NFACT
National Food Access and COVID Research Team

Food Insecurity Prevalence Across Diverse Sites During COVID-19: A Year of Comprehensive Data

18 Study Sites Reveal Remarkably Similar Trends In Food Insecurity Since Covid-19 Pandemic

Niles, M.T. et al.
(Complete author list at the end)

Background

The COVID-19 pandemic has had wide ranging impacts on the food system, affecting food security in many ways. Multiple national and state studies have highlighted changes in food security since the COVID-19 pandemic began in March 2020 in the United States, though the scale and depth of these efforts have varied. Our team, the National Food Access and COVID research Team (NFACT), used a common survey instrument, in whole or part, across 18 study sites in 15 states and nationally to examine several aspects of food security during the pandemic. This collective work assesses the changes in food security occurring since March 2020 in varying geographies, demographics, and time points, as well as the challenges with, concerns about, and helpful strategies to ensure greater food security during the COVID-19 pandemic. In the current brief we present preliminary data of our aggregated study sites examining food security outcomes overall, and by three specific demographic factors: 1) race and ethnicity, 2) presence of children in the household, and 3) job disruptions in the household. The collective sample size represented in these data is more than 26,000 people.

Key Findings

1. NFACT includes 18 study sites in 15 states as well as a national poll, collectively representing a sample size of more than 26,000 people. Some sites have implemented multiple survey rounds, here we report results from 22 separate surveys conducted during the year since the COVID-19 pandemic began in March 2020.

2. 18 out of 19 surveys in 14 sites with data for before and since the pandemic began found an increase in food insecurity since the start of the COVID-19 pandemic as compared to before the pandemic.

3. In nearly all surveys (18/19) that measured food insecurity both before and during the pandemic, more Black, Indigenous, and People of Color (BIPOC) were classified as food insecure during the pandemic as compared to before it began.

4. Prevalence of food insecurity for BIPOC respondents was higher than the overall population in the majority of surveys (19/20) sampling a general population.

5. In almost all surveys (21/22), the prevalence of food insecurity for households with children was higher than the overall prevalence of food insecurity.

6. Food insecurity prevalence was higher for households experiencing a negative job impact during the pandemic (i.e. job loss, furlough, reduction in hours) in nearly all surveys and study sites (21/22).

7. Food insecurity prevalence in most sites was significantly higher before COVID-19 than estimates from that time period. Reporting a percent change between pre and during COVID-19 prevalence may provide additional information about the rate of change in food insecurity since the start of the pandemic, which absolute prevalence of food insecurity may not capture.

8. Results highlight consistent trends in food insecurity outcomes since the start of the COVID-19 pandemic, across diverse study sites, methodological approaches, and time.

Regions and Approaches

Our data was collected from 18 study sites across 15 states, as well as from a national sample, including 22 separate surveys (Figure 1).

The survey instrument (Niles et al. 2020a) used by our sites was developed by NFACT collaborators in March 2020, after being piloted and tested with a sub-sample population in Vermont (Niles et al. 2020b). Study sites distributed the survey via two major strategies: 1) convenience sampling in partnership with community organizations and stakeholders and/or social media, and 2) representative survey panels administered by a professional survey company. In some cases, study sites deliberately targeted certain populations with known higher risk of food insecurity (e.g., low-income households; BIPOC; or participants in the Supplemental Nutrition Assistance Program (SNAP)). All study sites utilized the six-item food security module from the US Department of Agriculture, a validated instrument, which measures food security in a US context. All sites asked about food insecurity prevalence since March 2020, meaning the prevalence of food insecurity was cumulative since the start of the pandemic. Additional details about data collection and sampling approaches can be found in Table 1. Since we also report results for specific sub-populations, Supplementary Table 2 (at the end of the brief) shows the sample size by study site, both the total and for each sub-populations. Caution is needed in interpreting the food insecurity prevalence for some subgroups with smaller sample sizes (Supplementary Table 2). For this reason we do not report any sub-population food insecurity prevalence unless a population has at least 30 respondents, the minimum generally required to conduct statistical analysis.

