [41.22,48.19]	28.43 [24.54,32.68]	20 [16.38,24.19]	32.01 [28.69,35.52]
Philadelphia	29.76 [27.98,31.59]	26.26 [23.2,29.56]	39.99 [36.39,43.71]	26.75 [24.81,28.77]	14.38 [11.89,17.28]	30.5 [26.85,34.42]
Atlanta	35.02 [33.41,36.67]	26.52 [22.58,30.87]	38.36 [36.25,40.52]	30.1 [28.46,31.79]	21 [16.47,26.39]	29.02 [26.78,31.38]
Chicago	33.45 [31.26,35.71]	29.26 [25.5,33.33]	37.44 [34.04,40.97]	30.4 [28.08,32.81]	19.44 [15.91,23.54]	29.19 [25.96,32.65]
Dallas	36.13 [34.05,38.27]	29.46 [25.51,33.74]	38.48 [36.14,40.87]	32.92 [30.62,35.31]	17.23 [13.91,21.14]	33.85 [31.31,36.48]
Kansas City	28.65 [25.06,32.54]	29.14 [23.77,35.16]	34.97 [31.18,38.96]	26.02 [22.44,29.94]	10.19 [7.19,14.26]	29.95 [25.84,34.41]
Denver	29.74 [23.83,36.42]	23.38 [18.55,29.02]	36.59 [32.99,40.35]	29.38 [22.52,37.32]	13.38 [9.466,18.57]	25.78 [22.4,29.47]
San Francisco	37.55 [34.19,41.04]	27.31 [25.25,29.47]	40.05 [37.95,42.19]	29.31 [25.82,33.06]	17.8 [16,19.75]	30.12 [27.92,32.42]
Seattle	38.71 [33.03,44.71]	26.1 [22.93,29.54]	35.96 [32.82,39.22]	24.71 [20.24,29.8]	16.65 [13.61,20.2]	27.92 [24.5,31.62]
Total	34.03 [33.13,34.93]	27.83 [26.54,29.16]	39.52 [38.49,40.55]	29.42 [28.48,30.39]	17.79 [16.63,19.02]	30.77 [29.7,31.87]

HHS Regions: # Region 1 – Boston includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; # Region 2 - New York includes New Jersey, New York, Puerto Rico, and the Virgin Islands; # Region 3 – Philadelphia includes Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia; # Region 4 – Atlanta includes Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee; # Region 5 – Chicago includes Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin; # Region 6 – Dallas includes Arkansas, Louisiana, New Mexico, Oklahoma, and Texas; # Region 7 - Kansas City includes Iowa, Kansas, Missouri, and Nebraska; # Region 8 - Denver

Includes Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming; # Region 9 - San Francisco includes Arizona, California, Hawaii, Nevada, American Samoa, Commonwealth of the Northern Mariana Islands, Federated States of Micronesia, Guam, Marshall Islands, and Republic of Palau; # Region 10 – Seattle includes Alaska, Idaho, Oregon, and Washington

Supplemental Table 3.

Results from weighted logistic regression models for anxiety or depression using Household Pulse Survey Data (April, 2020-December, 2020).

	Anxiety or Depression							
	Model 1				Model 2			
	OR	LCI	UCI	p-value	OR	LCI	UCI	p-value
Race/Ethnicity (ref: Black)								
Asian	0.74	0.68	0.80	0	1.07	0.97	1.18	0.185
Hispanic	1.28	1.20	1.37	0	1.29	1.20	1.39	0
Time	1.01	1.00	1.02	0.002	1.02	1.02	1.03	0
Sex (ref: Male)								
Female					1.31	1.22	1.40	0
Age					0.99	0.99	1.00	0
Live Alone					0.94	0.85	1.04	0.238
Kids <18 Household					1.06	0.98	1.15	0.14
Wid/Div/Sep					1.19	1.10	1.30	0
Never Married					1.14	1.02	1.28	0.024
Education (ref: Less than High School)								
High School					1.04	0.90	1.20	0.592
Some College					1.00	0.87	1.14	0.994
College					1.00	0.87	1.15	0.986
More than college					0.98	0.85	1.13	0.765
Income (ref: <25k)								
25-<35k					0.96	0.84	1.09	0.493
35-<50k					0.98	0.86	1.11	0.735
50-<75k					0.96	0.85	1.09	0.506
75-<100k					0.88	0.76	1.01	0.079
100-<150k					0.91	0.79	1.04	0.165
150-<200k					0.85	0.72	1.01	0.057
200k+					0.83	0.70	0.99	0.037
not reported					0.87	0.74	1.03	0.11

