



LGBTQ+ food insufficiency in New England

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Abstract

As a group, LGBTQ+ people experience food insecurity at a disproportionately high rate, yet food security scholars and practitioners are only beginning to uncover patterns in how food insecurity varies by subgroups of this diverse community. In this paper, we use data from the U.S. Census Bureau's Household Pulse Survey—which added measures of gender identity and sexuality for the first time in 2021—to analyze New Englanders' food insufficiency rates by gender, sexuality, race, and ethnicity. We find that (1) in the past seven days, 13.0 percent of LGB + (lesbian, gay, bisexual, and other non-heterosexual) New Englanders experience food insufficiency—which is nearly twice the rate of heterosexual people—and 19.8 percent of transgender+ (transgender, genderqueer, gender non-binary, and other non-cisgender people) New Englanders experience food insufficiency—which is two to three times the rate of cisgender men and women. (2) Whereas cisgender New Englanders experience food insufficiency at a *lower* rate than their counterparts in the rest of the nation (about two percentage points lower for both cisgender men and women), transgender+ New Englanders experience no such New England advantage compared to transgender+ people in the country as a whole. (3) LGBTQ+ New Englanders of color experience devastatingly high rates of food insufficiency, with, for example, one in three Black transgender+ New Englanders not having enough food to eat in the past seven days. These findings suggest that addressing food insecurity in New England demands approaching the problem with an intersectional queer lens, with attention to the ways in which racism, cissexism, and heterosexism are creating a systemic, ongoing food crisis for LGBTQ+ New Englanders, especially those who are transgender+ and/or people of color.

Keywords Food insecurity · Food justice · Gender · LGBTQ+ · Queer · Race · Sexuality

Abbreviations

LGBTQ+ Lesbian, gay, bisexual, transgender, queer, and other non-heterosexual and/or non-cisgender people
LGB + Lesbian, gay, bisexual, and other non-heterosexual people

Transgender+ Transgender, genderqueer, gender non-binary, and other non-cisgender people
USDA United States Department of Agriculture

Introduction

LGBTQ+ people have a severe yet invisibilized relationship with food insecurity. Scholarship demonstrates that LGBTQ+ people as a group experience food insecurity at disproportionately high rates (e.g., Brown et al. 2016). LGBTQ+ people are also part of every other disproportionately affected group, yet scholarship has yet to sufficiently distinguish patterns of food insecurity across subgroups of this community. Furthermore, the research that does exist has only rarely been adopted into broader food insecurity scholarship and practice. Despite food systems researchers and practitioners' longstanding interest in identifying inequities related to food security, stakeholders seldom approach the issue from a queer perspective. A queer lens

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encourages us to focus on how gender and sexuality—along with intersecting identities like race and class—relate to everyday things like eating (Leslie et al. 2019). Fortunately, there has been a recent surge in research on LGBTQ+ food insecurity (e.g., Conron and O’Neill 2021). However, aside from Russomanno and Jabson Tree’s (2020, p 5) survey of the Southeastern U.S. (n = 105), this body of work has yet to quantify this phenomenon with a regional lens, despite important food policy decisions being implemented at these regional levels (e.g., New England State Food System Planners Partnership 2022). Here, we focus on New England to offer locally actionable data for a region of 15 million people (authors’ own analysis of 2020 Decennial Census Redistricting Data). Doing so also sheds light on the experiences of LGBTQ+ people in a politically liberal region of the U.S., through the lens of food access. Four of the six New England states have food insecurity rates lower than the national rate (Coleman-Jensen et al. 2021), but does this New England exceptionalism hold for its LGBTQ+ residents?

In this paper, we analyze New England LGBTQ+ food insufficiency—across gender identity, sexuality, race, ethnicity, and income—using data from the U.S. Census Bureau’s Household Pulse Survey. The experimental survey, designed to capture information about how households are faring during the COVID-19 pandemic, began data collection in April 2020, but did not add measures of gender identity and sexual orientation until July 2021. According to Conron (2022), this inclusion of gender identity and sexuality questions “was directly related to the Biden administration’s executive orders about data collection and equity,” making this “one of the first times, to my knowledge, that we have information about food insufficiency for trans people in a big national survey data set.” This survey’s measure of food insecurity differs from the official measure in its reference period—asking respondents about their food situation in the past seven days, rather than the past 12 months—and in its complexity; our measure is a single question, whereas officially food insecurity is measured in a multi-stage series of up to 18 questions. Here, people who report sometimes or often not having enough to eat in the past seven days are described as experiencing “food insufficiency.”

Because this measure does not capture, for instance, people who did not have enough to eat last month but who did last week, our results likely underreport the extent of LGBTQ+ food insecurity in New England. Still, our three main findings speak to the severity of the problem:

First, we estimate that in the past seven days, 13.0 percent of LGB + New Englanders experience food insufficiency—which is nearly twice the rate of heterosexual people—and 19.8 percent of transgender+ New Englanders experience food insufficiency—which is two to three times the rate of cisgender men and women. Second, whereas cisgender New Englanders experience food insufficiency at a *lower*

rate than their counterparts in the rest of the nation (about two percentage points lower for both cisgender men and women) transgender+ New Englanders experience no such New England advantage compared to transgender+ people in the country as a whole. Third, LGBTQ+ New Englanders of color experience devastatingly high rates of food insufficiency, with, for example, one in three Black transgender+ New Englanders not having enough food to eat in the past 7 days.

These findings indicate that even in a politically liberal region with a low overall food insecurity rate, existing policies fail to ensure food security for New Englanders who identify as people of color, transgender+, and LGB+. As we will demonstrate, practice that relies on an income or class lens alone is insufficient for relieving these inequities. A socially just approach to addressing food insecurity demands explicit attention to the intersections of racism, cissexism, and heterosexism.

Literature review

Approaches to food insecurity in food systems literature

Much of the public health, nutrition, and interdisciplinary food systems scholarship addressing food insecurity is focused on food accessibility and availability by increasing individuals’ access to fresh fruits and vegetables (Allen 2004; Dailey et al. 2015; Hsiao et al. 2019; Lytle and Sokol 2017; Westengen and Banik 2016). This work is often centered on “food deserts,” a contentious concept that defines areas lacking easy access to supermarkets or full-size grocery stores that sell a wide range of healthy and fresh food (Caramaschi 2017; Meenar and Hoover 2012; Sadler et al. 2013). A more recent line of research focused on the impacts of food environments examines so-called food swamps, or areas with a high-density of high-calorie fast food and junk food stores, relative to healthier food options (Cooksey-Stowers et al. 2017; Cooksey-Stowers et al. 2020). Many intervention-oriented initiatives have accordingly utilized this physical proximity-focused approach and focused on increasing the availability of fresh foods in low-income neighborhoods, based on the assumption that these initiatives will improve individuals’ diet quality and food security (e.g. Blackmore 2013; Dailey et al. 2015; Hanson et al. 2022; Sadler 2016; Savoie-Roskos et al. 2016). For instance, an extensive line of research is focused on the potential of initiatives designed to increase the accessibility and availability of fresh produce in low income and underserved communities, including urban agriculture (Siegnier et al. 2018), community gardens (Furness and Gallaher 2018), farmers markets and farm stands (Evans et al. 2012; Markowitz

2013; Sage et al. 2013), mobile markets (Leone et al. 2017); and related food assistance programs such as the farmers' market nutrition program (Blumberg et al. 2022; Dimitri et al. 2015; Johnson et al. 2020; O'Dare 2017; Singleton et al. 2017).