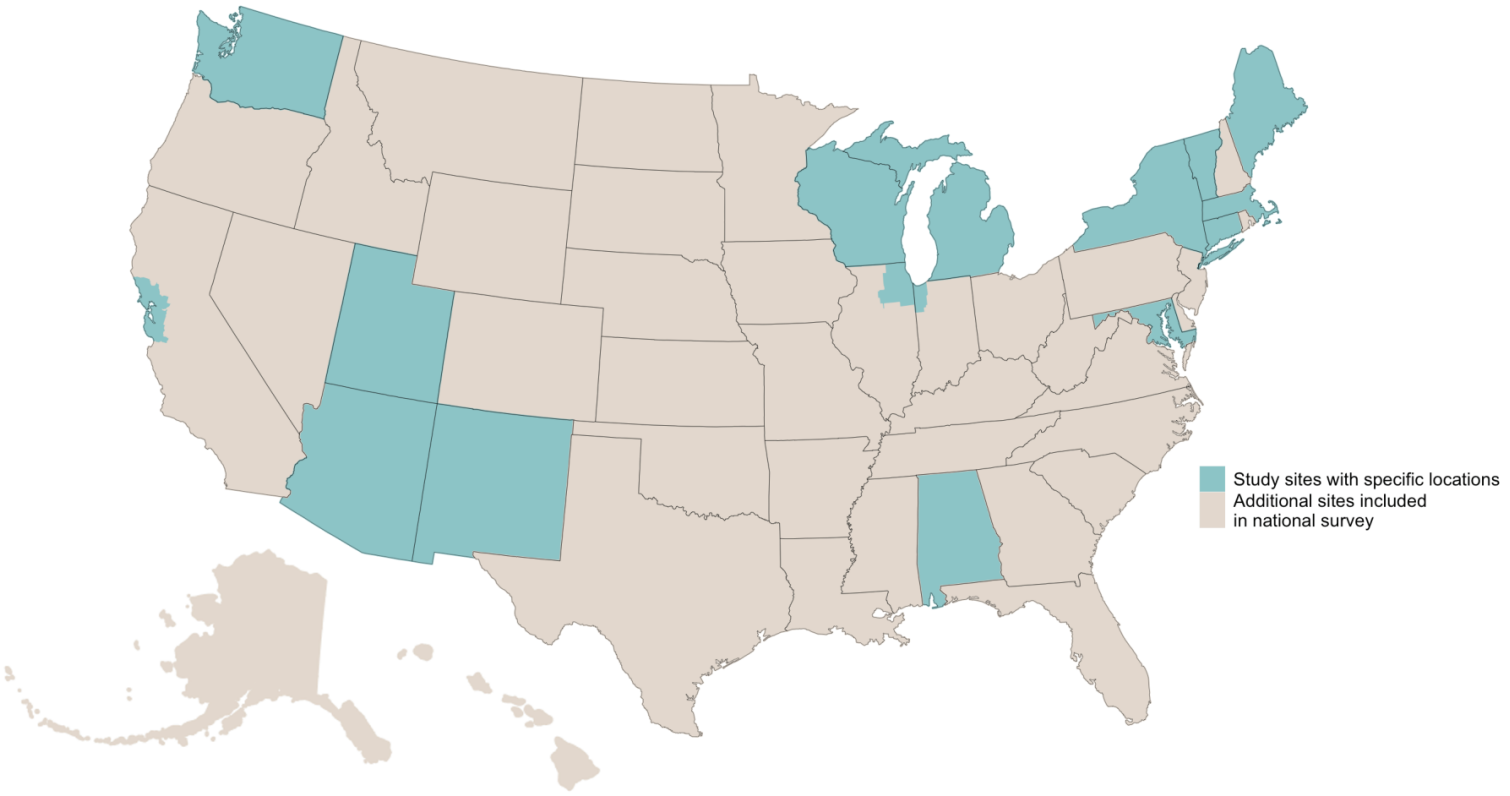

Figure 1. States shown in blue represent sites for NFACT studies in whole or part. California data is from the San Francisco Bay Area, Illinois data is from the Chicago area only. Gray states are also represented in the national sample. Visual credit: Samuel F. Rosenblatt

