

UVM ScholarWorks

A 2022 Assessment of Food Security and Health Outcomes during the COVID-19 Pandemic

Item Type	report;article
Authors	McCarthy, Ashley C;Bertmann, Farryl;Belarmino, Emily H.;Bliss, Sam;Laurent, Jennifer;Malacarne, Jonathan;Merrill, Scott;Schattman, Rachel E.;Yerxa, Kathryn;Niles, Meredith T
Download date	2026-06-05 23:03:47
Item License	http://creativecommons.org/licenses/by-nc-sa/4.0/
Link to Item	https://hdl.handle.net/20.500.14849/191

A 2022 Assessment of Food Security and Health Outcomes during the COVID-19 Pandemic

Ashley C. McCarthy¹, Farryl Bertmann¹,
Emily Belarmino^{1,2}, Sam Bliss^{1,2},
Jennifer Laurent¹, Jonathan Malacarne³,
Scott Merrill^{1,2}, Rachel E. Schattman³,
Kathryn Yerxa³, Meredith T. Niles^{1,2}

¹ University of Vermont
² Gund Institute for Environment, University of Vermont
³ University of Maine

Introduction

We conducted a Northern New England survey to understand the impacts of the COVID-19 pandemic on food security, food access, home food production (HFP) (i.e., gardening; fishing; harvesting shellfish; foraging; hunting; trapping; raising animals for meat, dairy, or eggs; and food preservation such as canning, drying, or freezing), health behaviors, and health outcomes. The surveys were conducted in the spring of 2022 (April-May) with a total of 1,013 adults (598 in Maine and 415 in Vermont) responding to the survey. Select demographics of the respondents are presented in Table 1. The cohort of respondents was representative of racial and ethnic identities of Maine and Vermont state populations. The data presented in this research report were weighted to be representative of income in both states. Here, we summarize our findings related to food security, food sourcing, HFP, diet and weight change, access to healthcare, prevalence of chronic health conditions, and use of habit-forming substances during the COVID-19 pandemic. When differences in the data are referred to as “significant” it indicates a statistically significant difference at $p \leq 0.05$.

Characteristic	Overall	Maine	Vermont
White, non-Hispanic	92.6%	94.5%	90.0%
BIPOC	7.4%	5.5%	10.0%
Female	62.5%	57.4%	70.0%
LGBTQ+	15.5%	15.4%	15.7%
Income < \$50,000	44.0%	41.5%	47.7%
College degree or higher	47.8%	47.1%	48.9%
Households with children	34.3%	32.5%	36.9%
Rural	59.3%	50.7%	71.6%
Employed/retired/homemaker	82.1%	82.4%	81.7%

Table 1. Demographics of respondents overall and by state

Key Findings

1. The prevalence of food insecurity remains similarly high to early points in the pandemic (35% overall), likely driven by inflation and food prices, and long-term impacts from the pandemic
2. The majority (62%) indicated the recent rise in food prices affected their food purchasing, this was significantly higher (90%) for food insecure respondents.
3. 1/3 of respondents utilized food assistance programs in the last 12 months. They reported difficulty traveling to food program offices to apply or recertify as a key challenge.
4. 2/3 of respondents engaged in some kind of home food production (HFP) and half of those did HFP activities for the first time or did existing HFP activities more in the last 12 months.
5. Nearly 1/3 reported weight gain during the COVID-19 pandemic. Food insecure respondents were significantly more likely to report weight gain.
6. Nearly 40% of food insecure respondents ate fewer fruits and vegetables and certain animal products in the last 12 months. These changes are significantly higher than for food secure respondents.
7. Half of the respondents faced a health care challenge in the last 12 months, with canceled appointments and trouble finding a timely appointment being the most commonly reported challenges.
8. More than 50% of respondents indicated anxiety and/or depression, with 17% of those with a diagnosis newly diagnosed in the last 12 months.
9. Compared to food secure respondents, food insecure respondents were significantly more likely to face a variety of health challenges in the last 12 months, including difficulty accessing healthcare, being diagnosed with anxiety and depression, stopping and skipping medications due to cost, and using habit-forming substances.

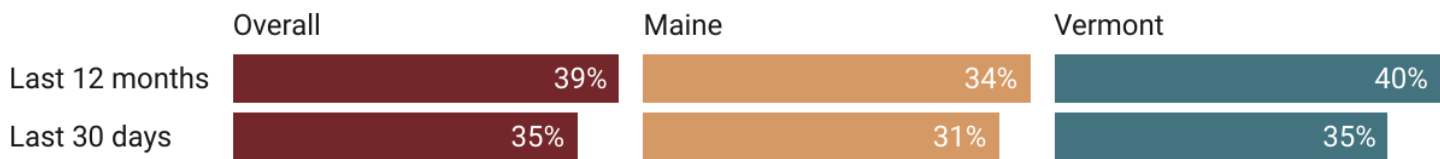


Figure 1. Prevalence of food insecurity in the last 12 months and in the last 30 days as measured by the USDA six-item food security module

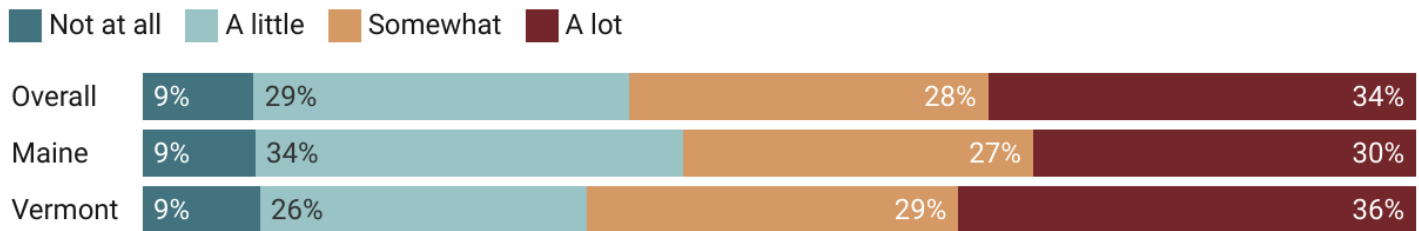


Figure 2. Extent to which rising food prices have affected respondents' food purchasing (%)

Food Insecurity

In the 30 days prior to the survey, the overall prevalence of household food insecurity (measured using the US Department of Agriculture six-item module) was 31% in Maine and 35% in Vermont (Figure 1).

According to respondents, the prevalence of food insecurity in the 30 days prior to the survey was lower than the prevalence in the past 12 months; however, it remained significantly higher than before the pandemic.¹ Food insecurity was significantly more likely among respondents identifying as LGBTQ+, respondents with children, respondents with an income less than \$50k, and/or unemployed respondents.

The majority of respondents indicated that the recent rise in food prices has affected their food purchasing, with only 9% of respondents reporting no effect at all (Figure 2). When asked how their food

"I buy almost exclusively store brands now and used to buy brands I liked instead. Also I buy the cheapest meats and don't buy a lot of fresh produce. We don't eat a lot of what we like and mostly what we can afford is processed."