However, studies examining the link between food access and food insecurity are often inconclusive (Kirkpatrick and Tarasuk 2010; Lytle and Sokol 2017; Ma et al. 2016). For example, an analysis of three waves of the Southeastern Pennsylvania Household Health Survey found that better neighborhood food access is associated with lower risk of food insecurity, yet most food insecure individuals reported good food access, suggesting that buying power, not access, may be the primary driver of food insecurity (Mayer et al. 2014). Other research demonstrates that financial constraints are the underlying cause of food insecurity (Loopstra and Tarasuk 2013; Kirkpatrick and Tarasuk 2011), and USDA (United States Department of Agriculture) researchers have estimated that a \$10 increase in the price of a standard "basket" of key foods would increase food insecurity by about 2.5 percentage points among low-income households (Gregory and Coleman-Jensen 2013). Not surprisingly, studies evaluating the impact of programs and initiatives designed to increase individual access to fresh foods often have negligible or limited impacts on food insecurity (Dailey et al. 2015; Sadler et al. 2013).

The food justice approach to food insecurity is more systemic and focuses on the root causes of food insecurity. This research suggests that income and employment, housing, and transportation-based policy interventions would be more effective than approaches focused on increasing food availability and accessibility (Horst et al. 2017; Loopstra and Tarasuk 2013). Food justice scholars argue that food systems initiatives and scholarship focus on increasing the availability of fresh fruits and vegetables because this strategy is easier, politically feasible, and more appealing to mobilize around (such as planning a farmer's market or community garden) and obtain funding to support, rather than advocating for policies to address the root causes of food insecurity or confronting class and racial inequities (Allen 2008; Guthman 2011). Guthman (2011) argues that because the importance of fresh, local, organic foods has been posed in opposition to all that is wrong with the food system, access to these foods is posed as the solution to food insecurity. This discursive strategy defines the problem of food insecurity as unequal access to high-quality food rather than disparities in wages, employment, or housing, yet Guthman notes that "bringing good food to others isn't changing the conditions of exploitation and oppression or addressing the privilege that also results from pervasive inequality" (Guthman 2011, p 161).

Food justice scholars pay explicit attention to the role of structural racism and racial inequities in the root causes of

food insecurity (Bowen et al. 2021; Garth and Reese 2020; Hatch et al. 2019; Reese 2019). For instance, food justice activists have challenged the term food desert because it suggests such inequity is "natural" (Bell et al. 2021) and implies barren emptiness, ignoring the cultural richness of the community and failing to acknowledge the context of structural racialization, segregation, and racial injustice that drives the lack of full-service grocery stores in communities of color (Corcoran 2021; Dickinson 2019; Usher 2015). Instead, some food justice activists and scholars have developed the concept of "American Apartheid" to refer to the lack of access to nutritious, affordable, culturally appropriate food in low-income communities of color (Akom et al. 2016; Dickinson 2019). The relationship between neighborhood food access and food security stems from the ways urban development patterns and housing discrimination have contributed to spatial inequities that separate communities along racial and class lines (Ball et al. 2009; Bruce et al. 2020; Raja et al. 2008), so that low-income communities of color who experience higher rates of food insecurity are also more likely to live in neighborhoods with less access to fresh foods. A line of related scholarship further unpacks the conception of food deserts and swamps, conceptualizing the centrality of sugar-sweetened foods and beverages as a form of environmental racism (Hatch 2016; Hatch et al. 2019). Other scholars have called for expanding conceptions of food access (Usher 2015) and connecting analyses of the food environment with structural racism and racial inequities in socioeconomic status (Bell et al. 2019; Dombrowski et al. 2022; Odoms-Young 2018). Food justice scholars and activists emphasize the self-determination and resilience of these communities and call for systems-level strategies to challenge and transform the structural conditions and policies that perpetuate food insecurity in these communities (Joyner et al. 2022; Leslie and White 2018; Reese 2019; White 2018). Food justice scholars have done important work on how these root causes intertwine with systemic discrimination based on race and nationality but are only beginning to uncover further intersections with gender identity and sexuality (Hoffmeyer 2021; Leslie 2017, 2019; Leslie et al. 2019).

LGBTQ+ food insecurity

Food insecurity is fundamentally an issue of inadequate resources, and LGBTQ+ food insecurity rates are fueled by gender and sexual oppression in areas like job and housing discrimination, which push people toward poverty. Despite common myths about affluent urban gay people, LGBTQ+ poverty rates average 22 percent compared to 16 percent for cisgender heterosexual people, with a transgender poverty rate of 29 percent (Badgett et al. 2019, p 2). Thirty one percent of Black LGBTQ+ people experience

poverty compared to 25 percent of Black cisgender heterosexual people, and this pattern of higher poverty rates for people of color persists across LGBTQ+ subgroups (Badgett et al. 2019, p 3). A survey of transgender people in New York state found that transgender people's rates of having lived below the poverty line and having been unhoused are more than twice those of cisgender people (Frazer and Howe 2015, pp. 9–10). Qualitative studies on LGBTQ+ food insecurity find job discrimination is a primary driver of food insecurity (McFadden 2020; Russomanno et al. 2019). Another qualitative study found that lack of transportation and stable housing are significant barriers to accessing emergency food relief (Wilson et al. 2020, p 2). Although there is insufficient data on LGBTQ+ poverty in New England, one study finds that LGBTQ+ people disproportionately live in poverty in Connecticut, Massachusetts, Rhode Island, and Vermont (data were not available for the other New England states) (Choi et al. 2019, pp. 18–23).

While these studies indicate that poverty resulting from discriminatory policy and practices are the main drivers of LGBTQ+ food insecurity, this oppression does not function solely through its effects on income. A national analysis of the same dataset we use here found that transgender people are nearly twice as likely as cisgender people to experience food insufficiency when their incomes are below 130 percent of the federal poverty threshold and are more than four times as likely as cisgender people to experience food insufficiency when their incomes are above twice the poverty threshold (Conron and O'Neill 2021, p 5). More than three quarters of both cisgender and transgender respondents "reported that their inability to afford more food was the cause of insufficient food in their households." However, "Almost twice as many transgender people as cisgender people reported additional barriers to accessing food, including that they could not get out to buy food (24.1 percent and 12.3 percent, respectively) and safety concerns (22.0 percent and 11.8 percent, respectively)" (Conron and O'Neill 2021, p 7). Because these data were collected during the early phase of the COVID-19 pandemic when inability to get out to buy food and safety concerns were heightened for much of the population, these findings warrant further research to assess why these concerns were higher for transgender people. In sum, structural racism, cissexism, and heterosexism drive LGBTQ+ food insecurity by perpetrating poverty among LGBTQ+ people and people of color, but also when income levels are equivalent.

