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Kim K. McKeage

Husson University, mckeagek@husson.edu

Frank S. Wertheim

University of Maine, frank.wertheim@maine.edu

Sally Slovenski

Maine Campus Compact, sally@mainecompact.org

Sumaya El-Khalidi

Maine Campus Compact, sumayaelkhalidi@gmail.com

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Food Insecurity in Maine Higher Education

by Kim K. McKeage, Frank S. Wertheim, Sally Slovenski, and Sumaya El-Khalidi

Abstract

In 2017–2018, University of Maine Cooperative Extension and Maine Campus Compact conducted a statewide analysis to assess the extent and subsequent effects of food and housing insecurity within the college student population. A total of 26 higher education institutions (community colleges and private and public four-year colleges and universities) throughout the state of Maine received surveys to investigate food and housing insecurity. This study reports on the findings from the 1,704 completed surveys from 24 of those campuses. We found significant food insecurity among respondents. The results demonstrate how food insecurity relates to institutional, geographic, and student characteristics. We discuss the implications for higher education policy across Maine and practices at individual institutions.

These figures, coupled with the growing attention to food and housing insecurity issues in higher education, made the time ripe to study the issue across private, public, and community colleges in Maine. This article focuses on food insecurity, but will also include a brief discussion of housing insecurity.

To better understand the extent of food and housing insecurity in Maine's college student population, University of Maine Cooperative Extension in conjunction with Maine Campus Compact created two statewide surveys (of students and staff) to investigate the rate and subsequent impacts of food and housing insecurity.

The method for the study followed an approach used by the University of Massachusetts Office of Urban and Off-Campus Support Services in their Housing Stability Survey (Silva et al. [2015](#)). We only include data from the student survey, the Maine Hunger Dialogues (MHD) Food and Housing Insecurity Student Survey. The survey directly assessed students' experiences of food and housing insecurity throughout their college career. The benefits of this statewide survey include identifying the rate as well as impacts of food and housing insecurity on student learning and retention. Key results allow us to provide recommended actions that campuses can implement to address food and housing insecurity issues for their students along with policy issues for statewide consideration.

INTRODUCTION

Food and housing insecurity is increasingly recognized across the United States as a barrier to student success in higher education. Student food and housing insecurity occurs within a broader social context where the general population suffers similar problems. Researchers in this area point out, “students who have grown up in poverty do not suddenly become wealthier when they enroll in college” (The Conversation [2015](#)). While the USDA currently tracks food insecurity at the household and childhood levels, this tracking frequently excludes university students (Davidson and Morell [2018](#)). In recent years, the existence of food and housing insecurity has become a growing concern in higher education institutions, yet little research has been conducted to determine the prevalence and impacts of these issues in specific college student populations.

It is no secret that food insecurity is a problem beyond college campuses in Maine. The most recent figures from the USDA's Economic Research Service put food insecurity in Maine at 13.6 percent of households.¹ This rate is higher than both the nationwide figures of 11.1 percent for households and 11.5 percent for individuals and is the highest in New England (Coleman-Jensen et al. [2019](#)).

BACKGROUND

The USDA defines food insecurity as having limited or uncertain availability of nutritionally adequate and safe foods, or uncertain ability to acquire foods in socially acceptable ways (USDA [2020](#)). The food security status of individuals and households exists along a spectrum of severity, ranging from no problems acquiring food (food

secure), to deficits in quantity and quality of the foods consumed (e.g., more low-nutrient, high-calorie processed foods), to the most extreme insecurity, a decrease in the quantity of food consumed (Gaines et al. 2014). Housing insecurity is categorized under a web of challenges, such as the inability to pay rent or utilities or the need to move frequently (Goldrick-Rab et al. 2017). Much of the nation has experienced recovery and relief since the Great Recession officially ended in 2009, but Maine has seen continued high rates of poverty, and hunger continues to harm state residents.² With the 2020 pandemic and the attendant job losses, this trend is likely to continue.

