PUBLIC HEALTH REPORTS

Public Health Reports
2021, Vol. 136(2) 239-244

DOI: 10.1177/0033354920974666
journals.sagepub.com/home/phr
SAGE

Food Worry in the Deaf and Hard-of-Hearing Population During the COVID-19 Pandemic

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Abstract

Objective: The coronavirus disease 2019 (COVID) pandemic has highlighted preexisting health disparities, including food insecurity, in the deaf and hard-of-hearing (DHH) population. We examined factors associated with food worry during the COVID-19 pandemic.

Methods: We collected survey data on worry about food shortages, worry about contracting COVID-19, and concerns about DHH people staying home and being lonely from April 17 through May 1, 2020, via a bilingual American Sign Language/English online survey platform. The sample consisted of 537 DHH adults living in the United States. We examined the relationship between demographic characteristics and food worry. We used logistic regression and model fitting to predict the likelihood of experiencing food worry.

Results: The mean (SD) age of survey respondents was 47 (16), and 25% of the sample identified as people of color. Forty-two percent of survey respondents had a high level of food worry. Increased worry about contracting COVID-19 and concerns about DHH people staying home and being lonely among DHH younger adults or those without a college degree predicted food worry. Gender and race/ethnicity did not contribute to the model for food worry.

Conclusions: Food worry was explained by multiple, intersecting factors, including demographic variables, worry about contracting COVID-19, and concerns about loneliness. Interventions or programs implemented by DHH-serving organizations as well as government programs, social service providers, and food banks should be fully accessible to subgroups of DHH young adults without a college degree who are at risk for food insecurity.

Keywords

deaf, sign language, worry, food security, COVID-19

Coronavirus disease 2019 (COVID-19) has led to increased unemployment and amplified food insecurity nationwide, with repercussions for the deaf and hard-of-hearing (DHH) community.[1,2] Neighborhoods that have a disproportionate number of populations that live paycheck to paycheck and few grocery stores often have increased worries about whether food will be available. In late 2018, a study found that 11.1% of US households reported feeling insecure and worried about food availability.[3] After COVID-19, that percentage increased to 21.9% of households from March 23 through April 10, 2020. As of late April 2020, that percentage had increased to 22.7%.[3] Information about where to get quality food or employment assistance to cope with the economic repercussions of the pandemic may not be accessible to the DHH population, thereby increasing the risk for food insecurity among DHH people who primarily communicate using American Sign Language (ASL). Given that this population has historically faced lower rates of employment than the hearing population, rates of employment among DHH people has likely declined even further as a result of the

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COVID-19 pandemic.[4] The COVID-19 pandemic highlights preexisting health disparities, including food insecurity, in the DHH population.[5]

According to a 2020 American Psychological Association study of 1004 adults in the United States who completed an online poll during the COVID-19 pandemic in March 2020, nearly half were worried about running out of food, medicine, and/or supplies.[6] Before the COVID-19 pandemic, food insecurity was reported among people from socially and medically underserved groups. In a US study of 630 participants, controlling for correlates of food security, DHH people who identified as lesbian/gay/bisexual/queer/asexual (LGBQA) were food insecure more often than their heterosexual counterparts.[5] However, this study did not show a direct association between race/ethnicity and food insecurity.

The DHH population, a linguistic minority group (ie, a group that uses a language that is not the majority language) that uses ASL, experiences additional hardships compared with the hearing majority, such as language barriers and lack of accessibility, which may result in worry due to the COVID-19 pandemic.[7] DHH people who are worried about contracting COVID-19 may have concerns that the general population may not face, such as concerns about communication access and interfacing with an inaccessible social, medical, educational, job, and health care system. For example, worry about COVID-19 has led to behavioral changes, such as social distancing, among the non-DHH population. These behavioral changes, designed to control the spread of COVID-19, result from exposure to accurate and plentiful sources of available information from public health officials. Historically, however, DHH people have not had equal access to the same sources of information. DHH people may experience anxiety precisely because of having some awareness that they may be missing out on critically important information or when faced with inaccessible information. As such, worry about contracting COVID-19 may be heightened for this linguistic minority group.