"I recently lost my job due to complications from COVID-19, but even before I lost my job I was missing so much work that my paychecks were not enough to live on. The huge increase in food [prices] made it that much harder to get groceries and though my daughter had the items she eats, I would often go without meals due to not being able to buy more than my daughter's food. I haven't eaten my daughter's food items so as to make sure she always had enough."

purchasing has changed, common responses included buying less food, buying store brands, shopping sales, purchasing less meat and fresh fruits and vegetables, and relying more on non-perishable foods. The effect of rising food prices was significantly higher among food insecure respondents, with 90% reporting that rising prices have affected their food purchasing "somewhat" or "a lot" compared to 44% of food secure respondents.

Food Sourcing

Nearly all respondents (99%) obtained food from grocery or convenience stores, restaurants, or food delivery services in the last 12 months (Figure 3). HFP and local food sources, such as farmers markets and Community Supported Agriculture (CSAs), were the second and third most common food sources.

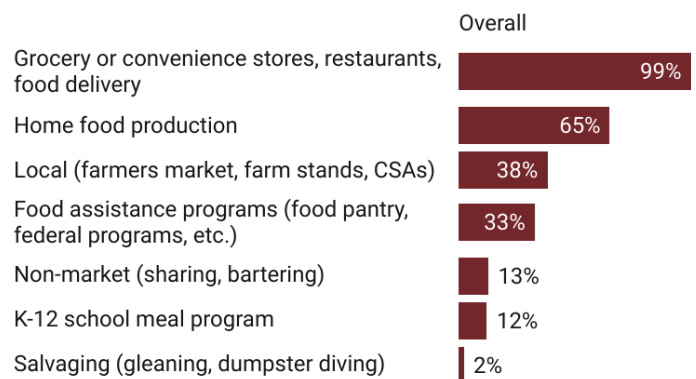


Figure 3. Percent of respondents obtaining food from different sources in the last 12 months

¹ Niles et al. (2021). Home Food Production and Food Security Since the COVID-19 Pandemic. Retrieved from <https://www.nfactresearch.org/vermont-policy-briefs>

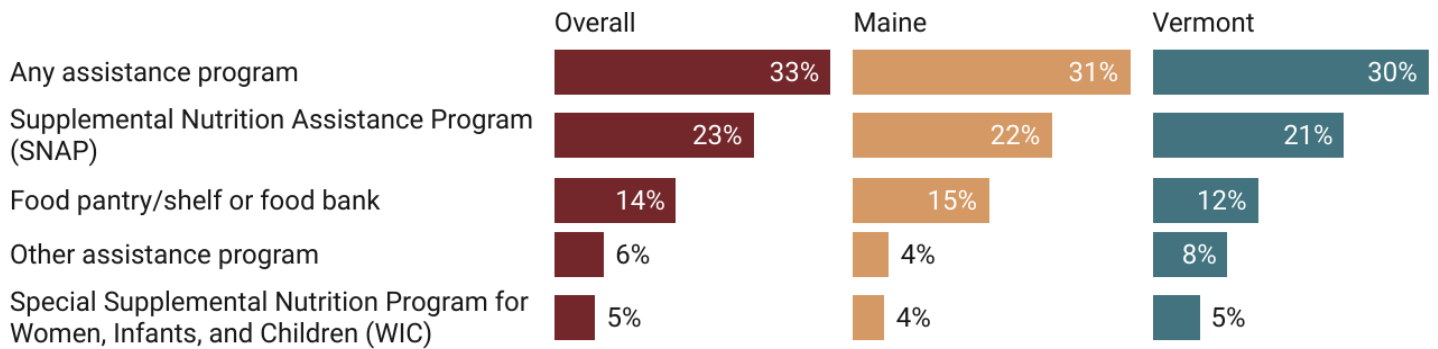


Figure 4. Percent of respondents using food assistance programs in the last 12 months

Food Assistance Program Use

One-third of respondents used food assistance programs in the last 12 months (Figure 4), with the Supplemental Nutrition Assistance Program (SNAP) being the most commonly used program (23%) followed by food pantries and food banks (14%). In addition to formal food assistance programs, 22% of respondents reported that they received food or money to buy food from friends or family in the last 12 months.

“I managed to keep food in the house thru the lockdown and after...however the past few months we are able to get less and less for our SNAP benefits...I'm worried we will have nights without food if this price increase on everything doesn't slow down.”

Respondents who used food assistance programs were asked to share their concerns about using these programs (Figure 5). Nearly half (48%) reported that they were concerned about relying on these programs because they value their personal independence and 43% were concerned about the difficulty of traveling to the food program offices to apply or recertify, and/or were worried about sharing their personal information.

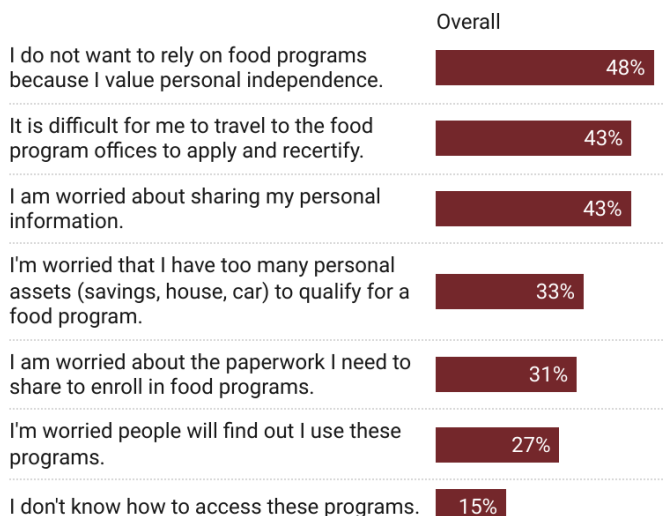


Figure 5. Concerns about using food assistance programs among respondents who use these programs (n = 344)

Food insecure respondents who did not use food assistance programs reported a number of reasons for not using these programs (Figure 6). The most common reason (41%) was that they did not need to use these programs. A quarter (25%) did not know how to access these programs and 24% were worried that they had too many assets to qualify.

“The food stamps that I received do not buy me enough food to last the month. And the price of foods has gone up so high that I study all the grocery fliers that come in the mail and plan all my meals according to what is on sale and the cheapest I can find.”