Table 1. Study sites and relevant methods for each site

Study Site	Sampling Frame	Survey Methodology	Representative Population Sample?	Dates in Field
Alabama	General population	Convenience sample. Recruitment via social media and community organizations	No	June 29-July 31, 2020
Arizona	General population	Representative survey panel (on race, ethnicity, and income) with Qualtrics	Yes	July-August, 2020
California- Bay Area	General population	Convenience sample. Recruitment via social media and community organizations	No	August - November, 2020
Chicago/Illinois	Oversampled low-income population (50%), Black (50%), Hispanic (50%) and 50% high school education or less	Survey panel sampling with Qualtrics to meet specific race, ethnicity, income and education quotas	Yes	June-July, 2020
Connecticut	Oversampled low-income population	Representative survey panel (on race, ethnicity and income) with Qualtrics	No	August, 2020
Maine	General population	Representative survey panel (income) with Qualtrics	Yes	August 11-September 29, 2020
Maryland	General population	Representative survey panel (on race, ethnicity and income) with Qualtrics	Yes	July 1 - September 14, 2020
Massachusetts	General population	Representative survey panel (on race, ethnicity, education, age, gender, geographic region and income) with Qualtrics	Yes	October 19, 2020-January 6, 2021
Michigan	General population	Convenience sample. Recruitment via social media	No	June 17-June 29, 2020
National	General population	Representative survey panel (on race, ethnicity and income) with Qualtrics	Yes	July-August, 2020
New Mexico	General population	Convenience sample. Recruitment via social media and community organizations	No	May-June, 2020
New York City (May/June)	Oversampled low-income population (50%), Black (50%), Hispanic (50%) and 50% high school education or less	Nested quota via social media campaign, community-based organizations, and convenience sample via Qualtrics	Yes	May-June, 2020
New York City (July/August)	Oversampled low-income population (50%), Black (40%, Hispanic (40%), Native American (20%) and 50% high school education or less	Survey consumer panel sampling via Qualtrics to meet specific race, ethnicity, income and education quotas	Yes	July-August, 2020
NY State except NYC	Oversampled low-income population (50%), Black and Hispanic sample only	Survey panel sampling with Qualtrics to meet specific race, ethnicity, income and education quotas	Yes	July 15-September 15, 2020
NY-Capital Region (Oct-Jan)	Oversampled low-income population (50%)	Representative survey panel (on race, ethnicity and income) with Qualtrics	Yes	October, 2020-January, 2021
NY- Capital Region (Jan/Feb)	General population	Convenience sample. Recruitment via social media and community organizations	No	January 4-February 7, 2021
NY Central / Upstate	General population	Convenience sample. Recruitment via listservs, social media, community organizations	No	October 23-December 10, 2020
Utah	Supplemental Nutrition Assistance Program (SNAP) participants (low-income sample)	Convenience sample. Recruitment through state list-serv of current SNAP recipients	No	July 14-September 8, 2020
Vermont (March/April)	General population	Convenience sample. Recruitment via listservs, social media, community organizations	No	March 29-April 12, 2020
Vermont (May/June)†	General population	Convenience sample. Recruitment via listservs, social media, community organizations	No	May 21-June 3, 2020
Vermont (August/Sept)	General population	Representative survey panel (on race, ethnicity and income) with Qualtrics	Yes	July 29-September 4, 2020
Washington State (June/July)	General population	Convenience sample. Recruitment via listservs, social media, community organizations	No	June 17-July 20, 2020
Washington State (Dec/Jan)	General population	Convenience sample. Recruitment via listservs, social media, community organizations, recontact of wave respondents	No	December 4, 2020-January 31, 2021
Wisconsin	General population.Oversample of Milwaukee area	Representative survey panel (on race, ethnicity and income) with Qualtrics	Yes	July 21-October 7, 2020

† Longitudinal sample of a subset of the same people who responded to the Vermont March/April survey

Overall Food Insecurity Prevalence

Overall we found higher levels of food insecurity since the onset of the COVID-19 pandemic as compared to pre-COVID-19 levels, with 18 out of 19 surveys in 14 sites with pre and post data finding increases in food insecurity (Figure 2). The percent of respondents classified as food insecure since the COVID-19 pandemic began, ranged from 19% in the Vermont May/June survey of a general population to 74% in New York City with a specific low-income/BIPOC sample from July/August. The range of change spans no change among respondents in one study site (New Mexico) to a 65% relative increase in food insecurity among respondents in the California Bay Area (from 20% pre-COVID-19 to 33% since COVID-19).