Anxiety or Depression							
Model 1				Model 2			
OR	LCI	UCI	p-value	OR	LCI	UCI	p-value
Insurance (ref: Employer)							
Self				0.86	0.76	0.98	0.02
Public				0.97	0.88	1.06	0.485
Other				0.81	0.54	1.22	0.308
None of the above				1.00	0.88	1.14	0.98
Household Job Loss							
Household Job Loss				1.21	1.11	1.33	0
Expected Household Job Loss				1.39	1.27	1.53	0
Not Enough Food							
Not Enough Food Pre COVID				1.32	1.13	1.54	0
Not Enough Food Post COVID				1.67	1.45	1.93	0
Not Confident Food Sufficiency							
Not Confident Food Sufficiency				1.78	1.65	1.92	0
Fair/Poor Health							
Fair/Poor Health				2.56	2.37	2.76	0
Delayed Care							
Delayed Care				1.52	1.39	1.65	0
Did not Get Care							
Did not Get Care				1.63	1.49	1.78	0

Supplemental Table 4.

Results from weighted logistic regression models for fair/poor health using Household Pulse Survey Data (April, 2020-December, 2020).

	Anxiety or Depression							
	Model 1				Model 2			
	OR	LCI	UCI	p-value	OR	LCI	UCI	p-value
Race/Ethnicity (ref: Black)								
Asian	0.52	0.47	0.57	0	0.84	0.75	0.94	0.003
Hispanic	1.07	1.00	1.14	0.063	0.95	0.88	1.03	0.248
Time								
Time	1.01	1.00	1.02	0.001	1.02	1.01	1.03	0
Sex (ref: Male)								
Female					1.11	1.02	1.20	0.01
Age					1.01	1.01	1.02	0
Live Alone					0.94	0.84	1.05	0.3
Kids <18 Household					0.93	0.85	1.01	0.089
Wid/Div/Sep								
Wid/Div/Sep					1.04	0.94	1.14	0.455
Never Married					1.08	0.95	1.23	0.229
Education (ref: Less than High School)								
High School					0.77	0.67	0.88	0
Some College					0.65	0.57	0.74	0
College					0.52	0.45	0.60	0
More than college					0.45	0.39	0.52	0
Income (ref: <25k)								
25-<35k					0.76	0.66	0.86	0
35-<50k					0.58	0.51	0.66	0
50-<75k					0.54	0.48	0.62	0
75-<100k					0.45	0.39	0.52	0
100-<150k					0.39	0.34	0.45	0
150-<200k					0.34	0.27	0.43	0
200k+					0.22	0.18	0.28	0
not reported					0.56	0.48	0.66	0

Anxiety or Depression							
Model 1				Model 2			
OR	LCI	UCI	p-value	OR	LCI	UCI	p-value
Insurance (ref: Employer)							
Self				1.10	0.95	1.27	0.196
Public				1.54	1.40	1.70	0
Other				1.03	0.62	1.69	0.917
None of the above				1.02	0.89	1.18	0.741
Household Job Loss				0.89	0.81	0.99	0.028
Expected Household Job Loss				1.07	0.97	1.18	0.203
Not Enough Food Pre COVID				1.49	1.28	1.74	0
Not Enough Food Post COVID				1.24	1.07	1.42	0.003
Not Confident Food Sufficiency				1.52	1.40	1.65	0
Fair/Poor Health				2.56	2.37	2.77	0
Delayed Care				1.21	1.10	1.34	0
Did not Get Care				1.75	1.58	1.93	0

Supplemental Table 5.