DHH people with identities that are associated with other medically and socially underserved groups, such as people who are in gender or sexual minority groups and people who do not have access to resources such as food and unemployment assistance, may be at a greater disadvantage than DHH people without multiple intersecting identities in terms of managing the economic repercussions of the COVID-19 pandemic. Worry about contracting COVID-19 may increase when the DHH person is employed as a frontline worker (employed in essential industries such as health care, sales, construction, and agriculture and must physically be present), which is common among people of a low education or income bracket.[4] We used a statistical approach to examine the relationship between food worry and sociodemographic characteristics, worry about contracting COVID-19, and concerns about DHH people being lonely because of staying home to comply with social-distancing measures during the COVID-19 pandemic.

Methods

Data Source

We administered the survey to DHH people who were solicited via anonymous social media and a recruitment database (ie, past survey participants who consented to be contacted for future studies) maintained by the Center for Deaf Health Equity at Gallaudet University. We administered a survey on food shortages, worry about contracting COVID-19, and concerns about staying home and being lonely to DHH adults in the United States from April 17 through May 1, 2020, via an online survey platform in ASL and English.

Survey Items

Before survey administration, we translated all items into ASL with coaching from a deaf researcher with expertise in translating survey items from English to ASL and captured the final translations on video. For the purposes of this study, we assessed food shortage with the question from the US Department of Agriculture Food Security Module, "In the past 12 months, did you worry about food running out before getting money to buy more?" with response options of yes and no. We assessed worry about contracting COVID-19 with the question, "How worried are you about getting the coronavirus?" with response options of "not at all worried," "a little worried," "worried," and "very worried." We assessed worry about DHH people staying home to comply with social-distancing measures during the pandemic with the question, "Staying home will make deaf people feel more lonely," with response options of "not true at all," "a bit true," "true," and "very true."

Data Collection Procedure

The Gallaudet University Institutional Review Board approved this study. Research staff members recruited ASL speakers from the DHH community throughout the United States, both on social media and through email invitations to past survey participants, from a recruitment group that is maintained by the Center for Deaf Health Equity. The only inclusion criterion was being an ASL user (ie, self-reporting the use of ASL as their primary language). Exclusion criteria were being aged <18 and having age-related hearing loss. After potential participants viewed the study information in ASL and English online, they were directed to a page where they could either consent or decline to participate.

After providing consent, participants completed the online survey in ASL or English. The survey consisted of 25 items and took approximately 10 minutes to complete. We did not collect names or other identifying information with the survey, and we used a unique identifier to avoid storing personal information in the data set.

Statistical Analyses

The analytic sample consisted of 537 respondents. We used descriptive statistics, including weighted percentages, to describe the sample. We recoded responses to questions about worry about contracting COVID-19 into low (not at all worried and a little worried) and high (worried and very worried) and concerns about loneliness into low (not at all true and a little true) and high (true and very true). We collected data on the following demographic characteristics: age as a continuous variable, sex/gender (male, female, nonbinary), race/ethnicity (White, non-White), and education (≤high school, some college, college degree). We used hierarchical logistic regression to predict the likelihood of experiencing worry about food shortages. In the first model, we entered the demographic characteristics as explanatory variables; in the second model, we entered worry about contracting COVID-19 and concerns about loneliness as explanatory variables. We used SPSS version 25.0 (IBM Corp) for all analyses. For all analyses, we set the alpha level of significance at $P < .05$. Data were weighted by gender and education according to US population estimates of DHH adults who participated in the American Community Survey.[8]

Results

Of the weighted sample, 53% were female and 3% self-identified as nonbinary sex (Table). Twenty-five percent of the sample had ≥college degree. The mean (SD) age of participants was 47 (16), and 25% of respondents identified as non-White. Forty-two percent of respondents reported worry about food shortages, and 56% reported a high level of worry about contracting COVID-19. When asked about being lonely as a result of being required to stay home, 54% of respondents agreed this was true or very true.