Overall Food Insecurity Prevalence Across NFACT Sites

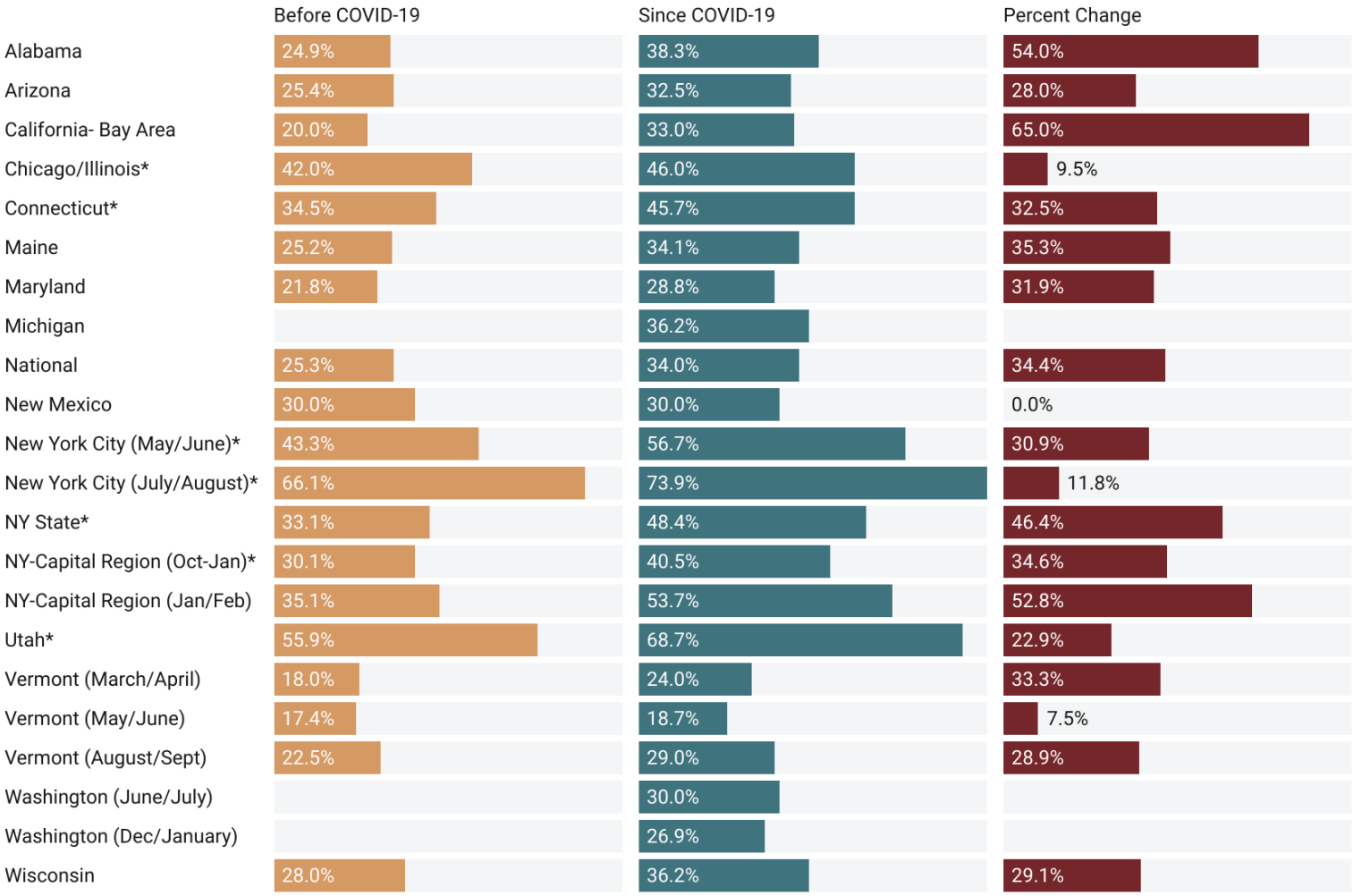

Figure 2. Food insecurity prevalence before COVID-19 as compared to since COVID-19, as well as the percent change. Pre-COVID-19 status was determined at the same time as since COVID-19 status, and was retrospective.

* Survey site with specific targeting of sub-populations (e.g. low-income, BIPOC, SNAP participants).

Food Insecurity by Race/Ethnicity

Disaggregated data is important to understand challenges across racial and ethnic communities. As a result, we report food insecurity by race and ethnicity before and during the COVID-19 pandemic in two ways: both as an aggregated outcome of BIPOC respondents overall (Figure 3) and, where there are at least 30 respondents within a specific race or ethnicity category, as disaggregated race and ethnicity data (Figure 4). In most study sites, we find that respondents identifying as BIPOC report higher levels of food insecurity as compared to the overall prevalence or the prevalence as compared to non-Hispanic white respondents. In nearly all sites, we also find an increase in the prevalence of food insecurity among BIPOC respondents during the COVID-19 pandemic.

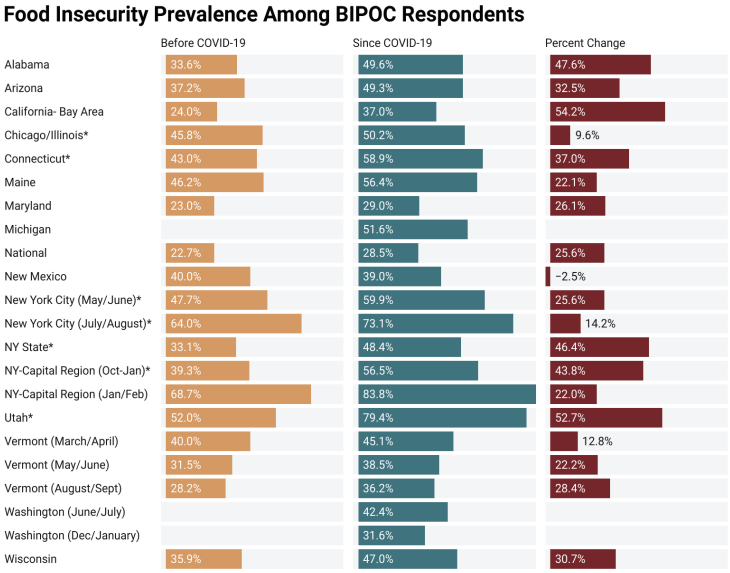

Figure 3. Prevalence of food insecurity before and during the COVID-19 pandemic among BIPOC respondents, and the percent change. Pre-COVID-19 status was determined at the same time as since COVID-19 status, and was retrospective.
* Survey site with specific targeting of sub-populations (e.g. low-income, BIPOC, SNAP participants).