Results from weighted logistic regression models for anxiety or depression using Household Pulse Survey Data (April, 2020-February, 2021).

	Anxiety or Depression							
	Model 1				Model 2			
	OR	LCI	UCI	p-value	OR	LCI	UCI	p-value
Race/Ethnicity (ref: Black)								
Asian	0.75	0.69	0.81	0	1.02	0.93	1.11	0.744
Hispanic	1.27	1.20	1.35	0	1.20	1.12	1.28	0
Time	1.01	1.01	1.02	0	1.02	1.02	1.03	0
Sex (ref: Male)								
Female					1.33	1.25	1.41	0
Age					0.99	0.99	0.99	0
Live Alone					0.94	0.86	1.03	0.168
Kids <18 Household					1.07	0.99	1.15	0.08
Wid/Div/Sep					1.21	1.12	1.30	0
Never Married					1.13	1.02	1.26	0.016
Education (ref: Less than High School)								
High School					0.96	0.84	1.08	0.484
Some College					0.88	0.78	0.99	0.036
College					0.83	0.73	0.95	0.005
More than college					0.78	0.68	0.89	0
Income (ref: <25k)								
25-<35k					0.88	0.78	0.99	0.028
35-<50k					0.82	0.73	0.91	0
50-<75k					0.77	0.69	0.86	0
75-<100k					0.65	0.57	0.74	0
100-<150k					0.65	0.58	0.74	0
150-<200k					0.58	0.50	0.68	0
200k+					0.52	0.44	0.60	0
not reported					0.73	0.63	0.84	0

Anxiety or Depression							
Model 1				Model 2			
OR	LCI	UCI	p-value	OR	LCI	UCI	p-value
Insurance (ref: Employer)							
Self				0.87	0.77	0.98	0.019
Public				1.06	0.97	1.16	0.174
Other				0.89	0.64	1.25	0.509
None of the above				1.04	0.93	1.17	0.489
Household Job Loss				1.23	1.14	1.34	0
Expected Household Job Loss				1.53	1.41	1.65	0
Not Enough Food Pre COVID				2.65	2.40	2.94	0
Not Enough Food Post COVID				1.64	1.52	1.77	0
Not Confident Food Sufficiency				1.82	1.68	1.97	0
Fair/Poor Health				2.56	2.37	2.77	0
Delayed Care				1.21	1.10	1.34	0
Did not Get Care				1.75	1.58	1.93	0

Supplemental Table 6.

Oaxaca decomposition of differences: HPS (Extended time April, 2020-February, 2021)

Decomposition	Anxiety or Depression		
	Prob	(%)	p-value
Black vs. Asians			
Crude Difference in Prevalence	-0.0612	-6.1	
Explained Difference in Prevalence	-0.0598	-6.0	
Unexplained Difference in Prevalence	-0.0014	-0.1	
	% Explained Difference		
Demographics	-0.0094	15.8	0.0000
Enabling Factors	-0.0310	51.9	0.0000
Employment	0.0009	-1.5	0.3567
Access Factors	-0.0068	11.4	0.0001
Need Factors	-0.0134	22.4	0.0000
Black vs. Hispanics			
Crude Difference in Prevalence	0.0542	5.4	
Explained Difference in Prevalence	0.0179	1.8	
Unexplained Difference in Prevalence	0.0363	3.6	
	% Explained Difference		
Demographics	-0.0072		0.0000
Enabling Factors	0.0033		0.1163
Employment	0.0111		0.0000
Access Factors	0.0061		0.0002
Need Factors	0.0045		0.0002
Hispanic vs. Asian			
Crude Difference in Prevalence	-0.1154	-11.5	
Explained Difference in Prevalence	-0.0808	-8.1	
Unexplained Difference in Prevalence	-0.0346	-3.5	
	% Explained Difference		
Demographics	-0.0060	7.4	0.0001
Enabling Factors	-0.0337	41.7	0.0000
Employment	-0.0096	11.9	0.0000
Access Factors	-0.0123	15.2	0.0000
Need Factors	-0.0192	23.8	0.0000

Supplemental Table 7.