Studies assessing food and housing insecurity within individual college campus communities and other regional locations provide examples of the spectrum of severity, with rates of food and housing insecurity ranging from 14 percent to 56 percent. The University of Alabama, a large public university, identified 14 percent of students as food insecure (Gaines et al. 2014). Results from a large land-grant university in New Hampshire reported approximately 25.2 percent of students as being food insecure, with 17.7 percent of students reporting low food security,

indirectly affect their study time if they work long hours to be able to afford food and housing as well as their tuition and fees. Students who are at risk for food and housing insecurity have self-reported physical health problems and depression symptoms; students who experience food and housing insecurity are at greater risk of not completing their studies. Such health consequences represent a mechanism by which food and housing insecurity can undermine academic outcomes including GPA, retention, and on-time graduation, and lead to permanent withdrawal from enrollment (Payne-Sturges et al. 2017).

Students often take the burden of food and housing insecurity on themselves either through additional debt or skimping on basic necessities. For some students, particularly first-generation students, inadequate understanding of college prices and financial aid options can lead to failure to apply for financial aid or aversion to taking on educational loans (Perna 2006). Paying direct college costs like tuition and fees first, however, can leave little money for food and housing (Gaines et al. 2014). Many students have come to depend on the use of credit cards to ameliorate this financial gap. But that short-term debt can add up quickly, and the inability to meet those obligations may have a longer-term adverse impact on future finances and further increase the risk of food insecurity (Gaines et al. 2014). Moreover, students who are more economically vulnerable are less likely to ask for help or use available social support systems (Rule and Jack 2018). When they do get to the point of seeking assistance, their circumstances may be more severe and recovery more difficult, which may lead them to drop out of school.

Maine is an important site for examining the impact of food and housing insecurity in higher education for a number of reasons. Although the traditional image of college students is of younger individuals from modestly affluent families, demographic shifts have led to corresponding shifts in student characteristics (Bruening et al. 2017). Nontraditional students, encompassing a wide spectrum of socioeconomic statuses, ages, and household and family dynamics, are entering postsecondary institutions to improve their employment opportunities. As one of the demographically oldest states in the nation, Maine has a large share of nontraditional students. The increasing number of low-income and nontraditional students attending college may lead to heightened food insecurity issues among students (the proportion of undergraduate

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and 7.5 percent reporting very low food security (Davidson and Morell 2018). In 2015, an online survey of 4,000 students at ten community colleges across seven states revealed that 52 percent of students were food insecure, 20 percent qualified as hungry, and 52 percent were housing insecure, including 31 percent who were homeless (Goldrick-Rab et al. 2015). Similarly, a later survey among community college students from 70 campuses estimated that 56 percent of respondents were food insecure (low or very low food insecure) (Goldrick-Rab et al. 2017).

Food and housing insecurity affects students in several ways. Lack of basic needs, such as sufficient amounts of nutritious foods or a secure location to sleep, directly hinders students' ability to study, or may

students with an income level below 200 percent of the national poverty level increased from 40 percent to 51 percent between 2008 and 2011 [CLASP [2015](#)].

The rising costs of higher education are also of concern. Nationally, prices for undergraduate tuition, fees, and room and board rose 34 percent for public institutions and 26 percent for private nonprofit institutions in 2015–2016 (Rule and Jack [2018](#)). As the United States has undergone downturns in the business cycle, what have often been viewed as necessary and temporary cuts to funding for public higher education have instead become the new normal, and per student funding has generally been on a downward trajectory for many years (Huelsman [2018](#)). In response to the most difficult years after the Great Recession, most public universities responded by raising tuition costs, with Maine being no exception. As of 2016, per student funding for Maine’s public universities was 8 percent below the 2008 level (CBPP [2016](#)). In a similar time frame (2008–2018), the Center on Budget and Policy Priorities found an average tuition increase at Maine’s public four-year colleges and universities of \$1,283 (CBPP [2019](#)). Little is known about the effects of higher college costs on student’s ability to afford basic resources, reinforcing that research is needed to mediate the major deficits of information on the prevalence of food and housing insecurity within the Maine postsecondary student population.