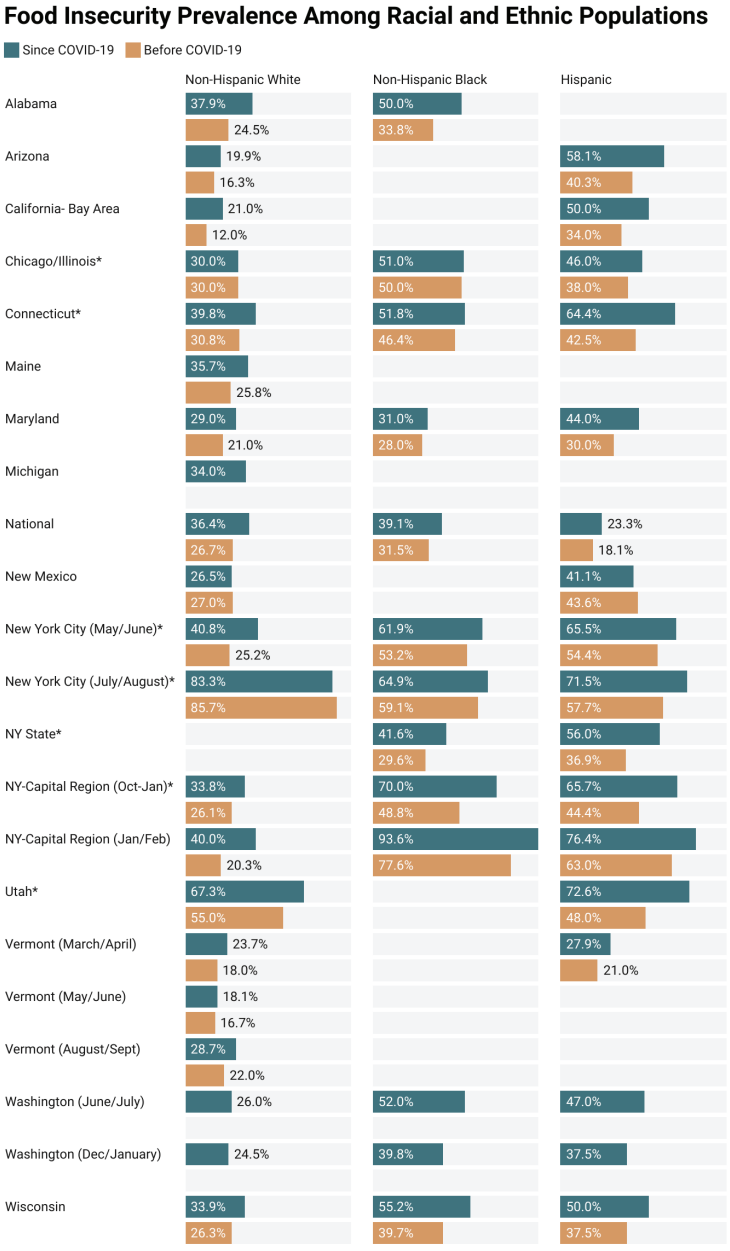

Figure 4. Prevalence of food insecurity before and during the COVID-19 pandemic among Non-Hispanic White, Non-Hispanic Black and Hispanic respondents. Pre-COVID-19 status was determined at the same time as since COVID-19 status, and was retrospective. Sites without disaggregated data do not have enough respondents for sub-population reporting.
* Survey site with specific targeting of sub-populations (e.g. low-income, BIPOC, SNAP participants).

Food Insecurity Among Households with Children

Across nearly all study sites, we found a higher prevalence of food insecurity among households with children (Figure 5). Furthermore, in the sites that assessed food security status before and during the COVID-19 pandemic, 21 out of 22 surveys saw an increase in food insecurity among households with children.