Race/ethnic specific estimates of emotional health measures identified in the Alaska DHSS survey.

Overall emotional health pre COVID-19

		%	LCI	UCI
Poor	AN/AI	1.09	-0.14	2.31
	Asian	0.00	0.00	0.00
	Black	0.00	-0.01	0.01
	HPI	10.00	-3.15	23.15
	Other	3.03	0.11	5.95
Fair	AN/AI	8.33	5.07	11.59
	Asian	6.85	1.05	12.64
	Black	4.00	-3.68	11.68
	HPI	10.00	-3.15	23.15
	Other	3.03	0.11	5.95
Good	AN/AI	29.71	24.32	35.10
	Asian	17.81	9.03	26.58
	Black	32.00	13.71	50.29
	HPI	40.00	18.53	61.47
	Other	20.45	13.57	27.34
Very Good	AN/AI	38.04	32.32	43.77
	Asian	43.84	32.45	55.22
	Black	40.00	20.80	59.20
	HPI	15.00	-0.65	30.64
	Other	31.06	23.17	38.95
Excellent	AN/AI	22.83	17.87	27.78
	Asian	31.51	20.85	42.16
	Black	24.00	7.26	40.74
	HPI	25.00	6.02	43.98
	Other	42.42	33.99	50.86

**Since the COVID-19 pandemic began,
would you say your overall emotional health**

		%	LCI	UCI
Improved	AN/AI	1.75	0.23	3.28
	Asian	2.74	-1.00	6.48
	Black	7.70	-2.55	17.95
	HPI	0.00	-0.02	0.02
	Other	2.22	-0.26	4.71
Stayed the same	AN/AI	42.46	36.72	48.19
	Asian	54.79	43.38	66.21
	Black	42.31	23.32	61.30
	HPI	50.00	28.09	71.91
	Other	37.78	29.60	45.96
Gotten worse	AN/AI	55.79	50.02	61.56
	Asian	42.47	31.13	53.80
	Black	50.00	30.78	69.21
	HPI	50.00	28.09	71.91
	Other	60.00	51.74	68.26

Worried about being infected with the virus

		%	LCI	UCI
Very true	AN/AI	44.91	39.14	50.69
	Black	42.31	23.32	61.30
	HPI	55.00	33.20	76.80
	Other	28.89	21.24	36.53
Somewhat true	AN/AI	36.49	30.90	42.08
	Asian	39.73	28.50	50.95
	Black	46.15	26.99	65.32
	HPI	45.00	23.20	66.80
	Other	29.63	21.93	37.33
Not at all true	AN/AI	18.60	14.08	23.11
	Asian	6.85	1.05	12.64
	Black	11.54	-0.74	23.82
	HPI	0.00	-0.02	0.02
	Other	41.48	33.17	49.79

Changes in my family routine have been stressful

		%	LCI	UCI
Very true	AN/AI	38.38	32.72	44.04
	Asian	32.88	22.10	43.65
	Black	26.92	9.87	43.97
	HPI	40.00	18.53	61.47
	Other	32.84	24.88	40.79
Somewhat true	AN/AI	47.18	41.38	52.99
	Asian	50.68	39.22	62.15
	Black	65.38	47.10	83.67
	HPI	50.00	28.09	71.91
	Other	47.01	38.56	55.47
Not at all true	AN/AI	14.44	10.35	18.52
	Asian	16.44	7.94	24.94
	Black	7.69	-2.55	17.93
	HPI	10.00	-3.15	23.15
	Other	20.15	13.36	26.94