Since 2014, quantitative studies in nutrition and public health have documented LGBTQ+ food insecurity, finding patterns across race, gender identity, and sexuality. With data from a large and nationally representative survey, a pathbreaking study by the UCLA Williams Institute found 27 percent of LGBTQ+ people in the U.S. reported not having enough money for food at some point in the last year

compared to 17 percent of cisgender heterosexual people (Brown et al. 2016, p 10). We see further disparities within the LGBTQ+ community by race, with LGBTQ+ food insecurity rates higher than cisgender heterosexual rates within each racial and ethnic group. Underscoring the essential intersection of race with gender identity and sexuality is the fact that even though LGBTQ+ food insecurity rates are elevated among white people, at 21 percent, Brown et al. (2016, p 15) found them lower than the food insecurity rates reported by cisgender heterosexual African American and Hispanic populations (24 and 28 percent, respectively) (see also Patterson et al. 2020, p 5). A study in New York found transgender people were nearly twice as likely as cisgender people to report being food insecure (Frazer and Howe 2015, pp. 9–10). One study of transgender and gender non-conforming people in the southeastern U.S. found 79 percent of respondents experiencing food insecurity (Russomanno and Jabson Tree 2020, p 5). While the numbers vary between these studies due to geography, data quality, and food insecurity measures, there are clear patterns in food insecurity rates by race, gender identity, sexuality, and their intersections.

However, existing studies on LGBTQ+ food insecurity rarely disaggregate gender identity from sexuality (lumping together LGB + with transgender+ individuals under the umbrella of LGBTQ+), which may inflate food insecurity estimates for LGB + people while underestimating those of transgender+ people. Furthermore, because it requires a very large sample size to quantitatively analyze differences not only by gender identity and sexuality, but also across racial groups, most of these studies rely on a national geographic scope, which may cloud disparities within and across regions. New England is a particularly interesting region to investigate for these types of inequities, given its reputation as a politically liberal region with a low overall food insecurity rate. In this analysis, we investigate whether deeper inequities are hidden by methods that aggregate the most marginalized groups into broader categories.

Methodology

Data and Sample

We drew data for this analysis from the U.S. Census Bureau's Household Pulse Survey, specifically from Phases 3.2 through 3.5, which were collected between July 21, 2021 and August 8, 2022 (U.S. Census Bureau, 2021). The Household Pulse Survey utilizes the Census Bureau's Master Address File of more than 145 million housing units to randomly select households for participation in the survey. Data for Phase 3.2 were collected over six two-week increments called "weeks," as an artifact of earlier survey design.

Data for Phases 3.3 through 3.5 were collected in three two-week increments, with two-week breaks in between. In each “week,” more than one million households were randomly selected to participate in the survey, and on average, about 64,000 did. The survey is completed online and requires about 20 min for the selected respondent to answer questions about themselves, their household, and their pandemic-era experiences. Each week’s sample is independently selected so that the six samples are made up of different respondents; to ensure a large enough group of LGBTQ+ respondents to generate statistically reliable estimates in this analysis, we pool the six samples from Phase 3.2 (Weeks 34–39) and the nine samples from Phases 3.3 through 3.5 (Weeks 40–48) to create one sample that covers approximately a one-year period ($n = 971,836$).

Although we included all respondents in the initial sample, not everyone answered each survey question. To ensure our analyses were among a consistent group of respondents, we created a subpopulation for analysis, only allowing those who answered the questions on gender identity, sexuality, race and ethnicity, age, food insufficiency, income, education, and state of residence to be included ($n = 763,509$). As noted throughout, we also limit most of the analysis to survey respondents who live in one of the six New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, or Vermont). This final restriction yields our final sample size for most of the tables ($n = 71,032$).

Importantly, survey respondents are asked about food insufficiency in reference to their entire household. At the same time, characteristics about gender identity, sexual orientation, race-ethnicity, and age are all collected only about the individual responding to the survey on behalf of their household. As a result, it should be noted that we are deriving person-level estimates of food insufficiency from a measure designed to collect information about an entire household. We suggest here that while this technical difference should be borne in mind, the possibility that an LGB+ or transgender+ person would live in a household where someone else experienced food insufficiency, but the respondent themselves did not, is minimal.

Among New England respondents, about 12 percent of the sample identifies as LGB+ and about two percent as transgender+. State by state data collected by Gallup in 2015 and 2016 suggest that Vermont and Massachusetts have the highest share of residents identifying as LGBT in the nation, at around 5 percent of each state’s population (Gates 2017). Although the Gallup data are older and patterns of self-identification may have shifted over time, it is possible that LGB+ and transgender respondents are over-represented in our sample, even after applying survey weights. However, since most of our analyses are within the LGBTQ+ groups, an underrepresentation of cisgender and heterosexual populations would not substantively change the findings here. In

terms of racial-ethnic composition, the 2020 Decennial Census recorded that 73 percent of New England’s population identifies as white and 88 percent identifies as non-Hispanic (authors’ own analysis of 2020 Decennial Census redistricting data). In our sample, about 85 percent is white and 91 percent is non-Hispanic; applying survey weights partially addresses this bias, but people of color are still underrepresented in our sample. It is not possible to measure the effects of this nonresponse bias directly, although the Census Bureau finds that response rates to the survey were disproportionately high among people with higher incomes, and in communities with low poverty, low housing vacancy, and low rates of being uninsured (Peterson et al. 2021). Taken together, this suggests that our sample may exclude some of the most disadvantaged New Englanders.

Measures

The main “outcome” measure for this paper is food insufficiency. The specific survey question read “Getting enough food can also be a problem for some people. In the last 7 days, which of these statements best describes the food eaten in your household? *Select only one answer.*” Respondents could select from (1) enough of the kinds of food (I/we) wanted to eat; (2) enough, but not always the kinds of food (I/we) wanted to eat; (3) sometimes not enough to eat; or (4) often not enough to eat. For this paper, we consider those who sometimes or often do not have enough to eat to be experiencing food insufficiency.

Sexual orientation is measured with a single question asking respondents “which of the following best represents how you think of yourself?” Response options include gay or lesbian; straight, that is not gay or lesbian; bisexual; something else; or I don’t know. For this paper, respondents selecting any option other than “straight, that is not gay or lesbian” are considered LGB+.