Nationally, food and housing insecurity does not affect students homogeneously. Groups that tend to be disproportionately affected by this insecurity at colleges and universities include community college students, students of color, first-generation students, older students, students who work longer hours at their jobs, students from the foster care system, veterans, and students who identify as LGBTQIA (lesbian, gay, bisexual, transgender, queer or questioning, intersex, and asexual or allied) (Rule and Jack [2018](#)). Maine’s food insecurity rate exceeds the national average, and Maine is ranked the most food insecure state in New England (Coleman-Jensen et al. [2019](#)), yet the status of food and housing insecurity specific to Maine’s postsecondary student population is largely unknown because this group is often excluded from national databases.

Due to the complexity of this issue, we conducted a statewide survey of higher education students in Maine. We aim to parse the pervasiveness and impacts of food and

housing insecurity in Maine’s postsecondary student population by (1) investigating the rate of food and housing insecurity based on the responses of survey participants, (2) determining whether specific groups of students are more vulnerable to food and housing insecurity, (3) identifying disparate rates of food and housing insecurity between institutional types, and (4) examining the association between food and housing insecurity and student learning and retention. To wrap up, we look at updated impacts during the pandemic as well as policy implications for legislators and for higher educational institutions.

METHODOLOGY

The Hunger Dialogue Postsecondary Food and Housing Insecurity Student Survey (henceforth, the survey) was fielded in waves between early 2017 and early 2018 across 26 higher education campuses in Maine. Using a contact archive of faculty and staff participants from previous networking events hosted by Maine Campus Compact and Maine Cooperative Extension as a sampling frame, the Maine Hunger Dialogue VISTA volunteers reached out to find individuals willing to administer the survey to students. The survey was primarily administered through the cloud-based software Survey Monkey, with some participants requesting a paper survey instead. The bulk of the responses were collected electronically, and all were collected anonymously.

We used the University of Massachusetts Office of Urban and Off-Campus Support Services (U-ACCESS) Housing Stability Survey (Silva et al. [2015](#)) as a model to design the survey. The survey included questions on food and housing insecurity, as well as questions about student characteristics and relevant support services available to them on campus.

We included six questions about food insecurity from the standard USDA measure:

- In the past 12 months, how often have you worried that you would not have enough money for food?
- In the past 12 months, how often have you skipped a meal because you did not have enough money to buy food?
- Do you have regular access to fresh fruits and vegetables?
- In the past 12 months, how often were you unable to eat balanced or nutritious meals because of lack of money?

- In the past 12 months, how often were you hungry but did not eat over a day or two because there was not enough money for food?
- Do you sacrifice meals or skimp on meals to feed someone else?

In all cases, the response scale was “often,” “sometimes,” or “never.” Additional questions related to this area include whether the student had a meal plan and the type of meal plan.

There is no federal guideline for specific questions for housing insecurity as there is for food insecurity, but based on the UMass survey, we fielded two questions in this area:

- Since attending college, have you ever been homeless for any length of time?
- Could you stay/sleep at your current location for the next 14 days without being asked to leave?

Additional questions in this area asked about past episodes of having to move unexpectedly as well as how long students had been at their current locations (where they sleep).

A number of other questions covered student demographics along with awareness and usage of services available on campus, sources of financial support, and academic performance. These questions are used to further understand who is experiencing food insecurity and what the effects are, and the responses will be covered in the results and discussion.

RESULTS

Student Characteristics

We received 1,706 student responses at 24 campuses. Of the total, 1,704 responses contained enough valid information to be usable. Detailed statistics and charts are summarized here and presented in full in the accompanying Appendix.³ The number of respondents from each institution are summarized in Table 1.

To determine if there were disparate rates of food insecurity and housing insecurity between institutional types, postsecondary educational facilities were categorized into three separate groups:

(1) public institutions under the University of Maine System (public four-year), (2) privately funded institutions (private four-year), and (3) community colleges. As Table 1 shows, we received responses from students at all institution types. During the timeframe in which the survey was administered, there were approximately 30,000 students enrolled under the University of Maine System, 30,000 students enrolled in private institutions, and 24,000 students enrolled in community colleges in Maine.⁴ Compared to those benchmarks, public four-year institutions are over-represented in the sample, private four-years