Concerned about the stability of my living situation

		%	LCI	UCI
Very true	AN/AI	18.95	14.40	23.50
	Asian	15.07	6.86	23.27
	Black	19.23	4.08	34.38
	HPI	15.00	-0.65	30.65
	Other	15.56	9.44	21.67
Somewhat true	AN/AI	28.77	23.52	34.03
	Asian	21.92	12.43	31.41
	Black	26.92	9.87	43.97
	HPI	55.00	33.20	76.80
	Other	24.44	17.20	31.69
Not at all true	AN/AI	52.28	46.48	58.08
	Asian	63.01	51.94	74.09
	Black	53.85	34.68	73.01
	HPI	30.00	9.92	50.08
	Other	60.00	51.74	68.26

Concerned about someone else’s mental health

		%	LCI	UCI
Very true	AN/AI	48.24	42.43	54.05
	Asian	38.35	27.20	49.51
	Black	61.54	42.84	80.24
	HPI	44.98	23.18	66.79
	Other	54.81	46.42	63.21
Somewhat true	AN/AI	36.27	30.68	41.86
	Asian	36.98	25.91	48.06
	Black	26.92	9.87	43.97
	HPI	55.02	33.21	76.82
	Other	25.18	17.86	32.51
Not at all true	AN/AI	15.49	11.28	19.70
	Asian	24.66	14.77	34.55
	Black	11.54	-0.74	23.82
	HPI	0.00	-0.02	0.02
	Other	20.00	13.25	26.75

More irritable or easily angered than usual

		%	LCI	UCI
Very true	AN/AI	25.35	20.29	30.41
	Asian	10.96	3.79	18.12
	Black	15.38	1.52	29.25
	HPI	15.00	-0.65	30.65
	Other	20.00	13.25	26.75
Somewhat true	AN/AI	39.79	34.10	45.48
	Asian	39.73	28.50	50.95
	Black	38.46	19.76	57.16
	HPI	45.00	23.20	66.80
	Other	37.78	29.60	45.96
Not at all true	AN/AI	34.86	29.32	40.40
	Asian	49.32	37.85	60.78
	Black	46.15	26.99	65.32
	HPI	40.00	18.53	61.47
	Other	42.22	33.89	50.55

More sad or depressed than usual

		%	LCI	UCI
Very true	AN/AI	23.16	18.26	28.06
	Asian	20.83	11.45	30.21
	Black	11.54	-0.74	23.82
	HPI	15.00	-0.65	30.65
	Other	21.48	14.55	28.41
Somewhat true	AN/AI	41.05	35.34	46.76
	Asian	34.72	23.73	45.72
	Black	50.00	30.78	69.22
	HPI	50.00	28.09	71.91
	Other	36.30	28.18	44.41
Not at all true	AN/AI	35.79	30.22	41.36
	Asian	44.44	32.97	55.92
	Black	38.46	19.76	57.16
	HPI	35.00	14.10	55.90
	Other	42.22	33.89	50.55

More anxious than usual

		%	LCI	UCI
Very true	AN/AI	33.33	27.83	38.84
	Asian	23.29	13.59	32.98
	Black	26.92	9.87	43.97
	HPI	35.00	14.10	55.90
	Other	28.15	20.56	35.73
Somewhat true	AN/AI	41.13	35.39	46.88
	Asian	43.84	32.45	55.22
	Black	38.46	19.76	57.16
	HPI	30.00	9.92	50.08
	Other	35.56	27.48	43.63
Not at all true	AN/AI	25.53	20.44	30.62
	Asian	32.88	22.10	43.65
	Black	34.62	16.33	52.90
	HPI	35.00	14.10	55.90
	Other	36.30	28.18	44.41

Concerned about increased violence in my home

		%	LCI	UCI
Very true	AN/AI	2.11	0.44	3.79
	Asian	1.37	-1.30	4.04
	Black	3.85	-3.55	11.24
	HPI	0.00	-0.02	0.02
	Other	2.96	0.10	5.82
Somewhat true	AN/AI	3.52	1.38	5.66
	Asian	9.59	2.84	16.35
	Black	3.85	-3.55	11.24
	HPI	5.00	-4.55	14.55
	Other	2.22	-0.26	4.71
Not at all true	AN/AI	94.37	91.68	97.05
	Asian	89.04	81.87	96.21
	Black	92.31	82.07	102.55
	HPI	95.00	85.45	104.55
	Other	94.82	91.08	98.56

Note: AN/AI: Alaska Native/American Indian people, HPI: Hawaiian Native/Pacific Islander; LCI=Lower bound of the 95% confidence interval; UCI=Upper bound of the 95% confidence interval.