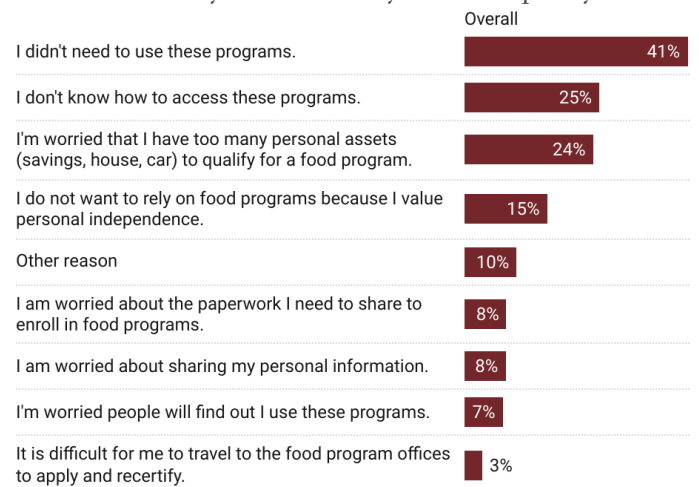


Figure 6. Reasons reported for not using food assistance programs in the last 12 months among food insecure respondents who did not use these programs (n = 162)

Home Food Production

Sixty-five percent of respondents in Maine and 68% in Vermont engaged in one or more types of HFP in the last 12 months. Pooling both states' responses, gardening was the most common HFP activity (48% of respondents overall), followed by preserving food (34%), fishing or harvesting shellfish (17%), foraging (12%), and hunting or trapping (11%). Food insecure respondents were significantly more likely to fish and raise poultry for eggs and food secure respondents

Overall

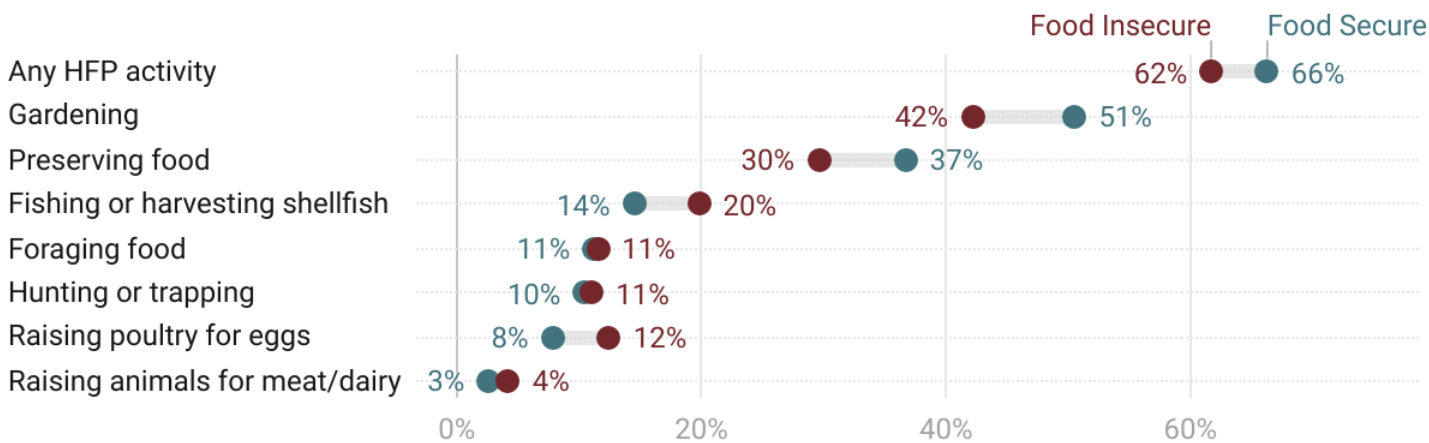


Figure 7. Engagement in HFP activities in the last 12 months by food security status

Overall

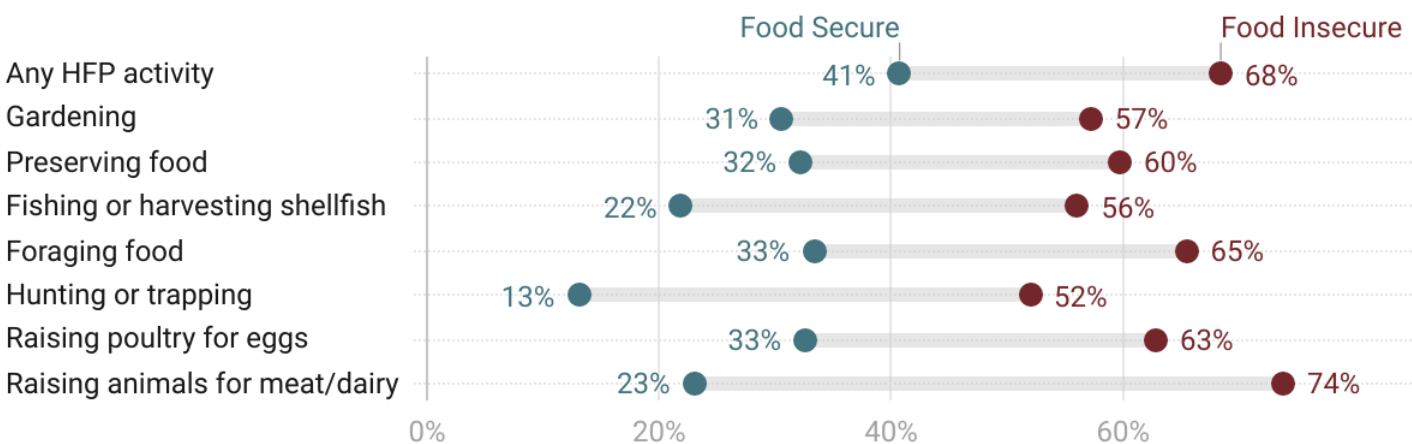


Figure 8: Engagement in HFP activities for the first time or more intensely in the last 12 months by food security status