The first overall model for the baseline demographic predictors was significant ($\chi_5^2 = 25.6$; $P < .001$), with people who were younger (vs middle aged or older) or had no college degree (vs some college or a college degree) having

Table. Results of a survey about food shortages and other COVID-19–related worries among a sample of deaf and hard-of-hearing adults (N = 537) in the United States, April 17–May 1, 2020[a]

Measure	Weighted %
Demographic characteristics	
Age, y, mean (SD)	47 (16)
Sex/gender	
Male	44
Female	53
Nonbinary	3
Race/ethnicity	
White	75
Non-White	25
Education	
High school education or lower	37
Some college	38
College degree	25
Responses to survey items	
In the past 12 months, did you worry about food running out before getting money to buy more?	
Yes	42
No	58
How worried are you about getting the coronavirus?[b]	
Low level of worry	44
High level of worry	56
Staying home will make deaf people feel more lonely[c]	
Low level of concern	46
High level of concern	54

Abbreviations: COVID-19, coronavirus disease 2019; SD, standard deviation.
[a]All values are weighted percentage unless otherwise indicated. Data were weighted by gender and education according to US population estimates of dead and hard-of-hearing adults who participated in the American Community Survey.[8]
[b]Response options of "not at all worried" and "a little worried" were recoded as low; "worried" and "very worried" were recoded as high.
[c]Response options of "not at all true" and "a little true" were recoded as low; "true" and "very true" were recoded as high.

higher levels of food worry. Sex/gender and race/ethnicity did not contribute to food worry in the first model.

When we added worry about contracting COVID-19 and concerns about loneliness in a second model, the log likelihood increased significantly ($\chi_1^2 = 21.0$; $P < .001$), indicating that these 2 factors added to the explanation of food worry. Taken together, the inclusion of COVID-19 worry and concerns about DHH people staying home and being lonely provided additional explanation of food worry, beyond the aspects of food worry explained by age and education.

Discussion

Based on our survey results, the main effects of age and education on food worry during the COVID-19 pandemic are notable. Yet, more remarkable is the effect of age and education coupled with both worry about contracting COVID-19 and concerns about DHH people staying home and being lonely. The level of food worry among young DHH adults or DHH adults with low education levels who were also concerned about COVID-19 and loneliness highlights the need to provide accessible information about economic support measures, such as unemployment and food assistance, during public health emergencies. That food worry was associated with worry about contracting COVID-19 above and beyond age and education is perhaps not surprising given that those who are worried about both food and COVID-19 are often worried about corresponding socioeconomic and health care factors, such as employment, income sources, and access to mental and medical health care.

The COVID-19 pandemic has led to record levels of unemployment and an increase in psychological distress, especially for socially and linguistically underserved or marginalized populations, including people with disabilities.[1,2] Before the COVID-19 pandemic, rates of employment in the general population tended to start to increase among workers aged 36; rates of employment among DHH people were consistently lower than among the general population until age 55-65, after which they tended to decline, similar to rates among the general population.[4] During the COVID-19 pandemic, it is likely that the aforementioned rates of employment have likely declined substantially among both DHH people and the general population.

Although marginalized populations are likely to be employed as frontline workers during the COVID-19 pandemic, the same marginalized populations are also likely to be viewed as nonessential and among the first to be laid off.[9] Because DHH people with lower levels of education have higher levels of unemployment,[4] our results make sense in the context of concerns about DHH people's loneliness and COVID-19 worry and their relationships with worry about food running out. In addition, DHH people with lower education levels are less likely than DHH people with higher education levels to be able to afford access to online information (ie, may not have internet access at home). As such, they may not know when and where to access information about food and financial support, such as information about how to apply for unemployment or rent relief during the COVID-19 pandemic. Moreover, when faced with unemployment, DHH people might be at a greater disadvantage than hearing people when applying for unemployment benefits by telephone. For example, wait times may be long, and they might end up getting hung up on because the representative is unwilling to communicate through a third-party video relay service interpreter, which is how DHH people often communicate by telephone. Applying for unemployment is a long and complex process that may be more difficult to access for DHH people than for hearing people because of a lack of appropriate accommodations. According to the Information Technology and Innovation Foundation, 40% of state unemployment websites fail mobile accessibility tests and disproportionately affect low-income or low-wage people with disabilities.[10] Although DHH people can try to apply for unemployment online, these sites have begun to crash because of the high number of people who have lost their jobs during the COVID-19 pandemic.[11] Thus, additional steps to begin receiving benefit checks are required, which may include making telephone calls. If a DHH person does not have access to a video relay service or an interpreter to help with translation between spoken English and ASL, this step of making a telephone call limits their ability to apply for unemployment, potentially leading to heightened food insecurity and associated worry.