TABLE 1: Responses by Institution

Institution	Number*	Percentage of total**
Bates College	36	2.1
Bowdoin College	70	4.1
Colby College	19	1.1
College of the Atlantic	75	4.4
Husson University	143	8.4
Kaplan University	42	2.5
Kennebec Valley Community College	51	3.0
Maine College of Art	35	2.1
Northern Maine Community College	65	3.8
Southern Maine Community College	47	2.8
Saint Joseph's College	76	4.5
University of Maine	138	8.1
University of Maine at Augusta		
Augusta campus	59	3.5
Bangor campus	55	3.2
University of Maine at Farmington	140	8.2
University of Maine at Fort Kent	80	4.7
University of Maine at Machias	10	.6
University of Maine at Presque Isle	176	10.3
University of New England	131	7.7
Unity College	46	2.7
University of Southern Maine		
Main campus	82	4.8
Lewiston-Auburn College	58	3.4
Washington County Community College	25	1.5
York County Community College	44	2.6

*Numbers add to 1703 due to missing institution data on one response.

**Percentages add to 100.1 due to rounding.

are close to representative, and community colleges are under-represented (Figure 1).

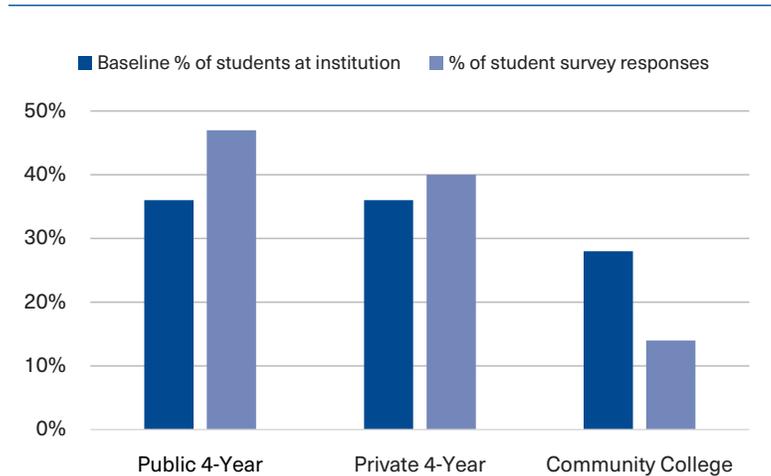
Students' academic profile showed them largely to be full-time students (89.5 percent) with the rest being part time (9.6 percent), on leave (nine students), or not reported (7 students). Most were undergraduates (96.2 percent), including 489 first-year students, 368 sophomores, 337 juniors, and 437 seniors. The rest were graduate/professional students (3.8 percent) or did not report their class year (8 students). Many students had full (33.3 percent) or partial (13.0 percent) meal plans, but over half had no meal plan either by choice or because one was not available to them.

The participants in this study were mostly between the ages of 18 and 22 (72 percent), with 15 percent between the ages of 23 and 30, and 13 percent over the age of 31. Participants who identified as under age 18 were removed from the response data due to requirements for the use of human subjects in research. Most respondents (71.7 percent) identified as female, with 25.6 percent identifying as male, and 2.7 percent as other or not responding. That pattern is not atypical for survey research, where females tend to be more willing to participate.

Respondents generally reflected the racial composition of Maine, with 85.5 percent being White. The next highest group was mixed race (two or more races) with 3.8 percent, then Black/African American with 2.9 percent, Asian with 2.6 percent, Latinx/Hispanic with 2.3 percent, and American Indian/Alaska Native at 1.2 percent. Native Hawaiian or Pacific Islander constituted 0.3 percent of the group, and 1.3 percent of respondents indicated other or did not respond.

There were 243 respondents (14.3 percent) who identified as LGBTQIA, which included 38 transgender students. Reflecting traditional undergraduate student demographics, those who reported relationship status were largely single (75.9 percent) or single in a relationship (5.4 percent). However, 15.2 percent were married or had a domestic partner, 2.1 percent were divorced, and 0.6 percent were widowed. Twelve respondents did not indicate relationship status. Nine respondents did not indicate whether there were children in their homes, but of those who responded, almost 15 percent had children under 18

FIGURE 1: Type of Maine Higher Educational Institution Attended by Survey Respondents



years old living at home (14.4 percent). Most frequently there was one child in the home, although six respondents reported having four children living with them.