Gender identity was collected as a series of questions asking respondents what gender they were assigned at birth and whether they describe themselves as male, female, transgender, or none of those. Here, respondents who identify as transgender or none of these, or whose current gender identity does not align with their reported sex assigned at birth, are considered transgender+.

Race and ethnicity were collected in two distinct questions. Respondents were first asked “Are you of Hispanic, Latino, or Spanish origin?” and allowed to select yes or no. Respondents were then asked “What is your race? Please select all that apply” with the options to select from “white, alone,” “Black, alone,” “Asian, alone,” or “Any other race alone, or race in combination.” The Census Bureau recodes the race responses before making the data public so that any respondents selecting multiple races are shifted into the fourth category (“race in combination”). We treat race and

ethnicity separately here and make no revisions to either measure.

While this U.S. Census Bureau's Household Pulse Survey's measures of race, ethnicity, gender identity, and sexual orientation are far from capturing the actual diversity within each characteristic, the survey's large sample size and recent addition of gender identity and sexual orientation questions (which previously were not included at all) offer a rare opportunity to analyze inequities among people with intersecting marginalized identities in a regional context.

Methods

To assess potential disparities in food insufficiency between LGBTQ+ and other respondents, we first conduct a series of chi-square tests assessing food insufficiency by gender identity and sexual orientation separately. We then assess the relationship between food insufficiency and race and ethnicity separately for LGB+ and transgender+ respondents with another series of chi-square tests. We next utilize the bivariate results to identify measures for inclusion in the multivariable logistic regression models to follow. In these models, we focus on our key measures of interest: gender identity, sexual orientation, race, and ethnicity. We enter these measures in succession into a series of models, in order of theoretical interest, to estimate the independent contribution of each element on food insufficiency. Finally, to ground results in concrete examples, we calculate predicted probabilities following our final models to identify the probability of being food insufficient among specific groups.

All analyses are weighted using person-level replicate weights. Survey weights are designed to ensure that estimates calculated among the survey sample are representative of the population. Replicate weights provide multiple weights for each respondent and allow calculation of estimates using each weight in succession, then averaging the results. In this way, a single sample can be treated as multiple samples, generating more informed standard errors and more precise confidence intervals and significance tests. The Household Pulse Survey contains 80 replicate weights. All analyses were conducted in Stata/SE 17.0.

Results

Examining food insufficiency rates by sexual orientation reveals that 13 percent of LGB+ New Englanders experienced food insufficiency in the past seven days, more than twice the rate among those identifying as straight. Looking at gender identity, 20 percent—or about one in five—transgender+ New Englanders experienced food

insufficiency last week, twice the rate of cisgender women and three times the rate of cisgender men.

Table 1 shows that New England's lower-than-national food insufficiency rate does not hold true for all New Englanders. Whereas cisgender New Englanders have lower food insufficiency rates than their counterparts in other regions, transgender+ New Englanders have a rate like transgender+ residents of other regions—that is, unlike cisgender New Englanders their rate does not reflect any New England advantage. To further disaggregate disadvantage within specific groups, we classify respondents by sexual orientation *and* gender identity, then estimate food insufficiency for these combinations, clarifying specifically for whom the New England advantage is unavailable. While cisgender men and cisgender women (across sexual orientation categories) have lower food insufficiency rates in New England than in other places, LGB+ cisgender men, and transgender+ New Englanders (across sexual orientation categories) do not experience a New England advantage.

What happens when we further dissect these numbers by race, ethnicity, income, and other characteristics? Table 2 first shows food insufficiency rates of LGB+ vs. heterosexual New Englanders. Because the sample sizes are small for some subgroups, these estimates are not precise and include a large margin of error (range of possible values accounting for the margin of error is indicated in the “low” and “high” columns in Table 2). However, patterns of heightened food insufficiency rates are clear among some LGB+ subgroups, including transgender+ people, low-income people, and people of color. Regarding the latter, about one in four Hispanic and Black LGB+ New Englanders did not have enough to eat last week.

Like with sexuality, Table 2 also presents food insufficiency rates for gender identity and compares transgender+ New Englanders to cisgender men and cisgender women New Englanders by race, ethnicity, income, and more. Although food insufficiency is uniformly higher among transgender+ respondents, for some subgroups, the disparity between cisgender and transgender+ New Englanders is especially wide. For instance, food insufficiency is about 1.5 times higher among transgender+ respondents than cisgender men respondents who are LGB+, who are young adults, or who are very low income. But among transgender+ respondents who are Hispanic, Black, or over age 65, rates are three or more times the rate of their cisgender men counterparts. Uniformly, multiracial, Black, and Hispanic New Englanders have higher rates of food insufficiency than their white or non-Hispanic neighbors, and so too do transgender+ New Englanders have elevated rates of food insufficiency compared with their cisgender neighbors. However, being transgender+ *and* Black, multiracial, or Hispanic is associated with extreme rates of food insufficiency,

Table 1 Percent Reporting Sometimes/Often Not Enough to Eat (Food Insufficiency) in Past 7 Days, by Respondent Characteristics and Geography

	New England			U.S., Outside New England		
	Estimate	Low	High	Estimate	Low	High
Total	7.7	7.4	8.1	9.5	9.3	9.6***
Gender Identity						
Cisgender Female	8.3	7.9	8.8	10.0	9.8	10.2***
Cisgender Male	6.5	6.1	7.1	8.3	8.1	8.5***
Transgender+	19.8	16.4	23.7	22.3	20.7	24.0
Sexual orientation						
LGB +	13.0	11.7	14.5	15.6	15.0	16.2**
Straight-identifying	7.0	6.7	7.3	8.7	8.5	8.8***
Sexual orientation & gender identity						
LGB + Cisgender female	11.5	9.9	13.3	14.9	14.2	15.6***
LGB + Cisgender male	12.0	9.6	14.8	13.5	12.6	14.5
LGB + Transgender+	21.7	17.5	26.6	23.8	21.9	25.8
Straight cisgender female	7.9	7.5	8.3	9.4	9.2	9.6***
Straight cisgender male	6.0	5.5	6.5	7.8	7.6	8.0***
Straight transgender+	14.5	9.3	21.8	18.7	16.1	21.6
Age						
18–24	10.0	8.1	12.3	11.8	11.0	12.6
25–34	9.0	8.0	10.1	11.2	10.7	11.7***
35–44	9.4	8.7	10.3	12.4	12.0	12.8***
45–54	10.1	9.3	11.0	11.5	11.1	12.0**
55–64	7.4	6.7	8.2	8.5	8.1	8.8*
65 or older	3.6	3.1	4.0	4.4	4.1	4.6**
Educational attainment						
Did not graduate college	11.9	11.3	12.4	12.9	12.7	13.1**
Graduated college	2.2	2.0	2.4	2.9	2.8	3.0***
Ethnicity						
Not Hispanic	6.8	6.5	7.2	8.5	8.3	8.6***
Hispanic	17.0	15.3	18.8	15.0	14.5	15.6*
Income						
Under 25,000	25.1	23.6	26.8	27.7	27.0	28.3**
25,000 to 34,999	16.4	14.8	18.1	16.3	15.9	16.8
35,000 to 49,999	12.2	10.9	13.6	11.7	11.2	12.1
50,000 to 74,999	6.8	5.9	7.9	6.4	6.2	6.7
75,000 to 99,999	3.8	3.2	4.6	3.4	3.1	3.7
100,000 to 149,999	1.8	1.4	2.4	1.5	1.4	1.7
150,000 or more	0.8	0.5	1.2	1.0	0.9	1.2
Race						
Any other race/combo	16.9	14.4	19.6	17.3	16.3	18.5
Asian alone	4.6	3.3	6.4	5.8	5.2	6.4
Black alone	18.1	17.5	18.8	18.4	15.8	21.2
White alone	6.7	6.4	7.1	8.0	7.8	8.1***

