# Poor Mental Health as a Consequence and Driver of Food Insecurity

Abigail Orbe, Katie Martin, & Brittney Cavaliere
February 2022

In the spring of 2021, the Institute for Hunger Research & Solutions at Connecticut Foodshare, in collaboration with the National Food Access and Research Team, conducted a statewide survey to understand changes in food access one year into the COVID-19 pandemic. Survey results illustrated a deep connection between mental health and food access. Symptoms of anxiety and depression were associated with higher rates of food insecurity and heightened use of food assistance programs such as school meal programs and food pantries. However, we found that individuals who reported symptoms of anxiety or depression were less likely to seek assistance when they were experiencing food insecurity. Thus, anxiety and depression can be both a consequence and driver of food insecurity.

## Background

*Literature Review*

In recent years, many researchers have recognized the traumatic nature of poverty and have examined the relationship between food insecurity and mental health status.[1-6] Many of these studies have centered the experiences of women and mothers of low socioeconomic status, revealing that household food insecurity increases the risk for depression and anxiety for low-income women.[1-2] Food insecurity is also associated with anxiety and panic disorders, suicidal ideation, substance abuse problems, and poor sleep outcomes in young adults, as well as behavioral issues in children.[2-4] COVID-era studies have found similar interactions between food insecurity, anxiety, and depression.[5]

Nationwide, anxiety and depression have become more prevalent during the COVID-19 pandemic. According to data from the Centers for Disease Control and Prevention, rates of anxiety and depression between April 2020 and August 2021 were four times higher than they were in 2019.[6] We were interested in assessing the effect of food insecurity on mental health status during the COVID-19 pandemic and aimed to explore how poor mental health may impact an individual's decision to access food assistance when they are experiencing food insecurity.

*Methods*

In April and May 2021, the Institute for Hunger Research & Solutions at Connecticut Foodshare surveyed over 1,000 adults from all eight Connecticut counties to better understand changes in food access and food security in the state one year into the COVID-19 pandemic. The survey included questions pertaining to changes in shopping and eating habits and use of food assistance programs such as the Supplemental Nutrition Assistance Program (SNAP), food pantries, and school meal programs. Food security status was determined by the USDA's 6-item food insecurity module.[7] The Generalized Anxiety Disorder 2-item and Patient Health Questionnaire were used to determine mental health status.[8-9] Throughout this report, a respondent is designated as experiencing symptoms of anxiety or depression if they screened positively in either or both questionnaires, though it is important to note that a positive screening alone does not constitute a clinical diagnosis.

We oversampled low-income households and communities of color in order to reach those with higher needs for food assistance and used statistical weighting to create estimates representative of Connecticut's population. We tested for associations using chi-square tests and used logistic regression techniques to determine odds ratios. Additional information can be found in the appendix.

Connecticut Foodshare
Institute for Hunger Research & Solutions

## Who was more likely to report symptoms of anxiety or depression? Who was more likely to be food insecure?

Overall, **1/3 of survey respondents (33%) reported symptoms of anxiety or depression, and 31% were determined to be food insecure.** Some groups who reported *both* of these experiences at higher rates include:

- Adults with a high school degree or less
- People of color
- Adults living with children
- Adults experiencing an on-going job disruption*

**Table 1. Prevalence of Anxiety/Depression and Food Insecurity by Demographics**

| | Anxiety/ Depression† | Food Insecurity |
|---|---|---|
| **Age** | | |
| 18-34 | 47% | 48% |
| 35-54 | 40% | 38% |
| 55+ | 18% | 14% |
| **Gender** | | |
| Male | 28% | 27% |
| Female | 36% | 34% |
| **Race/Ethnicity** | | |
| White | 29% | 26% |
| People of color (all) | 42% | 43% |
| Hispanic | 52% | 54% |
| Black | 33% | 35% |
| Asian | 36% | 28% |
| Other | 39% | 38% |
| **Household Composition** | | |
| No kids in household | 29% | 24% |
| Kids in household | 42% | 44% |
| **Educational Attainment** | | |
| High school diploma or less | 40% | 42% |
| Some college or more | 29% | 25% |
| **Annual Household Income** | | |
| Less than $25,000 | 50% | 56% |
| $25,000 - $50,000 | 44% | 45% |
| $50,000 - $75,000 | 35% | 37% |
| $75,000 - $100,000 | 24% | 17% |
| More than $100,000 | 24% | 18% |
| **Employment** | | |
| No job disruption* | 25% | 22% |
| On-going job disruption | 49% | 50% |