Most respondents (75.9 percent) received federal student aid, and only 320 reported not working at all. Of those reporting, 13.5 percent worked full time for at least part of the year, and the other 67.7 percent worked part time in either a temporary job, work-study position, or regular part-time employment. They also listed a broad range of other financial support, including family, veteran's benefits, Social Security benefits, SNAP benefits, disability benefits, and others. Fewer than 20 students listed scholarships as a significant source of support, less than half the number who listed Social Security/Disability benefits (SSI/SSDI).

Food Insecurity

Food insecurity questions were initially coded as 1 (never), 2 (sometimes), or 3 (often). Since the USDA considers whether respondents answered yes or no to each question, answering "sometimes" or "often" would give a student a "yes" indicator for that food insecurity item. Then the individual's food insecurity (FI) score was calculated as the sum of the "yes" responses on the six indicator questions, with a maximum possible score of six. The USDA uses the total scores to define food insecurity levels, with moderate food insecurity defined as answering yes to three or more of the standard questions and severe food insecurity as answering is yes to six of the questions.

Following the USDA methodology, respondents who answered yes to all six of the food insecurity questions used in the survey (FI score = 6) were considered to have severe food insecurity. Note that previously the USDA labeled moderate and severe categories as “food insecure without hunger” and “food insecure with hunger,” respectively. In addition, according to the USDA, a more severe level of food insecurity is indicated when an individual or household refrains from eating for an extended period of time due to financial constraints. Therefore, students who indicated they did not eat for one or two days are of particular concern in this study.

In this study, approximately 68.8 percent of respondents experienced no food insecurity and were food secure (Figure 2). Of the students experiencing food insecurity, most fell into the moderately food insecure category (27.4 percent of the sample), with a further 3.8 percent experiencing severe food insecurity. Comparing these rates to the overall food insecurity in Maine (13.6 percent) or the nation (11.5 percent) in 2018, shows that college students are at greater risk for food insecurity (overall 31.2 percent with some level of food insecurity). The numbers among Maine college students are more than twice as high, a level for concern even allowing for the fact that students facing food and housing insecurity could have been more inclined to participate in the survey.

Table 2 presents the food insecurity issues experienced by students. The issue most frequently was the inability to eat balanced meals. The most severe indicator, not eating

TABLE 2: Food Insecurity Issues Experienced by Students

Issue	Percentage of respondents
Unable to eat balanced meals	44.0
Worried about having enough money for food	42.3
Skipped meals	34.6
Did not have access to fresh produce	17.0
Did not eat to feed someone else	13.9
Did not eat for 1 or 2 days	13.4

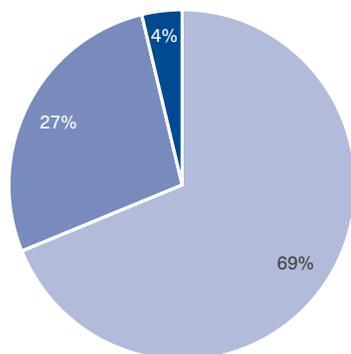
for one or two days, was the least frequently cited issue; however, that incidence rate is still disturbing. Other issues included worry about having enough money for food, skipping meals, lacking access to fresh produce, and not eating in order to feed someone else.

There was some variation in the pattern of food insecurity across institutional types. Recall that the FI score is the sum of the number of food insecurity questions the student experienced, with the highest possible score being 6 (experiencing all of the food insecurity indicators at least sometimes). Average FI scores were below 3 overall due to the large number of students in the sample who were food secure. However, meaningful comparisons of food insecurity levels can still be made. For example, food insecurity was most severe at community colleges, followed by public four-year institutions, and least severe at private four-year institutions. Food insecurity levels are all significantly different from one another; not only are the groups different overall, but food insecurity in each type of institution is significantly different from the other types (see Appendix Note 1).