“LGB +” category includes respondents identifying as lesbian, gay, bisexual, “something else,” or “I don’t know.” “Transgender+” includes respondents identifying as transgender, “none of these,” or whose assigned sex at birth does not match their current gender identity. “Low” and “high” indicate the 95% confidence interval (i.e., estimate \pm the margin of error). All estimates are calculated using person-level replicate weights. Asterisks indicate results of chi-square tests between geography and food insufficiency within respondent characteristics; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source Carsey School of Public Policy analysis of Census Bureau Household Pulse Survey, Weeks 34–48, $n = 971,836$

Table 2 Percent of New Englanders Reporting Sometimes/Often Not Enough to Eat (Food Insufficiency) in Past 7 Days, by Demographics

	Sexual orientation						Gender identity								
	LGB+ (n = 7426)			Straight-Identifying (n = 63,606)			Cisgender Female (n = 41,579)			Cisgender Male (n = 28,358)			Transgender+ (n = 1095)		
	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High	Estimate	Low	High
Total	13.0	11.7	14.5	7.0	6.7	7.3	8.3	7.9	8.8	6.5	6.1	7.1	19.8	16.4	23.7
Sexual orientation															
LGB+															
Straight-identifying							11.5	9.9	13.3***	12.0	9.6	14.8***	21.7	17.5	26.6
Gender identity															
Cisgender female	11.5	9.9	13.3***	7.9	7.5	8.3***									
Cisgender male	12.0	9.6	14.8	6.0	5.5	6.5									
Transgender+	21.7	17.5	26.6	14.5	9.3	21.8									
Age															
18–24	12.9	9.4	17.6*	8.5	6.0	11.8***	9.8	7.4	12.8***	9.5	6.8	13.1***	14.2	7.1	26.5
25–34	10.9	8.8	13.4	8.4	7.4	9.5	10.2	8.7	12.0	7.0	5.8	8.5	15.9	10.8	22.9
35–44	13.2	10.8	15.9	8.9	8.0	9.8	11.0	9.9	12.2	7.5	6.3	9.0	16.4	9.3	27.3
45–54	19.6	14.8	25.4	9.3	8.5	10.2	11.8	10.7	13.1	7.7	6.4	9.2	27.8	17.2	41.6
55–64	12.2	8.9	16.6	7.1	6.4	7.8	7.7	6.8	8.7	6.8	5.8	7.9	22.8	14.5	34.0
65 or older	13.7	10.1	18.3	3.0	2.6	3.5	2.7	2.2	3.5	3.7	3.0	4.4	27.8	16.9	42.1
Educational attainment															
Did not graduate college	19.5	17.3	21.8***	10.8	10.3	11.4***	13.1	12.3	13.9***	9.9	9.1	10.8***	25.5	20.7	31.0***
Graduated college	4.4	3.6	5.4	1.9	1.7	2.1	2.3	2.0	2.6	1.8	1.4	2.2	8.5	5.8	12.5
Ethnicity															
Not Hispanic	11.4	9.9	13.1***	6.2	5.8	6.6***	7.3	6.8	7.8***	5.8	5.4	6.4***	18.0	14.2	22.4*
Hispanic	25.8	20.4	32.1	15.4	14.0	16.9	18.8	16.8	21.1	13.9	11.3	17.1	30.7	19.8	44.3
Income															
Under 25,000	31.8	27.7	36.3***	23.5	21.8	25.4***	24.4	22.6	26.4***	24.6	20.9	28.8***	36.7	28.8	45.4***
25,000 to 34,999	20.2	15.9	25.2	15.7	14.0	17.5	16.3	14.6	18.3	16.5	14.0	19.4	16.3	9.0	27.8
35,000 to 49,999	13.4	9.7	18.2	12.0	10.7	13.5	13.5	11.7	15.5	10.0	7.9	12.5	23.3	13.0	38.0
50,000 to 74,999	7.5	5.9	9.5	6.7	5.7	7.9	6.2	5.1	7.4	7.5	6.0	9.3	8.2	3.9	16.3
75,000 to 99,999	5.8	3.8	8.9	3.6	2.9	4.4	3.2	2.6	3.9	4.6	3.5	6.0	2.8	1.0	7.8
100,000 to 149,999	4.0	1.9	8.1	1.5	1.2	2.1	1.7	1.2	2.4	1.8	1.2	2.9	7.3	2.0	23.7
150,000 or more	6.5	3.7	11.8	0.3	0.1	0.5	0.5	0.2	1.3	0.4	0.2	0.7	25.1	14.3	40.1
Race															
Any other race/combination	26.7	21.2	33.1***	13.8	11.0	17.3***	15.6	12.7	19.1***	13.8	9.5	19.7***	41.9	29.0	56.1***
Asian alone	16.4	8.8	28.3	3.2	2.2	4.6	5.1	3.3	7.8	3.8	2.3	6.2	16.6	6.0	38.4
Black alone	28.9	19.8	40.2	17.1	14.8	19.6	17.3	14.7	20.2	18.7	15.2	22.8	33.3	18.5	52.2
White alone	10.7	9.3	12.2	6.2	5.9	6.5	7.5	7.0	7.9	5.7	5.2	6.2	14.7	11.2	19.0

“LGB+” category includes respondents identifying as lesbian, gay, bisexual, “something else,” or “I don’t know.” “Low” and “high” indicate the 95% confidence interval (i.e., estimate ± the margin of error). All estimates are calculated using person-level replicate weights. Asterisks indicate results of chi-square tests. *p < 0.05; **p < 0.01; ***p < 0.001

Source: Carsey School of Public Policy analysis of Census Bureau Household Pulse Survey, Weeks 34–48

with transgender+ New Englanders of color experiencing food insufficiency at two to four times the already-high rates of cisgender New Englanders of color.