In addition, our finding that food worry was positively associated with concerns about loneliness beyond the main effects of age and education highlights the importance of social support during a food crisis. Without access to social support, an increase in loneliness may dovetail with an increase in worry about food shortages. Because of the unprecedented economic and social effects of COVID-19 on the livelihood of DHH people, it is essential that organizations that serve the DHH community as well as government programs, social service providers, and food banks target certain groups of DHH adults at risk for food insecurity via accessible means. Government and public health campaigns must consider ways to optimize accessibility of information on the distribution of food resources and governmental benefits. Targeted interventions should be pilot tested and established using community-based participatory research and principles in consultation with stakeholders in the DHH community to ensure their successful delivery.

In a 2018 study, DHH adults who retrospectively reported a complete inability to understand communication with their caregivers while growing up had an increased risk of food insecurity during adulthood.[12] In another study of 630 DHH adults, 22% had experienced low or very low food security, and those who reported food insecurity were more likely to be depressed than those who were food secure.[5] In this sample, lower education, younger age, or LGBQA

self-identification indicated a higher risk for food insecurity compared with DHH groups that were older, had a higher level of education, or identified as straight. In both studies, race/ethnicity did not contribute directly to food insecurity. Although our study results also did not find a correlation between race or ethnicity and food worry, evidence suggests that racial/ethnic minority groups have disproportionately lower socioeconomic status than non–racial/ethnic minority groups as a result of systematic racism, leading to poor health outcomes fueled by limited access to food and resources.[13] Although socioeconomic disparities often appear as a primary driver of food insecurity, race and ethnicity are part of contextual understandings of the underlying factors involved with food insecurity.[14]

The association between food worry and age and education must consider the additive effects of not only worry about the COVID-19 pandemic but also concerns about DHH people's loneliness as a result of staying home. The partial explanatory role of loneliness in worry about food shortages is consistent with previous findings about a lack of social support and food insecurity.[15] The food worry reported in this study could be partly alleviated by fostering a connection to community and social support networks by people, DHH-serving community-based organizations, social service providers, and other government programs.

Limitations

This study had several limitations. First, because DHH people with lower education levels have lower levels of access to online information, the sample may be more representative of DHH people with higher levels of education or privilege, which facilitates access to online information. Second, the survey did not gather data on income, which is linked to age and education as well as food insecurity. These data would have allowed measurement of the economic effect of the COVID-19 pandemic on the DHH population. Third, although the time frame for the food worry item included the COVID-19 pandemic, it also predated the COVID-19 pandemic. Although it is likely that respondents reported heightened food worries during the pandemic, responses could also reflect financial difficulties or food insecurity that predated the pandemic. Fourth, the survey item that addressed loneliness was not previously validated; however, it was analyzed in combination with validated food security items from the US Department of Agriculture Food Security Module.[16]

Fifth, we did not ask respondents about lesbian/gay/bisexual/transgender/queer (LGBTQ) status, although research shows that LGBTQ people often have higher levels of distress during health crises than people who identify as straight.[17] Research should be conducted on populations that are vulnerable to food worry, such as young members of the LGBTQ community who also identify as DHH, as they may have a limited or strained relationship with family members and thus may receive limited financial support to access quality food.[5]

Conclusion

Our research on food worry and its relationship with worry about contracting COVID-19 and concerns about DHH people staying home and being lonely, particularly among DHH adults who are young or do not have a college degree, highlights the need to make food resources and benefits accessible in the absence of in-person support networks. Therefore, food banks should develop targeted outreach plans and make resources accessible to DHH adults who are affected by unemployment and unable to apply for federal assistance (eg, Supplemental Security Income, Supplemental Nutrition Assistance Program, food stamps). Community-based organizations serving DHH adults of all ages and education levels can help lead these efforts. However, the responsibility to gain access to communication and resources should not solely lie with the DHH community and should extend to public health officials, mainstream community-based organizations (ie, Feeding America, No Kid Hungry), and media outlets that serve the general public.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This work was supported by National Institute on Deafness and Other Communication Disorders of the National Institutes of Health (NIH, award 3R01DC014463-05S4 to P. Kushalnagar). The content is solely the responsibility of the authors and does not necessarily represent the official views of the NIH.

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