Overall

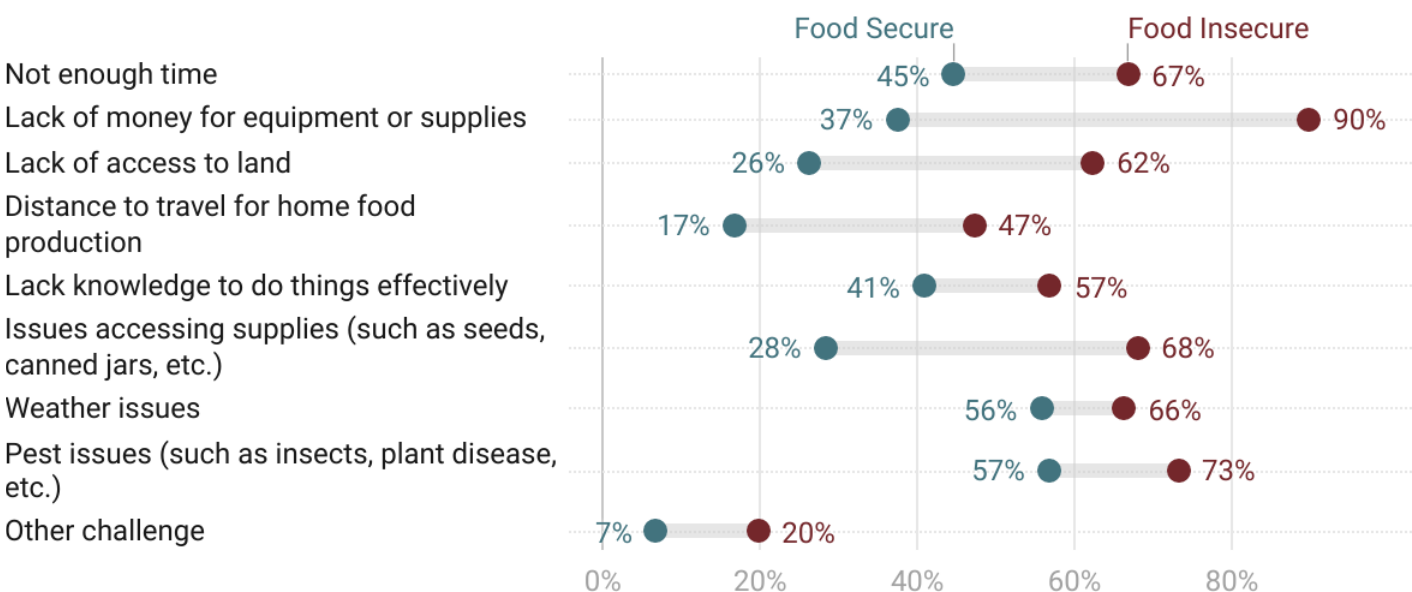


Figure 9. Barriers and challenges to HFP that respondents actively engaged in HFP (n = 656) reported by food security status

were significantly more likely to garden and preserve food (Figure 7). More than half (52%) of respondents who engaged in HFP either did HFP activities more than previously (increased intensity) or did HFP for the first time in the last 12 months. Overall, new or more intense HFP was most common for foraging (48% of foragers were new/more intense) and raising poultry for eggs (45% new/more intense). Food insecure respondents were significantly more likely to try each HFP activity for the first time or increase intensity of the activity compared to food secure respondents (Figure 8).

Respondents who engaged in HFP activities in the last 12 months were asked about the barriers and challenges they faced in their HFP. Overall, the most commonly reported challenges were pests (63%), weather (60%), and money for equipment or supplies (58%). Food insecure respondents reported significantly higher rates of experiencing each challenge compared to food secure respondents (Figure 9). Across HFP challenges, the biggest differences faced by food insecure and food secure respondents were having enough money for equipment and supplies, access to supplies, and access to land.

Weight and Diet Change

The overall prevalence of overweight (BMI ≥ 25 kg/m²) and obese (BMI ≥ 30 kg/m²) respondents combined was 64% (Figure 10). Obesity prevalence was

37% for Maine respondents and 35% for Vermont respondents. This is higher than the 2021 statistics on obesity prevalence (31% in Maine and 26% in Vermont) available in America's Health Rankings, an analysis of national health according to state.² Body mass index (BMI) was calculated using self-reported heights and weights. The average BMI was 29 kg/m² (classified as overweight) for the sample and did not vary by state.

Thirty percent of respondents in Maine and 35% of respondents in Vermont indicated weight gain in the last 12 months. Food insecure respondents were significantly more likely (41%) to report weight gain than food secure respondents (27%).

Overall, the majority of respondents reported that they were eating the same amount of fruits and vegetables, red and processed meats, dairy, and eggs compared to 12 months ago (Figure 12). Notably, 43% of respondents reported eating less sugary foods and 35% reported eating less red and processed meats.

Compared to food secure respondents, food insecure respondents were significantly more likely to report eating less fruits and vegetables, red and processed meats, dairy, eggs, and sugary foods than they did 12 months before (Figure 13). The largest difference was for fruit and vegetables, where 39% of food insecure respondents reported eating less compared to 9% of food secure respondents.

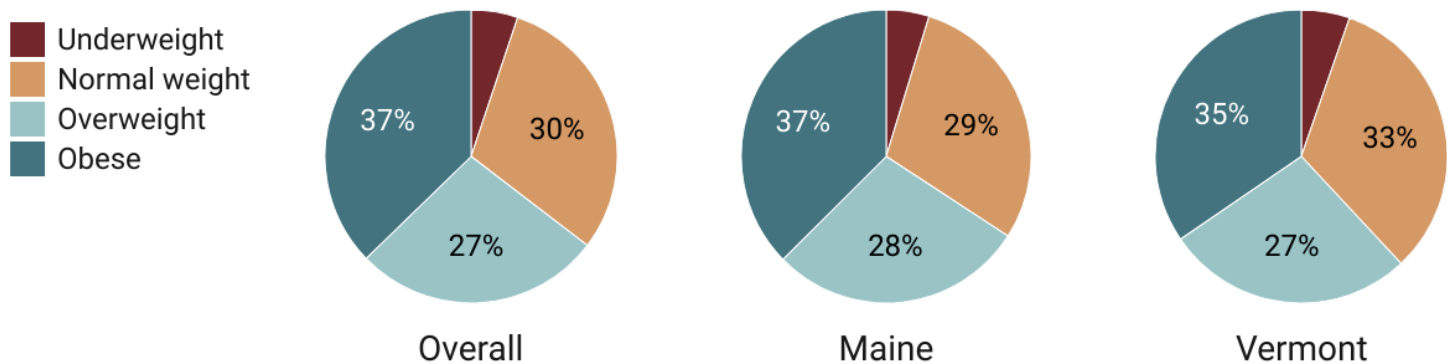


Figure 10. Percent of respondents in each body mass index (BMI) category

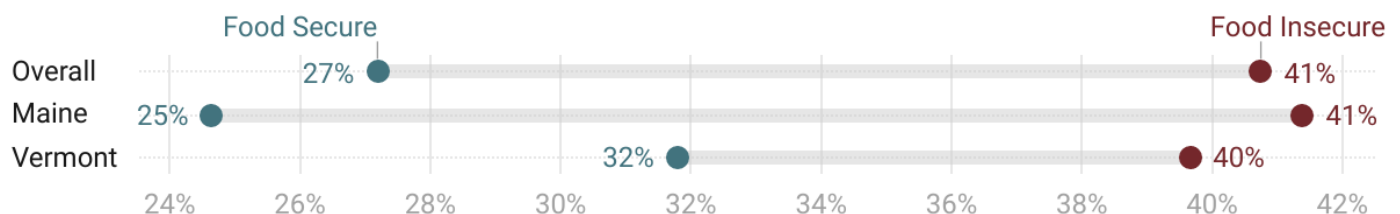


Figure 11. Percent of respondents reporting weight gain in the last year by food security status