Finally, one of the most unexpected findings from Table 2—high rates of food insufficiency among the highest-income transgender+ respondents—offers an opportunity to consider the ways that even attempts to disaggregate estimates by group can still obscure important differences. Attempting to identify why these respondents are high income-high food insufficiency, we find that transgender+ people in this income bracket are substantially more likely to be under age 25 (18 percent, versus 3 to 4 percent of cisgender respondents), report an average of 5.2 people in their household (versus an average of 3 among cisgender respondents), and perhaps most alarmingly, are substantially more likely to describe their living quarters as a boat, RV, or van (25.2 percent, compared with less than 0.2 percent of cisgender respondents). Because the income measure here is collected at the household level, we suggest that these respondents may indeed be reporting the pooled resources of all household members (as instructed). However, as a full 30 percent of transgender+ respondents in this income category live in households of 8 or more people, we posit that reported income is not a proxy for income available to the respondent as in smaller households.

To better understand whether and how gender, sexuality, race, income, and other characteristics intersect to enhance risks for food insufficiency, we use logistic regressions to separately assess the effects of each characteristic. This is especially important since much of the existing scholarship aggregates gender identity and sexual orientation into a single measure, obscuring potential to examine independent effects of each on the overall experience of food insufficiency. In Table 3, Model 1, we first include just a measure of gender identity, and find that the odds of food insufficiency for transgender+ respondents are 3.5 times those of cisgender men respondents. To parse out the distinct effect of sexual orientation from gender identity, Model 2 includes an indicator of LGB+ identity. That both measures have a sizable odds ratio that is statistically significant suggests that each characteristic contributes its own explanatory power to our estimation of food insufficiency. In Model 3, we also include measures of race and ethnicity and others to further isolate the effects of gender identity and sexual orientation. Model 3 shows that even after accounting for the effects of age, education, income, race and ethnicity, being LGB+ increases a New Englanders' odds of experiencing food insufficiency by 38 percent over a straight-identifying person's odds, and being transgender+ increases the odds by 70 percent over cisgender men. The odds of food insufficiency shift with age, even accounting for income and more, with the odds increasing in middle adulthood, then declining sharply for adults age 65 and older. While

identifying specific causes is beyond the scope here, young adults may be protected by living with their families of origin, while middle adulthood can bring the resource strains of childrearing. Both a college degree and higher incomes are consistently protective against food insufficiency, while being Black, multiracial, or Hispanic also increases the odds of food insufficiency as compared to a person who is white or non-Hispanic, respectively.

To help visualize the independent and converging effects identified in the regression models, we also calculate predicted probabilities of experiencing food insufficiency for a variety of groups. This approach allows researchers to hold constant the measures controlled in the final regression model (Table 3, Model 3) while “solving” the regression equation for different combinations of values on the included variables (e.g., for each income category or for Black respondents in each age group). As a baseline, Fig. 1 shows the predicted probability of reporting food insufficiency by membership in the listed groups (regardless of other identities).

Figure 2 shows the predicted probability of experiencing food insufficiency for straight-identifying New Englanders in dark blue and LGB+ New Englanders in turquoise, with separate bars for white, Hispanic, and Black respondents. As in Fig. 1, these probabilities are calculated after controlling for gender, age, education, and income, as included in Table 3, Model 3.

After controlling for differences in age, education, income, and gender identity, the probability that a person of color is experiencing food insufficiency is significantly higher than among white respondents, and LGB+ people of all race-ethnicities have a greater probability of experiencing food insufficiency than their straight-identifying counterparts.

Figure 3 takes the same approach as Fig. 2, and demonstrates that even protective factors like being white are not sufficient to buffer transgender+ New Englanders from a high probability of food insufficiency. Specifically, New Englanders are most protected if both white and cisgender, although having either of those characteristics lowers the probability of food insufficiency compared with those who have neither. Notably, being white does not protect transgender+ New Englanders from an elevated probability of food insufficiency. However, racism intersects with cissexism in such a way where Black and Hispanic transgender+ New Englanders face extreme probabilities of food insufficiency.

Comparing Figs. 2 and 3 yields a compelling reason to assess sexuality and gender identity separately. Figure 2 shows that while those identifying as LGB+ certainly face higher probabilities of food insufficiency than their straight-identifying counterparts, the gap across sexual orientation is moderate, around two to three percentage points across racial-ethnic groups. By contrast, Fig. 3 shows that

Table 3 Logistic Regressions Predicting Food Insufficiency Among New Englanders (Odds Ratios)

	Model 1		Model 2		Model 3	
	OR	SE	OR	SE	OR	SE
Gender Identity						
Cisgender female	1.30	0.07***	1.28	0.07	1.03	0.06
Cisgender male	Ref.		Ref.		Ref.	
Transgender+ ^a	3.52	0.42***	2.45	0.35***	1.70	0.26**
LGB + ^b			1.75	0.12***	1.38	0.12***
Age						
18–24					Ref.	
25–34					1.29	0.20
35–44					1.51	0.21**
45–54					1.69	0.25**
55–64					1.18	0.17
65 or older					0.44	0.06***
Graduated college					0.35	0.03***
Income						
Under 25,000					Ref.	
25,000 to 34,999					0.62	0.05***
35,000 to 49,999					0.47	0.04***
50,000 to 74,999					0.26	0.03***
75,000 to 99,999					0.16	0.02***
100,000 to 149,999					0.08	0.01***
150,000 or more					0.04	0.01***
Hispanic					1.21	0.09*
Race						
Any other race or combination					1.59	0.17***
Asian alone					0.79	0.17
Black alone					1.75	0.18***
White alone					ref	
Constant	0.07	0.00***	0.07	0.00***	0.27	0.04***
n	71,032		71,032		71,032	
F	(2,78)	46.73***	(3,77)	52.62***	(19,61)	89.71***

All analyses are weighted with person-level replicate weights

^aIncludes those identifying as “transgender,” “none of these,” or as a gender different from sex assigned at birth

^bReference is “not lesbian, gay, or bisexual”

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source Carsey School of Public Policy analysis of Census Bureau Household Pulse Survey, Weeks 34–48

transgender+ identity is an even stronger predictor of food insufficiency, with the predicted probability of being food insufficient 4–5 percentage points higher among transgender+ respondents than their cisgender counterparts, regardless of race-ethnicity.