* Job loss, furlough, or cut in hours
† Adults who reported symptoms of anxiety or depression

## Findings: The connection between food insecurity, food assistance, and mental health

*Food Insecurity*

The relationship between food insecurity and mental health is complex. Experiencing food insecurity can lead to symptoms of anxiety and depression, while poor mental health may also be a risk factor for food insecurity. Survey data showed that experiencing food insecurity was associated with symptoms of anxiety and depression. 56% of people who were food insecure one year into the pandemic were experiencing symptoms of anxiety or depression, compared to 22% of people who were food secure during the pandemic.

Furthermore, we found that adults who reported symptoms of anxiety and depression were more likely to be food insecure, a finding that remained significant when controlling for a range of demographics that may also be seen as risk factors for food insecurity. Controlling for race, age, gender, education, employment status, income, and household composition, **people with symptoms of anxiety or depression had 2.5 higher odds of being food insecure** one year into the pandemic compared to those without these symptoms.

*Food Assistance*

Similar mental health dynamics were reflected in the use of food assistance programs such as food pantries, soup kitchens, SNAP (food stamps), and school meal programs and have strong implications for how these programs can best be designed and implemented. **People reporting symptoms of anxiety or depression had 1.6 higher odds of using at least one food assistance program** in the year since the onset of the pandemic compared to their counterparts without these symptoms, controlling for race, age, gender, education, employment status, income, and household composition.

The relationship between food access and mental health can create a difficult cycle. First, because people with symptoms of anxiety and depression are more likely to be food insecure, they have a higher need for these food assistance programs. Second, symptoms of anxiety and depression may increase a person's perceived need for food assistance, leading to higher program use rates. In addition to food security status and need for food, food program participation reflects an individual's

**Figure A. Interactions between mental health, food security, and food program use**


willingness to seek help and comfort receiving food assistance. Thus, an individual's decision to seek food assistance may potentially be linked to their mental health through multiple avenues. Figure A explores some of these interactions.

## Findings: Mental health and unmet need for food

We were interested in disaggregating the effects in Figure A and investigating how symptoms of anxiety or depression may affect an individual's likelihood to seek out food assistance when they are in need, independent of food security status. To isolate the effects of mental health on food program use through its effects on an individual's willingness to seek food assistance, we examined individuals who were categorized as food insecure but did not report accessing any food assistance programs in the first year of the pandemic. We defined these individuals as having *unmet need* for food.

- Over one-third of food insecure households (38%) did not seek food assistance and thus displayed unmet need.
- Over half of respondents with an unmet need for food (55%) also reported symptoms of anxiety or depression.

Controlling for demographic characteristics, **people with symptoms of anxiety or depression had 1.8 higher odds of demonstrating an unmet need for food** in the first year of the pandemic compared to their counterparts without these mental health symptoms. This indicates that mental health challenges may contribute to an individual's decision to not seek assistance when they have a displayed need.

We also considered that people with mental health challenges may be less likely to feel stable in their food situation even when receiving food assistance. To evaluate this, we examined individuals who reported accessing a food assistance program in the first year of the pandemic and were categorized as food secure. However, we found that respondents with symptoms of anxiety and depression were no more or less likely to fall into this category, including when adding demographic controls.