Native American/American Indian, Alaska Native, Native Hawaiian and Indigenous Peoples’ COVID-19 Needs Assessment Survey

Supplemental Table 8. Survey questions from the COVID-19 Needs Assessment Survey used in the report.

Q.What is your tribal, ethnic, or racial background? (select all that apply).

- 1. Native American/American Indian
 - a. (please specify all tribe/s: _____)

- 2. Alaska Native
 - a. (please specify all tribe/s: _____)

- 3. First Nations, Inuit or Métis
 - a. (please specify all tribe/s: _____)

- 4. Native Hawaiian/Kanaka Maoli
 - 4a. IF ANSWER YES, ASK:
Are you a beneficiary of the Hawaiian Homes Commission Act of 1920, as amended?
 - 1. Yes
 - 2. No
 - 3. Unsure

- 5. Pacific Islander
 - a. (Please specify Pacific Island Peoples, e.g., Chamurro, Samoan, etc.: _____)

- 6. Indigenous People/Tribe from Mexico, Central or South America
 - a. (Please specify Indigenous Peoples, e.g., Mayan, Mixtec, Kuna etc.: _____)

- 7. Asian/Asian American
- 8. Black/African American (non-Hispanic)
- 9. Hispanic/Latino/a/x
- 10. White/Euro American, non-Hispanic/Latino
- 11. Middle Eastern/North African
- 12. Another Native, ethnic or racial group not identified here. (please specify: _____) (12a)

Q. Did you or anyone in your house lose their job or lose a significant amount of their income as a result of the COVID-19 pandemic (since March, 2020)?

- 1. Yes
- 2. No

Q. Which statement best describes your current employment status in the last 7 days? (select only one answer).

- 1. Employed full-time (40 hours per week).
- 2. Self-employed but no formal employment (part or full-time).
- 3. Full-time student and employed (part or full-time).
- 4. Part-time student and employed (part or full-time).
- 5. Unemployed or not working for pay or profit for the last 7 days.

Q. Getting enough food can also be a problem for some people. Which of these statements best describes the food eaten in your household before March 2020?

- 1. Enough of the kinds of food I (we) wanted to eat.
- 2. Enough, but not always the kinds of food I (we) wanted to eat.
- 3. Sometimes not enough to eat.
- 4. Often not enough to eat.

Q. Over the last 2 weeks, how worried have you been about not being able to afford or access food?

1	2	3	4	5	6	7	8	9	10
Not at all					Extremely				
Worried					Worried				

Q. In the last 7 days, which of these statements best describes the food eaten in your household?

- 1. Enough of the kinds of food I (we) wanted to eat.
- 2. Enough, but not always the kinds of food I (we) wanted to eat.
- 3. Sometimes not enough to eat.
- 4. Often not enough to eat.

Q. What is your current age?

- Age _____ (DROP DOWN MENU OPTIONS 18 pounds to 99 years old)

Q. Would you say your health in general is excellent, very good, good, fair or poor? (select only one answer).

- 1. Excellent
- 2. Very good
- 3. Good
- 4. Fair
- 5. Poor

Q. Over the last 2 weeks, how often have you been bothered by the following problems... Feeling nervous, anxious, or on edge? (select only one answer).