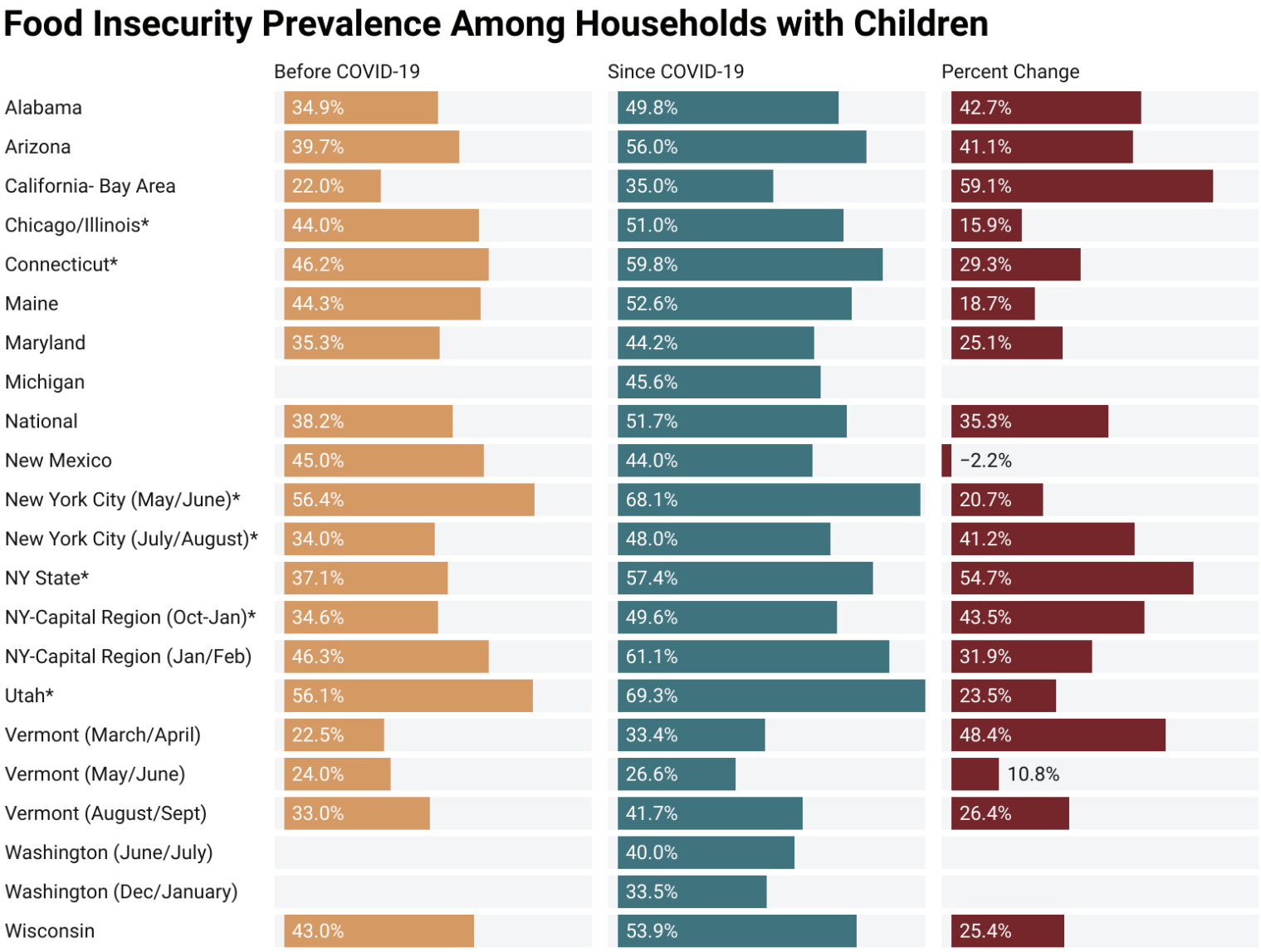

Figure 5. Prevalence of food insecurity before and during the COVID-19 pandemic among respondent households with children, and the percent change. Pre-COVID-19 status was determined at the same time as since COVID-19 status, and was retrospective.

* Survey site with specific targeting of sub-populations (e.g. low-income, BIPOC, SNAP participants).

Food Insecurity among Households with Job Disruption

In nearly all study sites, we found that food insecurity prevalence for those experiencing any type of job disruption (i.e., job loss, reduced hours, or furlough) was higher than the overall prevalence of food insecurity. Food insecurity among those with any type of job disruption ranged from 27.5% in Vermont's May/June survey, to 75% in Utah among a population of SNAP participants. In all sites, food insecurity prevalence was higher for respondents experiencing any negative job disruption, than the overall prevalence of food insecurity (Figure 6).

Next Steps

Our team is working to integrate datasets for additional analysis across states and regions, enabling a greater understanding of why food insecurity prevalence may differ across places. Further, we will combine NFACT data with additional data on varying policy approaches and COVID-19 prevalence across various study sites. Future analyses will further combine these data, and report on different food access and availability outcomes, policy participation in food access programs, and diet and health changes among respondents during the pandemic. Visit **www.nfactresearch.org** for additional information and to stay up to date on future work.