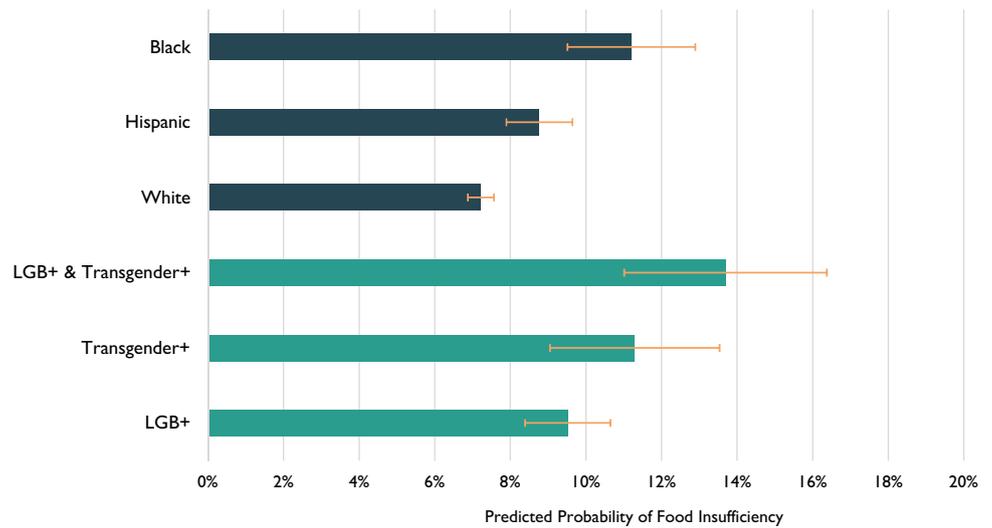
Discussion

In this paper, we document elevated rates of food insufficiency among New Englanders who identify as people of color, transgender+, and LGB +, examining how each

characteristic predicts food insufficiency on its own. We also document how race, ethnicity, gender identity, and sexual orientation intersect to create differing portraits of risk that would be lost in an analysis that lumped gender identity and sexual orientation into a single measure, or that did not inspect race and ethnicity separately. We find that food insufficiency is elevated among LGB + New Englanders, transgender+ New Englanders, and New Englanders of color, but that in particular, transgender+ New Englanders face significant risk of food insufficiency.

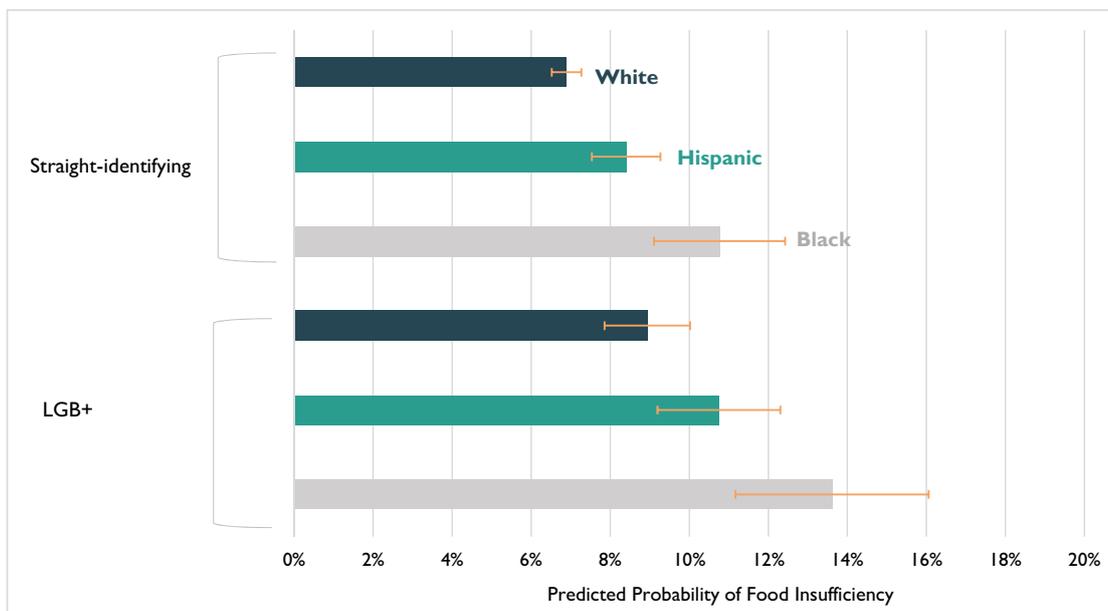
The intersections of race, gender identity, and sexuality are essential to understanding LGBTQ+ food insecurity.

Fig. 1 Predicted probability of reporting food insufficiency by selected characteristics



Note: Predicted probabilities are calculated net of gender identity, sexual orientation, age, college graduation, ethnicity, income, and race (see Table 3, Model 3). Orange bars indicate the 95% confidence interval.

Predicted Probability of Reporting Food Insufficiency by Selected Characteristics



Note: Predicted probabilities are calculated net of gender identity, sexual orientation, age, college graduation, ethnicity, income, and race (see Table 3, Model 3). Differences in predicted probabilities between LGB+ and heterosexual respondents within race categories are statistically significant after adjusting for multiple comparisons (Bonferroni method; $p < 0.05$). Orange bars indicate the 95% confidence interval.

Fig. 2 Predicted probability of reporting food insufficiency by selected characteristics

Other scholarship has reported that elevated risks of food insecurity exist for white LGBTQ+ people, but that even those elevated rates are lower than among cisgender heterosexual African American and Hispanic populations (Brown et al. 2016; Patterson et al. 2020, p 5). We find evidence of

that phenomenon here too, but by examining gender identity and sexuality separately, find that this only holds true for sexuality, and indeed, that membership in a privileged racial category is not sufficient to buffer transgender+ New Englanders from extreme food insufficiency.

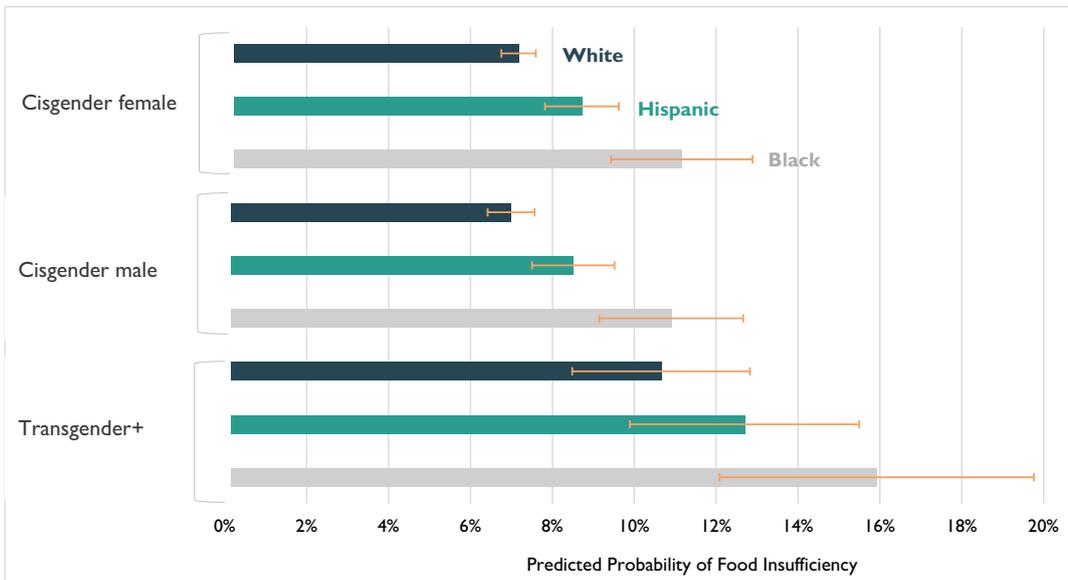
A core finding of this study is that the oppression that drives LGBTQ+ food insufficiency operates both through *and* outside of income. LGBTQ+ people have higher poverty rates than cisgender heterosexual people (Badgett et al. 2019), which disproportionately limits LGBTQ+ people's ability to achieve food security. These higher poverty rates are due to discrimination in the basic aspects of everyday life, especially in employment, transportation, and housing (Russomanno et al. 2019; Wilson et al. 2020).