- 0. Not at all

- 1. Several days
- 2. More than half the days
- 3. Nearly every day

**Q. Over the last 2 weeks, how often have you been bothered by the following problems...
Not being able to stop or control worrying? (select only one answer).**

- 0. Not at all
- 1. Several days
- 2. More than half the days
- 3. Nearly every day

**Q. Over the last 2 weeks, how often have you been bothered by the following problems...
Little interest or pleasure in doing things? (select only one answer).**

- 0. Not at all
- 1. Several days
- 2. More than half the days
- 3. Nearly every day

**Q. Over the last 2 weeks, how often have you been bothered by the following problems...
Feeling down, depressed, or hopeless? (select only one answer).**

- 0. Not at all
- 1. Several days
- 2. More than half the days
- 3. Nearly every day

Q. In the last two weeks, how often did you feel that you lack companionship?

- 0. Hardly ever
- 1. Some of the time
- 2. Often

Q. In the last two weeks, how often do you feel isolated from others?

- 0. Hardly ever
- 1. Some of the time
- 2. Often

**Q. In the past month (30 days), how often do you have thoughts that you would be better off
dead or hurting yourself in some way?**

- 0. Not at all
- 1. Several days
- 2. More than half the days
- 3. Nearly every day

Q. In the past month (30 days), at any time, have you seriously considered suicide, that is seriously considered thoughts or plans to harm yourself in some way?

- 1. Yes
- 2. No

Q. At any time in the last 4 weeks, did you NEED medical care for something other than COVID-19, but DID NOT GET IT because of the COVID-19 pandemic? (select only one answer)

- 1. Yes
- 2. No
- 3. I did not have any medical needs in the last 4 weeks

Q. How difficult was it to get routine/essential medications for you and/or your family during the COVID-19 pandemic?

- 1. Not difficult
- 2. Somewhat difficult
- 3. Very difficult

Q. Including yourself, how many total people have been living with you in your household during most of the COVID-19 outbreak (that is, since March 2020)?

- A. Total number of children (17 years old and younger)____ [DROP DOWN MENU 0-10]
- B. Total number of adults (18 years old to 59 years olds)____ [DROP DOWN MENU 0-10]
- C. Total number of elders/seniors (60 years old or older)____ [DROP DOWN MENU 0-10]

Q. What is the highest degree or level of school you have completed? (select only one answer).

- 1. Less than 9th grade
- 2. Some high school
- 3. High school graduate or equivalent (GED)
- 4. Vocational, trade, or technical degree
- 5. Some college, but degree not received or is in progress
- 6. Associate’s Degree (AA, AS)
- 7. Bachelor’s Degree (BA, BS, AB)
- 8. Some graduate school, but did not finish

Q. What term(s) best expresses how you describe your gender identity? (select one answer)

- 1. Man
- 2. Woman
- 3. Non-Binary or Genderqueer
- 4. Transgender man
- 5. Transgender woman

- 6. Two-spirit
- 7. Other (please specify): _____

Q. Do you have a spouse, domestic partner, or romantic partner that currently lives with you?

- 1. Yes
- 2. No

Q. All together, what is your current household yearly income from all sources before taxes (including welfare, wages, food stamps, child support, investments, and under the table/off the book activities?)

- 1. Less than \$5,000 per year
- 2. \$5,001-12,000 per year
- 3. \$12,001 – 24,999
- 4. \$25,000-34,999
- 5. \$35,000-49,999
- 6. \$50,000-74,999
- 7. \$75,000-99,999
- 8. \$100,000-149,999
- 9. \$150,000-199,999
- 10. \$200,000 and above

Q. Do you currently have enough money to meet your needs? (e.g., food, medical care, heating, rent)

- 1. Not at all (Cannot make ends meet)
- 2. A little (Having to cut back on basics, like heating, food, medical care)
- 3. Moderately (Enough to barely get by)
- 4. Mostly (Enough to get by but with little left)
- 5. Completely (Comfortable with extra money left)

Q. Since March 2020, how often have you used the following?

Alcohol

- A. FOR MEN, 5 or more drinks a day
 - 1. Never
 - 2. Once or twice
 - 3. Monthly
 - 4. Weekly
 - 5. Daily or almost daily
- B. FOR WOMEN, 4 or more drinks a day
 - 1. Never
 - 2. Once or twice
 - 3. Monthly
 - 4. Weekly
 - 5. Daily or almost daily

Supplemental Table 9.