2 United Health Foundation. (2021). America's Health Rankings. Retrieved from <https://www.americashealthrankings.org>

Do not eat Less Same More

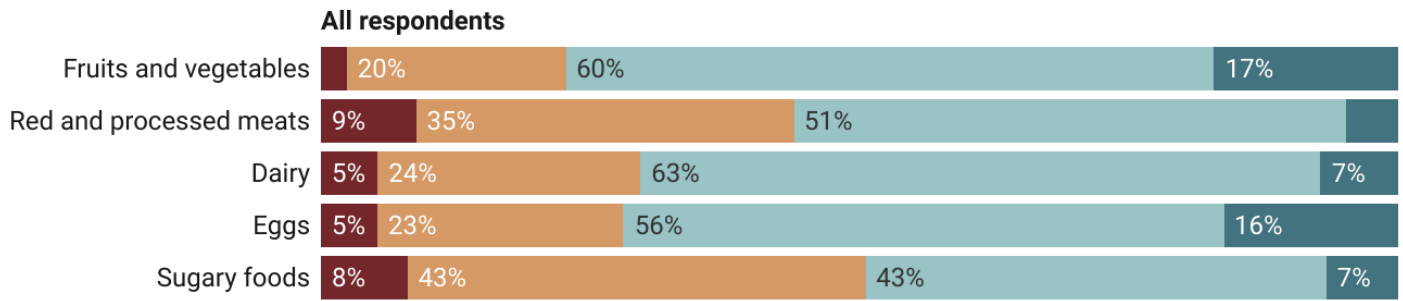


Figure 12. Changes in consumption of select foods over the last 12 months

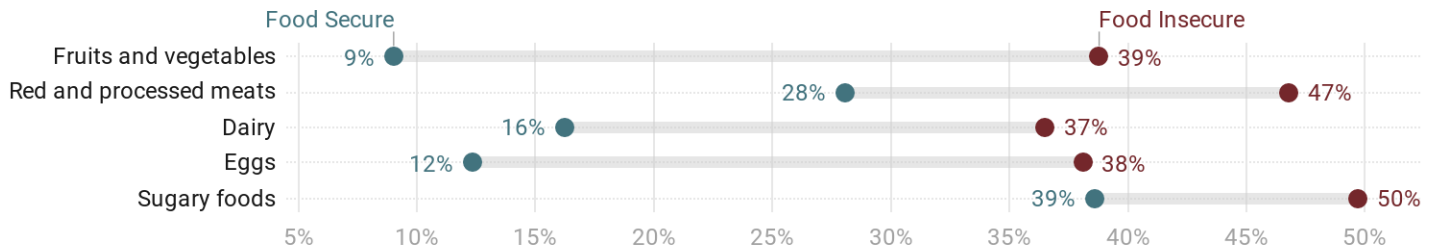


Figure 13. Percent of respondents reporting eating less of select foods over the last 12 months by food security status

Healthcare Access

Most respondents (95%) had health insurance during the last 12 months, however 8% of food insecure respondents were uninsured compared to 3% of food secure respondents. Three percent of respondents reported that they lost their health insurance coverage during the COVID-19 pandemic

(5% of food insecure and 1% of food secure respondents). Ninety percent of respondents saw a doctor or healthcare professional within the last year, with no notable difference based on food security status.

Half of respondents experienced a challenge accessing healthcare in the last 12 months. Overall, the most common challenges were having

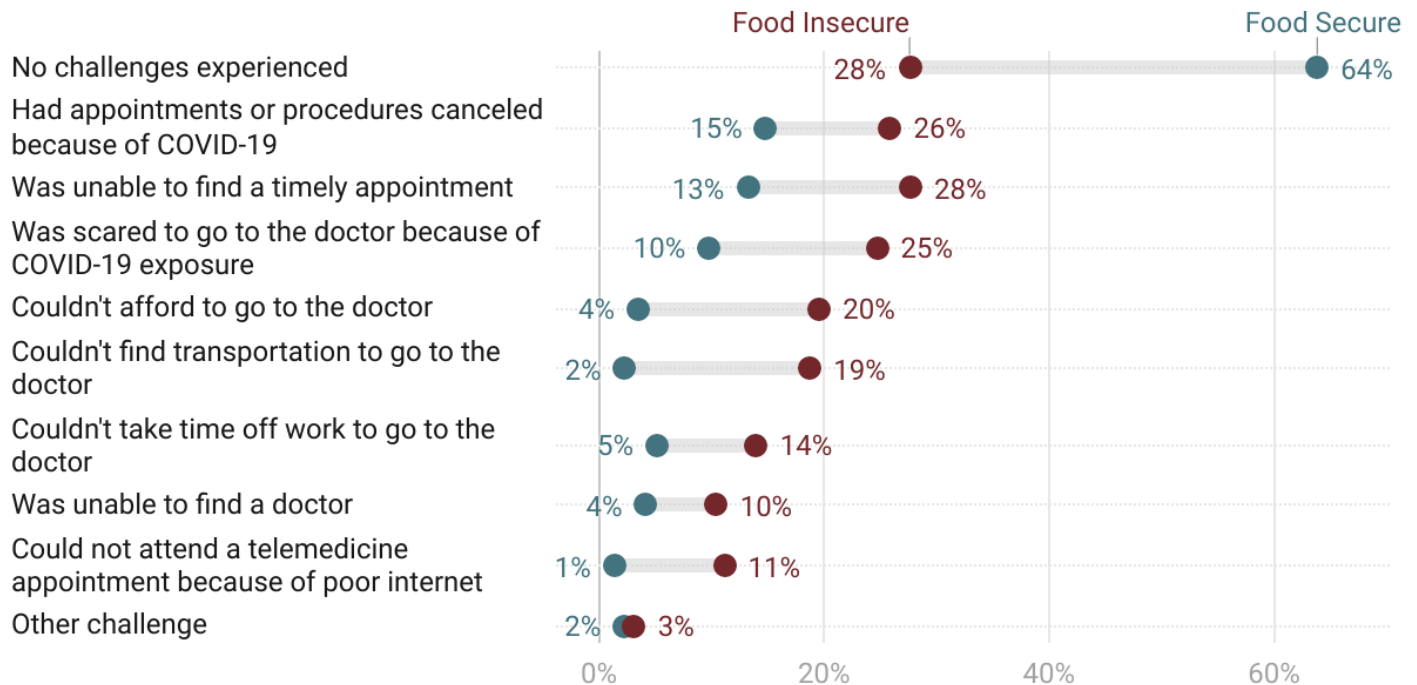
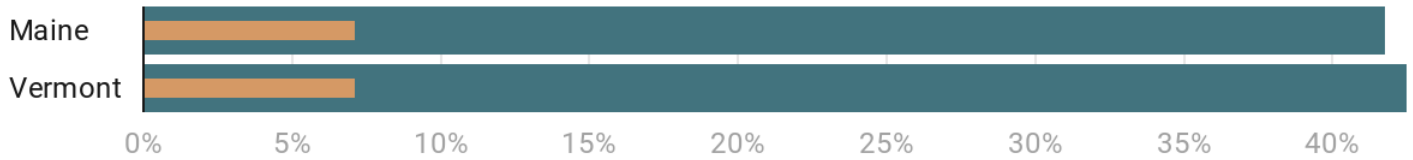