## Conclusion

The links between food insecurity, food assistance use, and mental health are complex and pervasive. Our results show that mental health status deeply affected concerns about food access and how individuals and their families interact with food assistance programs in the first year of the pandemic. **Symptoms of anxiety and depression potentially acted as both a by-product of experiencing food insecurity and a driver of food insecurity for people in this study.**

Lacking a fundamental resource such as food can have lasting psychological effects and create a scarcity mindset that impacts every aspect of life. Expanding the accessibility of mental health services and promoting trauma-informed care in food assistance programs can be key in ensuring families are receiving the holistic care they need when they experience food insecurity. When formulating policies, it is essential to consider the traumatic nature of poverty and its effects on the mental health of low-income families in the long-term.

## Appendix: Regression Methods and Results

Logistic regression techniques were used to determine the relationship between a positive screening for anxiety or depression and the four outcome variables. The same set of categorical variables were used as demographic controls in each of the regression models. Dummy variables for each category were used as regressors, selecting one category to serve as a reference for the regression coefficients. These reference categories were: age 55+, male, white, annual household income over $75,000, some college education or more, no on-going job disruption, and no children in the household.

The estimated odds ratios can be found in Table 2 with 95% confidence intervals included in parentheses. An odds ratio of 1 indicates no relationship between the demographic characteristic and the given outcome. An odds ratio less than 1 indicates that the demographic group has *lower odds* of experiencing the given outcome in comparison to the reference group, while an odds ratio greater than 1 indicates that the demographic group has *higher odds* of experiencing the given outcome in comparison to the reference group. For example, the odds ratio of 3.2 on *Age 18-34* in the food insecurity column indicates that people aged 18-34 had over 3 times higher odds of experiencing food insecurity one year into the pandemic compared to people aged 55 and up.

Note that some demographic variables have significant results, indicating that when controlling for mental health status, members of this demographic group are more likely to experience the given outcome. For example, households with children are more likely to be food insecure regardless of mental health status. This illustrates the pervasiveness of disparities in food access among demographic groups.

**Table 2. Logistic Regression Results: Comparing Odds of Different Outcomes**

| | Food insecure one year into the COVID-19 pandemic | Used a food assistance program in the first year of the pandemic | Food insecure but did not use a food assistance program in the first year of the pandemic | Food secure and used a food assistance program in the first year of the pandemic |
|---|---|---|---|---|
| Screened positively for anxiety or depression | 2.48***<br>(1.79-3.43) | 1.62**<br>(1.17-2.23) | 1.83**<br>(1.20-2.79) | 0.93<br>(0.61-1.41) |
| **Controls** | | | | |
| Age 18-34 | 3.27**<br>(2.07-5.15) | 1.00<br>(0.65-1.56) | 3.00**<br>(1.66-5.39) | 0.44*<br>(0.24-0.81) |
| Age 35-54 | 2.51**<br>(1.63-3.86) | 1.57<br>(1.06-2.35) | 2.35**<br>(1.32-4.16) | 1.13<br>(0.68-1.86) |
| Female | 1.07<br>(0.77-1.48) | 0.95<br>(0.70-1.30) | 1.18<br>(0.78-1.79) | 1.00<br>(0.68-1.47) |
| Person of color | 1.08<br>(0.75-1.56) | 1.93**<br>(1.37-2.72) | .92<br>(0.58-1.46) | 2.08**<br>(1.35-3.19) |
| Annual household income under $75,000 | 3.25**<br>(2.30-4.59) | 4.20**<br>(3.00-5.90) | 1.85**<br>(1.18-2.93) | 2.85**<br>(1.86-4.37) |
| High school diploma or less | 1.37<br>(0.97-1.95) | 1.33<br>(0.96-1.85) | 1.42<br>(0.92-2.19) | 1.29<br>(0.85-1.94) |
| On-going job disruption | 2.54**<br>(1.83-3.52) | 1.25<br>(0.91-1.73) | 1.67**<br>(1.11-2.54) | 0.51**<br>(0.33-0.79) |
| Children in household | 1.68**<br>(1.17-2.40) | 3.78**<br>(2.65-5.38) | .64<br>(0.40-1.00) | 2.65**<br>(1.70-4.15) |