Food Insecurity Prevalence Since COVID-19 By Job Disruption Type

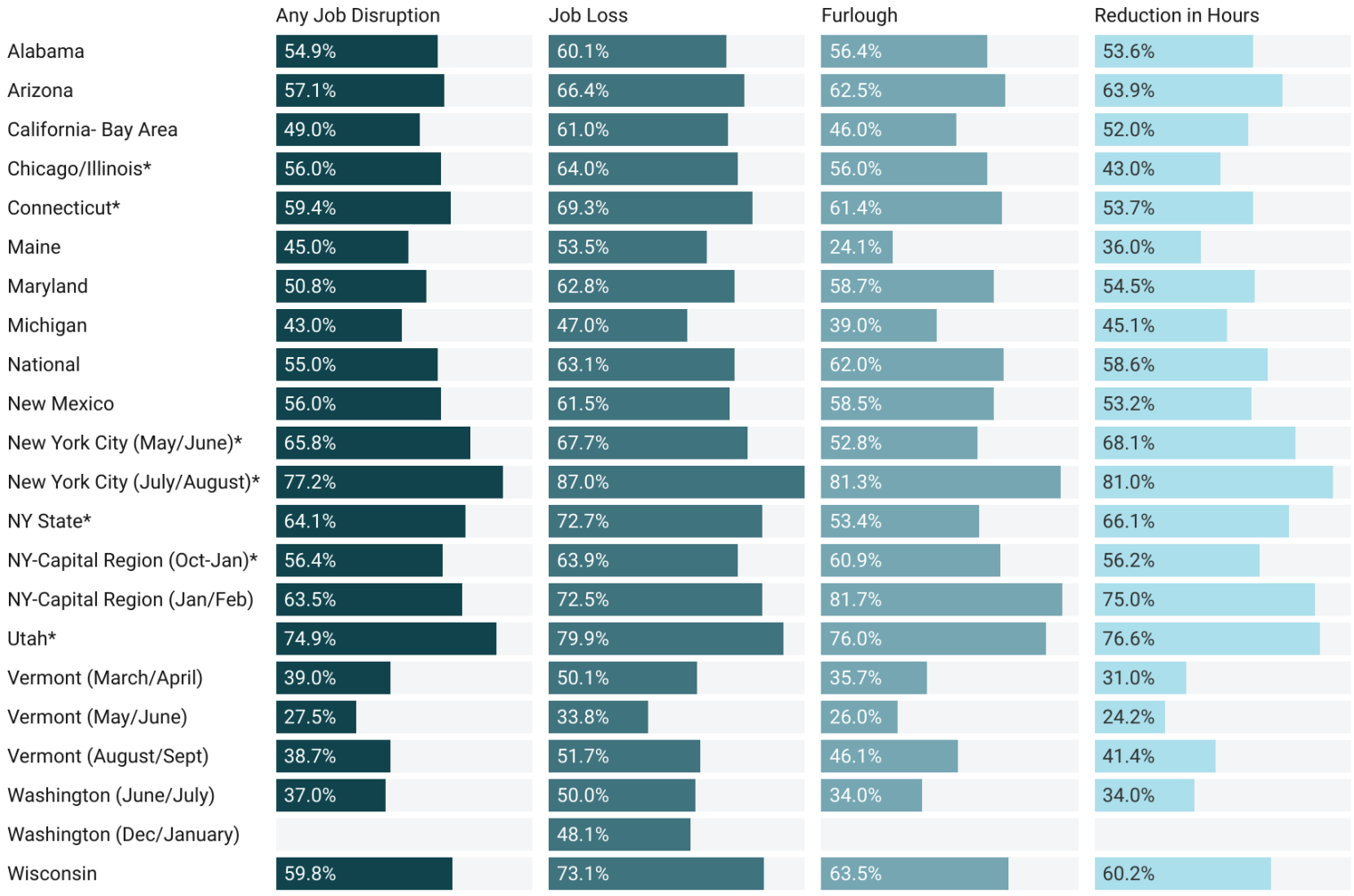

Figure 6. Rates of food insecurity since the start of the COVID-19 pandemic among respondent households experiencing a negative job disruption overall and by specific disruption types (i.e., job loss, furlough, or reduction in hours).

* Survey site with specific targeting of sub-populations (e.g. low-income, BIPOC, SNAP participants).

Acknowledgments

This research is conducted as part of The National Food Access and COVID research Team (NFACT), which is implementing common measurements and tools across study sites in the US. NFACT is a national collaboration of researchers committed to rigorous, comparative, and timely food access research during the time of COVID. We do this through collaborative, open access research that prioritizes communication to key decision-makers while building our scientific understanding of food system behaviors and policies.

We are grateful to the Nutrition and Obesity Policy Research and Evaluation Network (NOPREN) for their support of the ad-hoc COVID-19 Food Security Surveys subgroup that shared insights and surveys relevant to this project. We thank Christi Sherlock at The University of Vermont for her assistance with project management. Below we list specific funding from each site:

Alabama: The Alabama team has no funding to report but would like to thank Auburn University at Montgomery, the Alabama Cooperative Extension System at Auburn University, county Supplemental Nutrition Assistance Program Educators, AU Department of Nutrition and Dietetics, the Alabama Department of Public Health, End Child Hunger in Alabama and the Montgomery Area Food Bank for assisting in dissemination of the survey.

Arizona: This project was supported by a COVID-19 seed grant from the College of Health Solutions, Arizona State University.

California Bay Area: This project was supported by the College of Health and Human Sciences, San Jose State University.

Chicago/Illinois: This project was supported by the College of Liberal Arts and Social Sciences, DePaul University.

Connecticut: Generous funding was provided to Foodshare by the Hunger to Health Collaboratory.

Maine: Funding was provided by the University of Maine School of Food and Agriculture, and the George J. Mitchell Center for Sustainability Solutions.

Maryland: This research was supported by a Directed Research grant from the Johns Hopkins Center for a Livable Future.

Massachusetts: Funding for The Greater Boston Food Bank team was provided by the Hunger to Health Collaboratory.

Michigan: Funding from Wayne State University faculty startup funds.