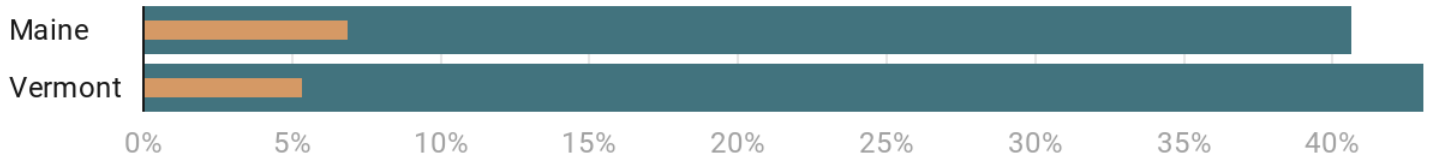
Figure 14. Reported challenges accessing healthcare in the last 12 months by food security status

■ Diagnosed ■ Newly Diagnosed

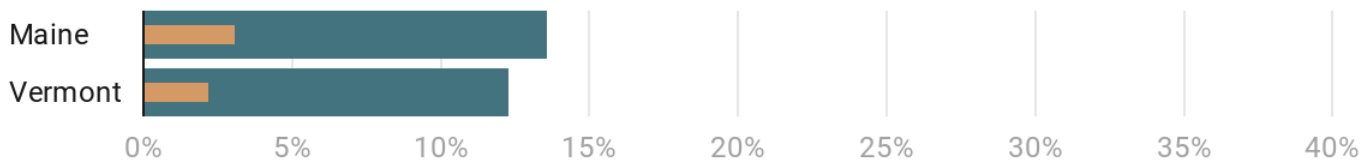
Anxiety



Depression



Hypertension



Type 2 Diabetes

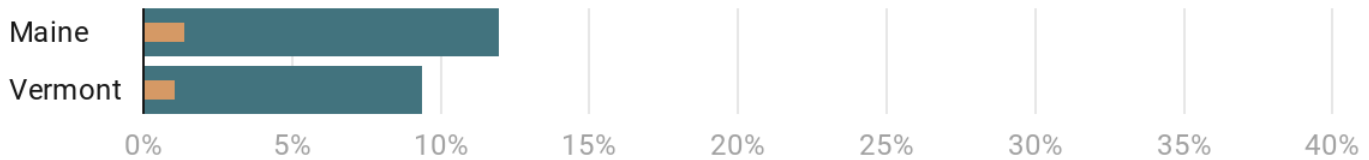


Figure 15. Percent of respondents reporting a diagnosis of anxiety, depression, hypertension, or Type 2 diabetes and percent who were newly diagnosed within the last 12 months

an appointment or procedure canceled (19%), being unable to find a timely appointment (19%), and being scared to go to the doctor because of COVID-19 exposure (15%). Food insecure respondents experienced challenges accessing health-care at significantly higher rates than food secure respondents (Figure 14).

Chronic Disease and Mental Health

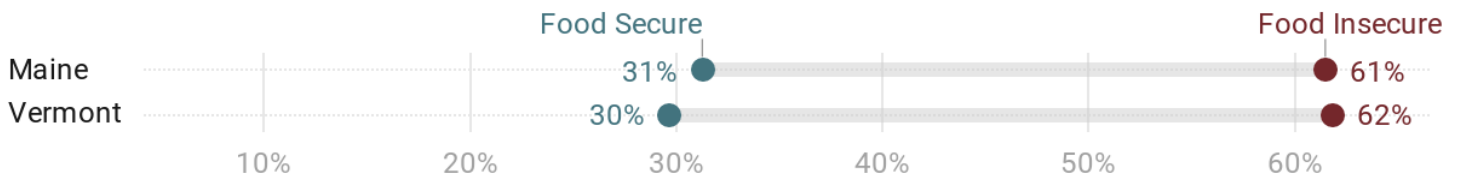
In both Maine and Vermont, the prevalence of depression was significantly higher among our survey respondents than statewide statistics available in America’s Health Rankings, which reported a prevalence of 22% in Maine and 23% in Vermont in 2021.³ Among our respondents, 41% in Maine and 43% in Vermont indicated a diagnosis of depression (Figure 15). In Maine, 7% of respondents

were newly diagnosed within the last 12 months compared to 5% of respondents in Vermont. In both Maine and Vermont, approximately 42% of respondents reported a diagnosis of anxiety with 7% of respondents indicating they were newly diagnosed in the last 12 months. Overall, 52% of respondents were diagnosed with anxiety and/or depression and of those with a diagnosis, 17% received their diagnosis within the last 12 months.

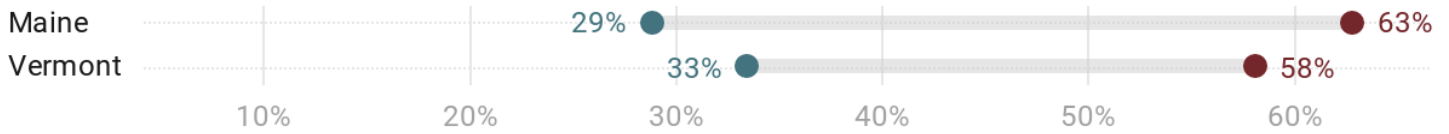
The prevalence of hypertension among our survey respondents was significantly lower than statewide statistics available in America’s Health Rankings, which reported a prevalence of 36% in Maine and 30% in Vermont in 2021. Among our respondents, 14% in Maine and 12% in Vermont indicated a diagnosis of hypertension with 3% being newly diagnosed in the last 12 months in Maine and 2% in Vermont. The

³ Our survey specifically asked whether the respondent had a diagnosis of anxiety or depression, though respondents may have answered based on experiencing the symptoms of these conditions rather than having a formal diagnosis from a healthcare provider.