However, this study demonstrates that even after holding income constant, transgender+ New Englanders still face disproportionate levels of food insufficiency. Explaining why demands further research, but we can still identify documented areas of discrimination against transgender+ people that offer clues. For example, job discrimination does not only mean lower income, but can also increase the frequency of economic instability that limits a person's safety net and increases demand for food assistance (McFadden 2020). Housing discrimination limits where transgender+ people are able—and feel safe enough—to live, increasing instability (Grant et al. 2011). Binary gender markers on drivers' licenses are an example of transportation discrimination that may also diminish the likelihood of transgender+ people applying for food assistance that requires identification (Maier 2020). Thanks to discrimination in the health care system, transgender+ people are often forced to travel extra distance and pay elevated costs to receive the care that they need, further limiting available resources (Kachen and Pharr 2020).

Furthermore, many Republicans are centering LGBTQ+ hate by fueling hysteria about unproven issues such as transgender+ bathroom use and sports participation (Hasenbush et al. 2019). The GOP is making a concerted effort to increase LGBTQ+ stigma, such as with The Texas Republican Party's 2022 policy platform “defining homosexuality as an ‘abnormal lifestyle choice’ and also opposing ‘all efforts to validate transgender identity’” (Lavietes 2022). Taken together, this study suggests that these various ways anti-LGBTQ+ sentiments are institutionalized make people food insecure, which we have quantified here.

Coupled with the emerging literature on LGBTQ+ food insecurity, this study points to three areas for future research. First, due to data limitations, this work was unable to investigate the critical role of place, and in particular, of rurality. While the role of residence in a rural area is insufficiently addressed in existing food insecurity literature, several recent studies point to rurality as being an important factor for LGBTQ+ people. Whereas cisgender heterosexual poverty is about 16 percent in both rural and urban areas, poverty for LGBTQ+ people is 21 percent in urban and 26 percent in rural places (Badgett, Choi, and Wilson 2019: 9). One qualitative study comparing LGBTQ+ food insecurity in a rural and an urban county found that charitable food services in the rural county were more likely to be religious (Wilson et al. 2020, p 24), and churches are often the site for (even publicly funded)

Predicted Probability of Reporting Food Insecurity by Selected Characteristics



Note: Predicted probabilities are calculated net of gender identity, sexual orientation, age, college graduation, ethnicity, income, and race (see Table 3, Model 3). Differences in predicted probabilities between cisgender and transgender respondents within race categories are statistically significant after adjusting for multiple comparisons (Bonferroni method; $p < 0.001$). Orange bars indicate the 95% confidence interval.

Fig. 3 Predicted probability of reporting food insufficiency by selected characteristics

emergency food relief (Russomanno et al. 2019, p 94). Some of these sites even expect people to pray before receiving emergency food relief (Wilson et al. 2020, p 15), and some LGBTQ+ people are not comfortable seeking food assistance in these settings due to discrimination (Russomanno et al. 2019).

Second, age may be another factor related to food insecurity and the structural oppression of LGBTQ+ people over the life course. While our findings from Table 2 found uneven rates of food insufficiency across the life course, it was beyond the scope of this work to identify mechanisms behind those patterns. Earlier work finds that about one in three LGBTQ+ young people are food insecure (Wilson and Conron 2020, p 2). Another study found that 54 percent of LGBTQ+ 18- to 35-year-olds are food insecure, with trans men showing the highest rate at 65 percent (Arikawa et al. 2021, p 1235). LGBTQ+ poverty and job discrimination lead to increased likelihood of sex work among LGBTQ+ people, and one study finds that food insecurity increases young sex workers' likelihood of being pressured into sex without a condom, increasing HIV risk among young sex workers (Barreto et al. 2017). Disproportionately high rates of food insecurity among LGBTQ+ youth persist among college students (Haskett et al. 2020) and among LGBTQ+ graduate students (Boncyk et al. 2021). LGBTQ+ seniors also may face unique challenges with food insecurity. For example, LGBTQ+ seniors are disproportionately poor, and are less likely to have adult children who act as caregivers (Viola et al. 2018; Wilson et al. 2020).

Third, there is a clear need for more qualitative research on LGBTQ+ food insufficiency, given the findings of quantitative analyses like this one and others cited here, that demonstrate higher rates of food insufficiency for these groups. Given that these broad patterns have been clearly identified, the next step is to better understand the processes and mechanisms that are driving higher food insufficiency rates for these groups. Our inability, for example, to be more specific about the living conditions of transgender+ New Englanders who have high household income but still experience food insufficiency offers a prime example of areas in which deeper understanding of circumstance and context is needed. In future work, better explaining how identity-based marginalization impacts food security will shed light on avenues for more impactful policy and practice to address these disparities.

Conclusion

In conclusion, these findings contribute to the literature on food insecurity by clearly demonstrating the need for greater attention to the root causes of food insecurity in the U.S. Our analysis supports food justice scholars' call for

examining the role of structural racialization, segregation, and racial injustice that drives food insecurity. By examining food insufficiency with an intersectional analysis of gender identity and sexuality in addition to race and ethnicity, our findings indicate that structural patterns of gender and sexual discrimination and injustice play a significant role in increasing people's risk of experiencing food insufficiency. The implications of this analysis are that research, policy and practice focused on food security that do not take identity-based discrimination and patterns of disadvantage into account may be leaving the most food insecure people behind. The effects of cissexism, heterosexism, and racism on food insufficiency persist even when we hold income constant; this oppression operates both through and outside of income. This suggests that income-based food insecurity programs alone are insufficient for addressing the problem. Our analysis shows that for food security scholars and practitioners to be successful in their goals, they must pay explicit attention to gender identity and sexuality. This study further supports the calls in food justice scholarship for increasing attention to structural oppression that drives employment, housing, and income disparities. Policy and practice that is based on income or food access alone is not addressing the problem, especially for people who belong to multiple marginalized groups.

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