National: This research was supported by the College of Health Solutions, Arizona State University with support from the college's COVID-19 seed grant and the university's Investigator Research Funds; the University of Arizona College of Agriculture and Life Sciences Rapid COVID-19 seed grant; a Directed Research grant from the Johns Hopkins Center for a Livable Future; and the University of Vermont, the College of Agriculture and Life Sciences, the Gund Institute for Environment, Office of the Vice President of Research, and the UVM ARS Food Systems Research Center.

New Mexico: Funding from New Mexico State University faculty startup funds.

New York City (all time points): Sponsored by the Vincentian Institute for Social Action, St. John's University, Queens, New York.

NY State: Funded by the Natural Hazards Center, Quick Response Grant. The Quick Response program is based on work supported by the National Science Foundation (Award #1635593). Any opinions, findings, conclusions, or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of NSF or the Natural Hazards Center.

NY-Capital Region: Funding for the Qualtrics Panel Survey was provided by the Foundation for Food and Agriculture Research. Funding for the non-Qualtrics Panel Survey was provided by UAlbany President's COVID-19 MHD Engaged Researchers Seed Funding Program.

NY Central/Upstate: Funding provided by Cornell Atkinson Center COVID-19 Rapid Response Fund.

Utah: Funding was provided by Utah State University Extension.

Vermont: Funding was provided by The University of Vermont College of Agriculture and Life Sciences and Office of the Vice President of Research, The Gund Institute for Environment, and the UVM ARS Food Systems Research Center.

Washington State: The WAFOOD survey team wishes to thank the UW Population Health Initiative (UWPHI), the UW School of Public Health (UWSPH), and the Department of Epidemiology for their support. We also wish to thank numerous community partners and stakeholders who helped shape this project. Among those are: WA Department of Health, WA Department of Agriculture, WA Anti-Hunger & Nutrition Coalition, WA SNAP-Ed, KC Local Food Initiative, Northwest Harvest, Washington State University (WSU) Extension, United Way of WA, and numerous food banks, food pantries, charitable organizations community organizations, county health departments, and local health jurisdictions.

Wisconsin: This Wisconsin project was supported by the University of Wisconsin-Milwaukee and its Joseph J. Zilber School of Public Health and the College of Nursing's Center for Global Health Equity.

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With the exception of the first author, authors are deliberately listed in alphabetical order. Study sites have additional policy briefs and site specific publications found on the NFACT website at www.nfactresearch.org.

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12 University of New Mexico
13 Cornell University
14 Utah State University
15 San Jose State University
16 University of Arizona
17 University at Albany- State University of New York
18 Auburn University
19 St. John's University
20 Washington State University
21 Hunter College, City University of New York
22 New Mexico State University
23 University of Maine, Orono
24 Tacoma Community College
25 The Greater Boston Food Bank

Supplementary Table

Supplementary Table 2. Total number of respondents by study site and specific sub-population characteristics

Study Site	Respondents w/ Food Security Data	With Children	Job Disruption/ (Reduced Income)	BIPOC[1]	NHW[2]	NHB[3]	Hispanic	Other or Multiple Races
Alabama	1247	541	546	226	1061	142	27	86
Arizona	576	189	221	268	352	32	194	42
California-Bay Area	724	620	321	232	223	6	122	49
Chicago/Illinois*	680	379	314	498	169	215	258	103
Connecticut*	512	199	286	158	354	56	73	54
Maine	504	97	193	42	477	9	8	8
Maryland	903	330	368	427	555	239	91	97
Massachusetts	2939	1098	1467	748	2191	202	292	254
Michigan	484	237	279	64	418	25	18	21
National	1510	515	568	585	925	212	255	118
New Mexico	1415	406	261	494	843	15	362	117
New York City (May/June)*	1,165	599	494	876	289	252	496	128
New York City (July/August)*	525	317	200**	484	41	154	123	102
NY State*	494	207	189	494	n/a	260	234	
NY -Capital Region (Oct-Jan)*	479	167	294	156	353	43	42	71
NY-Capital Region (Jan-Feb)*	427	283	327	137	317	62	56	19
Utah*	644	219	277	102	392	12	61	56
Vermont (March/April)	3016	913	1103	150	2603	5	45	104
Vermont (May/June)	1212	383	294	57	1137	3	19	37
Vermont (August/Sept)	578	178	270	49	551	6	17	26
Washington State (June/July)	2514	1095	636	592	1910	93	210	289
Washington State (December/ January)	3169	1541	343	737	2647	98	283	356
Wisconsin	1017	393	430	181	836	58	80	43
TOTAL	**26558**	**10822**	**9249**	**7687**	**18538**	**2172**	**3194**	**2180**

1 Black, Indigenous, People of Color respondents. Number includes anyone identifying as other than non-Hispanic white.
2 Non-Hispanic White (NHW)
3 Non-Hispanic Black (NHB)
* Survey site with specific targeting of sub-populations (e.g. low-income, BIPOC, SNAP participants)
**Survey site specifically analyzed reduced income.