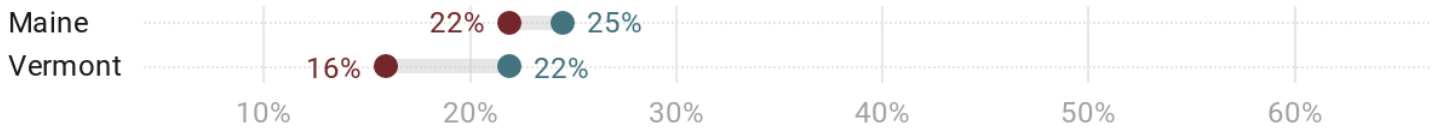
Anxiety



Depression



Hypertension



Type 2 Diabetes

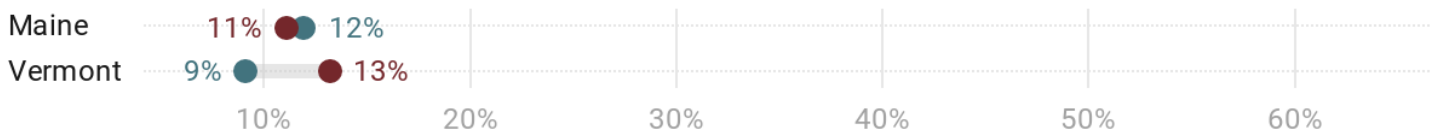
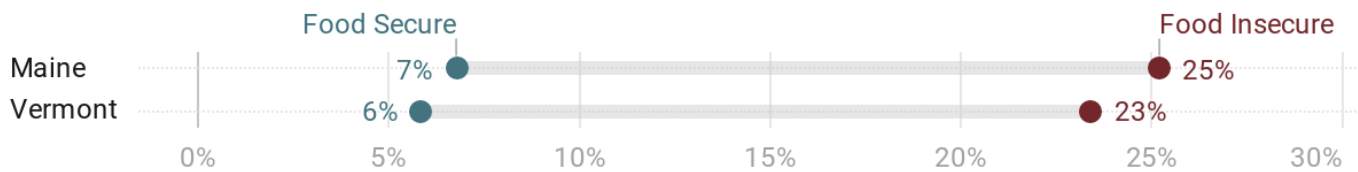
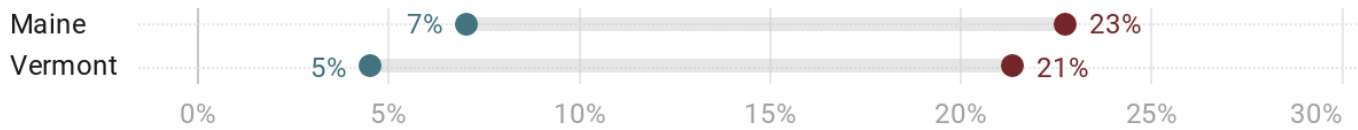


Figure 16. Respondents reporting a diagnosis of anxiety, depression, hypertension, or Type 2 diabetes by food security status

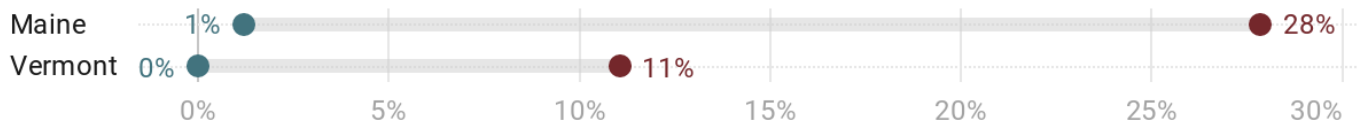
Anxiety



Depression



Hypertension



Type 2 Diabetes



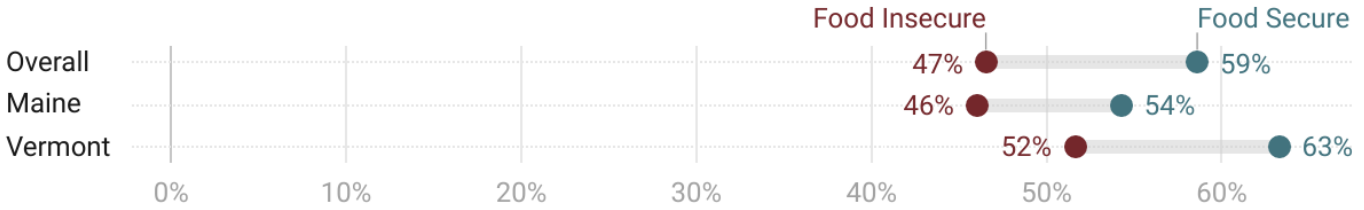
Figure 17. Percent of diagnosed respondents who reported skipping or stopping medication in the last 30 days due to the cost by food security status

prevalence of Type 2 diabetes was 12% in Maine and 9% in Vermont, with 1% of respondents in both states reporting they were newly diagnosed.

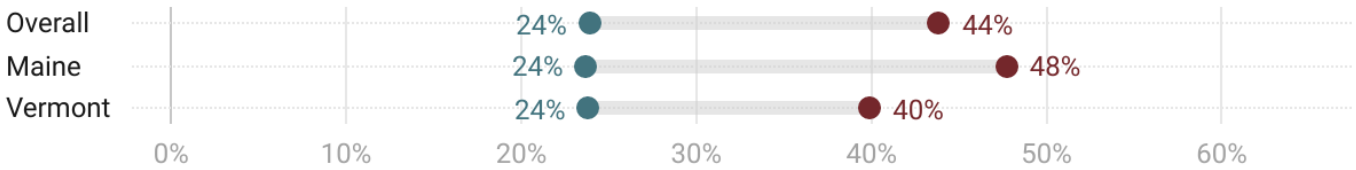
Food insecure respondents reported significantly higher rates of anxiety and depression compared to food secure respondents in both states (Figure 16).

There was no significant difference in prevalence of hypertension or Type 2 diabetes based on food security status. Food insecure respondents were significantly more likely to report that they skipped or stopped using their medications for anxiety, depression, hypertension, or type 2 diabetes in the last 30 days due to the cost (Figure 17).