** Significant at the 5% level ($p < 0.05$)

## References


[1] Heflin, C. M., Siefert, K., & Williams, D. R. (2005). Food insufficiency and women's mental health: findings from a 3-year panel of welfare recipients. *Social science & medicine (1982), 61*(9), 1971–1982. https://doi.org/10.1016/j.socscimed.2005.04.014

[2] Whitaker, R. C., Phillips, S. M., & Orzol, S. M. (2006). Food insecurity and the risks of depression and anxiety in mothers and behavior problems in their preschool-aged children. *Pediatrics, 118*(3), e859–e868. https://doi.org/10.1542/peds.2006-0239

[3] Pryor, L., Lioret, S., van der Waerden, J., Fombonne, É., Falissard, B., & Melchior, M. (2016). Food insecurity and mental health problems among a community sample of young adults. *Social psychiatry and psychiatric epidemiology*, *51*(8), 1073–1081. https://doi.org/10.1007/s00127-016-1249-9

[4] Nagata, J. M., Palar, K., Gooding, H. C., Garber, A. K., Whittle, H. J., Bibbins-Domingo, K., & Weiser, S. D. (2019). Food Insecurity Is Associated With Poorer Mental Health and Sleep Outcomes in Young Adults. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine*, *65*(6), 805–811. https://doi.org/10.1016/j.jadohealth.2019.08.010

[5] Fang, D., Thomsen, M.R. & Nayga, R.M. (2021). The association between food insecurity and mental health during the COVID-19 pandemic. *BMC Public Health 21*, 607.. https://doi.org/10.1186/s12889-021-10631-0

[6] DeAngelis, T. (2021). Depression and anxiety escalate during COVID. *American Psychological Association Monitor on Psychology*, 52(8), 88.

[7] Gulliford, M. C., Mahabir, D., & Rocke, B. (2004). Reliability and validity of a short form household food security scale in a Caribbean community. *BMC public health*, *4*, 22. https://doi.org/10.1186/1471-2458-4-22

[8] Kroenke, K., Spitzer, R.L, & Williams, J.B. (2003). The Patient Health Questionnaire-2: Validity of a Two-Item Depression Screener. *Medical Care, 41*(11), 1284-92. https://doi.org/10.1097/01.MLR.0000093487.78664.3C

[9] Kroenke, K., Spitzer, R.L., Williams, J.B., Monahan, P.O., & Löwe, B. (2007). Anxiety disorders in primary care: prevalence, impairment, comorbidity, and detection. *Annals of Internal Medicine, 146*(5), 317-25. https://doi.org/10.7326/0003-4819-146-5-200703060-00004


### About the Institute for Hunger Research & Solutions

Connecticut Foodshare is the food bank of Connecticut and a member of the national Feeding America network, providing nearly 40 million meals each year through a network of more than 700 community-based hunger relief programs. The Institute for Hunger Research & Solutions at Connecticut Foodshare was founded in August 2019 with the goal to serve as a resource for food banks and community partners by providing strategies for holistic solutions to hunger. The Institute develops innovative and evidence-based programs that promote health and address the root causes of hunger. We research different approaches to identify what works and provide trainings and services so that others can implement best practices within the charitable food network. For more information, visit foodshare.org/institute.

### About the National Food Access and COVID Research Team

The National Food Access and COVID Research Team (NFACT) is a collaboration of researchers across 15 states exploring the impact of COVID-19 on food access, food security and food systems. NFACT research is examining these impacts across local, state, regional and national levels and is integrating data to explore outcomes and impacts across scales. NFACT is committed to rigorous, comparative, and timely food access research during the time of COVID. We do this through collaborative, open access platforms and research that prioritizes communication to key decision-makers while building our scientific understanding of food system behaviors and policies. For more information, visit nfactresearch.org.


The authors would like to thank Rachel Zack of the Greater Boston Food Bank for her insightful feedback and editorial review.


Connecticut Foodshare
Institute for Hunger Research & Solutions

**In partnership with:**

NFACT National Food Access and COVID Research Team

The Greater Boston Food Bank

NYU School of Global Public Health

**With generous funding from:**

Stop&Shop

HUNGER TO HEALTH COLLABORATORY