IWRI COVID survey data. Sample characteristics of participants 50-years and older.

Characteristic	Group	Total
		n=497
		%(SE)
Age	50-59	54.33 (2.24)
	60-69	35.21 (2.14)
	70+	10.46 (1.37)
Gender	Male	31.45 (2.09)
	Female	66.13 (2.13)
	Other	2.42 (0.69)
Spouse/Domestic Partner	No	36.09 (2.16)
	Yes	63.91 (2.16)
Income	<25k	26.84 (2.01)
	25-<50k	23.77 (1.93)
	50-<100k	32.79 (2.13)
	100k+	16.60 (1.69)
Education	Less than High School (HS)	7.27 (1.17)
	HS/GED	12.32 (1.48)
	Some College	35.76 (2.16)
	Bachelor's	20.81 (1.83)
	Graduate	23.84 (1.92)
# People in HH	1-2 people	47.28 (2.24)
	3 people	19.52 (1.78)
	4 people	12.88 (1.50)
	5+ people	20.32 (1.81)
Kids <18 years of age	No	65.79 (2.13)
	Yes	34.21 (2.13)
Employment	Employed full-time	45.13 (2.27)
	Employed part-time	14.08 (1.58)
	Unemployed	32.09 (2.13)
	Student/Other	8.70 (1.28)
Expected job/income loss HH	No	54.75 (2.24)
	Yes	45.25 (2.24)
Enough Money	Not at all/a little	21.46 (1.85)
	Moderately	20.65 (1.82)
	Mostly	32.59 (2.11)
	Completely	25.30 (1.96)
Need Help with Food	No	63.58 (2.16)
	Yes	36.42 (2.16)
Food Worry	Not at all/A little	71.71 (2.11)
	Moderate/Extreme	28.29 (2.11)

Characteristic	Group	Total
		n=497
		%(SE)
Enough Food	Enough	88.48 (1.44)
	Not Enough	11.52 (1.44)
Lack companionship	Hardly ever	35.03 (2.16)
	Some of the time	43.58 (2.24)
	Often	21.38 (1.85)
Isolated	Hardly ever	24.64 (1.95)
	Some of the time	46.03 (2.25)
	Often	29.33 (2.06)
Frequency of suicidal thoughts	Not at all	80.44 (1.78)
	Several days/> Half/Near Daily	19.56 (1.78)
Serious consideration of suicide	No	89.52 (1.38)
	Yes	10.48 (1.38)
Medicare care not received	No	48.89 (2.24)
	Yes	30.18 (2.06)
	No Need	20.93 (1.83)
Difficulty meds	Not difficult	54.60 (2.25)
	Somewhat difficult	38.85 (2.21)
	Very difficult	6.54 (1.12)
Alcohol consumption	Never	66.06 (2.13)
	Once or twice	14.55 (1.59)
	Monthly	9.09 (1.29)
	Weekly	6.06 (1.07)
	Daily or almost daily	4.24 (0.91)

Supplemental Table 10.

IWRI COVID survey data. Health characteristics of participants 50-years and older.

Health Indicator	Answer Options	Total
		n=497
		%(SE)
General health	Excellent/Very Good/Good	69.62 (2.07)
	Fair/Poor	30.38 (2.07)
Anxiety	No	65.79 (2.13)
	Yes	34.21 (2.13)
Depression	No	74.25 (1.96)
	Yes	25.75 (1.96)
Anxiety/Depression	No	58.95 (2.21)
	Yes	41.05 (2.21)

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Few events have shaped American history and our national perspective on racial inequity as profoundly as the grief, community distress and economic devastation brought about by the COVID-19 pandemic.

The pandemic unmasked the stark racial inequities in our economic, health care, education and other systems and institutions — a reality of inequities to which we can not and must not return.

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