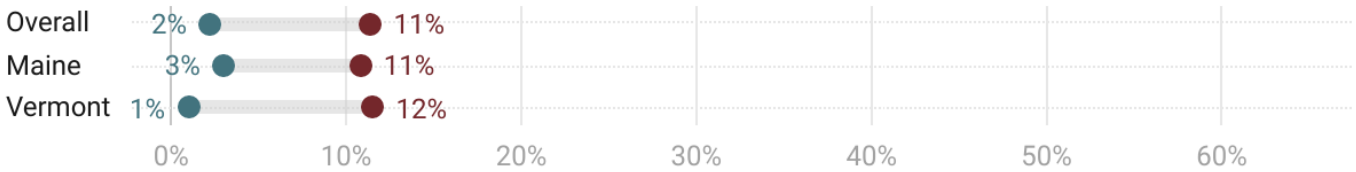
Alcohol



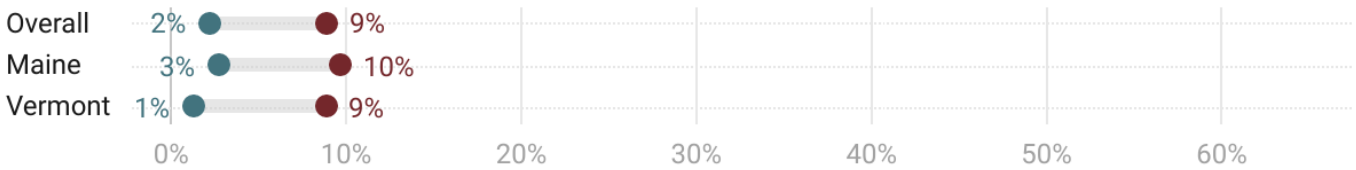
Cannabis



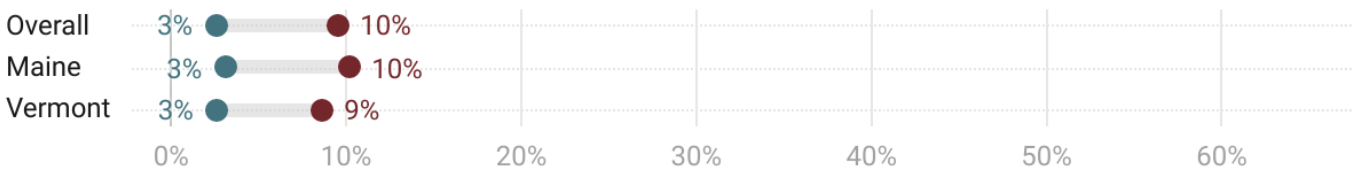
Opioids



Stimulants



Sedatives



Tobacco

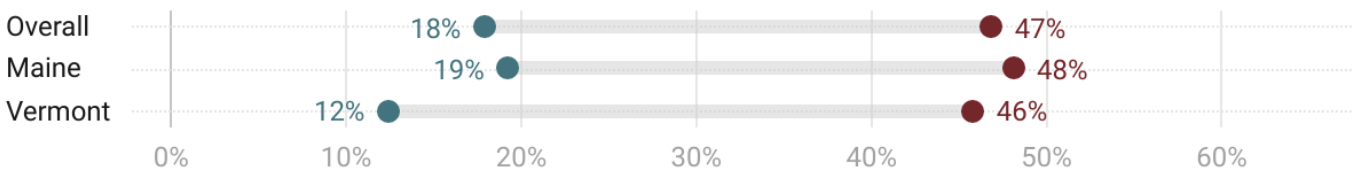


Figure 18. Prevalence of substance use in last 30 days by food security status

Substance Use

Overall, alcohol (55%), cannabis (32%), and tobacco (29%) were the most commonly used substances reported by respondents across both states. Additionally, 6% of respondents reported use of opioids, 5% used stimulants (e.g., cocaine, crystal meth), and 5% used sedatives (e.g., valium, tranquilizers). Food secure respondents were significantly more likely to use alcohol than food insecure respondents; however, food insecure respondents were significantly more likely to use all other substances (Figure 18).

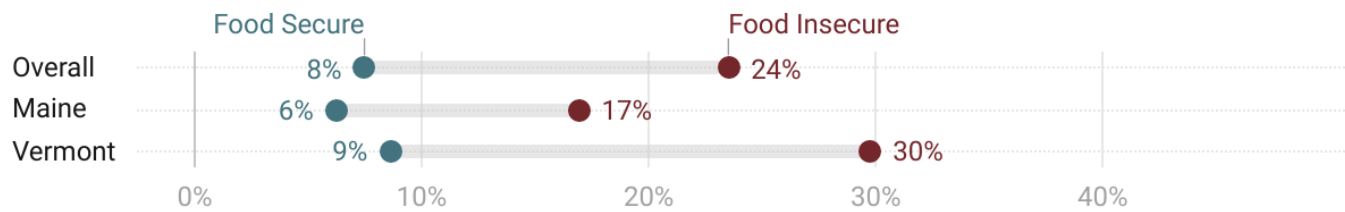
Among all users, 13% reported increased use of alcohol in the last 12 months, 29% increased use of cannabis, 28% increased use of opioids, 36% increased

use of stimulants, and 19% increased use of sedatives. Food insecure respondents were significantly more likely to increase their use across all substances compared to food secure respondents (Figure 19).

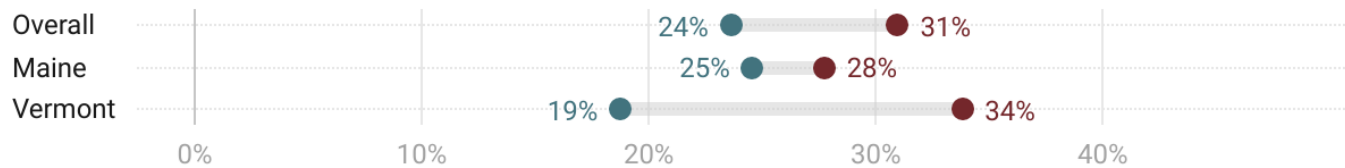
Acknowledgments

This work was supported by the following sources: a Joint Catalyst Award from the Gund Institute for Environment at the University of Vermont and the Northern New England Clinical and Translational Research Network, The USDA National Institute of Food and Agriculture (2022-67023-3645), University of Maine Agricultural and Forest Experiment Station (Hatch project numbers ME022103 and ME022122), and the UVM Food Systems Research Center via a Cooperative Agreement from the USDA Agricultural Research Service. We'd like to thank the members of our advisory board for assisting with the development of the survey and interpretation of results: Jimmy Cesario-DeBiasi, Donovan Kelley, Suzanne Kelley, Trevor Lowell, Chris Meehan, Tim Morgan, Stacey Signon, and Becka Warren. We also thank Mattie Alpaugh for her assistance with survey design and implementation.

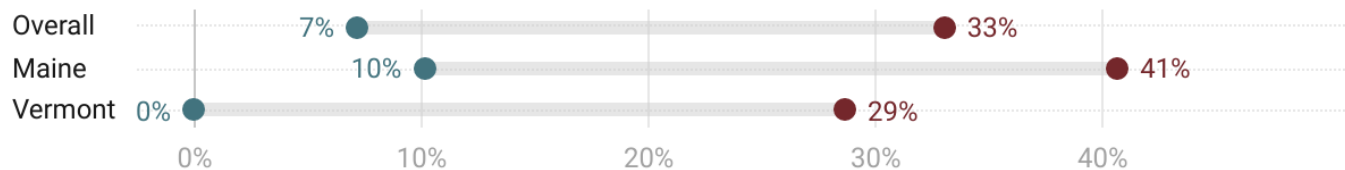
Alcohol



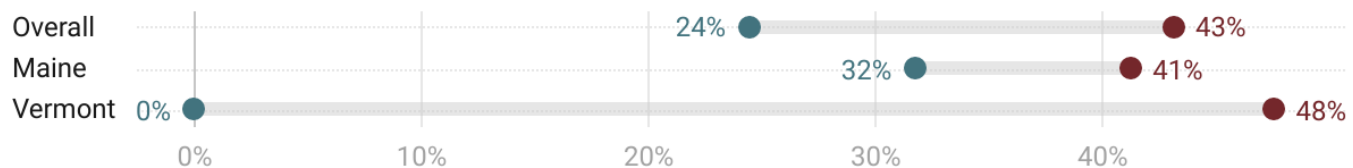
Cannabis



Opioids



Stimulants



Sedatives

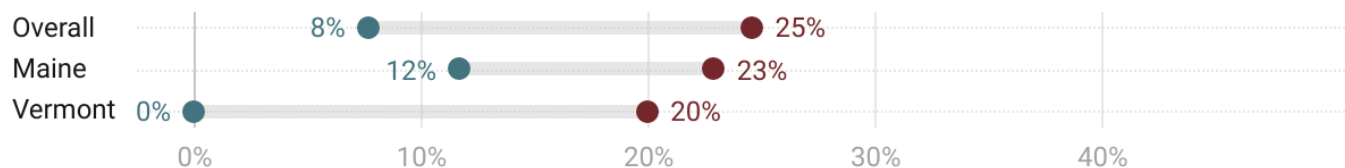


Figure 19. Increased substance use in the last 12 months among respondents who reported use by food security status