There were a number of other characteristics that were related to students’ experiencing food insecurity. These were tested using either t-tests (if there were only two groups) or ANOVA (if there were more than two groups). One significant difference existed between students in rural areas (as defined by the location of the campus where they studied) and those in suburban or urban areas. As an example, Fort Kent was considered rural, Bangor suburban, and Portland urban. Definitions were based on US Census definitions for metropolitan areas. The results showed significantly higher food insecurity among students studying at rural institutions than at suburban or urban

FIGURE 2: Food Insecurity Levels among Maine College Students

■ Food Secure ■ Moderately Food Insecure ■ Severely Food Insecure



institutions, while the latter two were not significantly different (see Appendix Note 2).

A number of student characteristics were associated with higher levels of food insecurity. Many of these are similar to demographic characteristics found in other studies of students at higher risk for adverse outcomes, while some seem related specifically to the demographics of Maine. For example, our study found that older students had significantly higher food insecurity than younger students (see Appendix Note 3). Older students tend to live off campus and not have meal plans. As Maine is demographically one of the oldest states in the nation, this dimension may be of particular importance to the state.

Other important areas where groups were significantly different included BIPOC (Black, Indigenous, and People of Color) students having higher levels of food insecurity than White students. Also, students who identify as LGBTQIA had higher levels of food insecurity than non-LGBTQIA students, and students falling under the transgender umbrella had higher levels food insecurity than those identifying as cisgender. Interestingly, analysis of self-identified gender differences showed no significant difference between male and female students (see Appendix Note 4 for specifics on these tests).

Finally, relationship status and household configuration were related to food insecurity. In particular, the presence of children in the home was associated with significantly higher food insecurity, with scores for homes with children 50 percent higher than for those without children (see Appendix Note 5). Since one of the indicators of food insecurity is skipping meals to provide food for others, with the “others” often being children, this is a concern for Maine’s nontraditional student populations. With regard to relationship status, single students had significantly lower food insecurity than other groups (married/with domestic partner [$p < 0.001$] or divorced/separated [$p < 0.01$]). Note that these latter two categories are the groups more likely to have children in the household.

Finally, while not a demographic characteristic, it is worth noting that participation in a meal plan is significantly related to food insecurity levels. Students with a full meal plan had the lowest levels of food insecurity. Students who had a meal plan available but chose not to subscribe had the highest levels of food insecurity. Closely related, those who had a partial plan also had higher levels of food

insecurity. Since choosing no or a partial meal plan could be associated with students attempting to cut costs, it is notable that they strongly linked with higher levels of food insecurity (see Appendix Note 6).

Food Insecurity and Academic Outcomes

As part of the survey, students indicated whether they thought that their living or food situation affected their academic performance on several dimensions: ability to attend class regularly, performing well in classes, and failing (or close to failing) one or more classes. Students experiencing food insecurity had higher incidences of problems in their academic performance than students not experiencing food insecurity, at all types of institutions. While for most students the impact was at the lower level of severity, there was a marked gap in the rate at which students experienced negative impacts. Approximately 4.5 times as many food-insecure students experienced low-level performance problems compared to food-secure students (varying slightly by institutional type). The most severe academic performance impacts were approximately twice as likely among food-insecure students compared to food-secure students (again varying by institutional type). The disparity is generally highest among community college students.

Students experiencing food insecurity had higher incidences of academic performance problems....

One of the most severe experiences students can have is withdrawing from school, either permanently or for a shorter term. Students experiencing the most severe food insecurity are at highest risk of dropping out, and given the attention higher education institutions pay to student retention, this is a key finding. Examining the most severe food insecurity—not eating for one or two days—with the most severe academic outcome, we saw that, at all types of institutions, overall 5.9 percent of respondents experienced an episode of withdrawing from classes. With one exception (in private institutions), students experiencing at least some episodes of not eating for one or two days had even higher withdrawal rates. (For all institutions, the rate of

students who replied “often” for not eating for one or two days was relatively low, 5 percent or less.) Also, over 80 percent of students at all types of institutions said that they never experienced episodes of not eating. The highest incidence of not eating was at community colleges, with a total of 17 percent saying they sometimes or often experienced this problem. Furthermore, while it seems intuitive that students who more often experience hunger also have a higher incidence of dropping out, that pattern is only the case at public four-year institutions. For both community college and private schools, the highest incidence of dropping out was in the group that sometimes experienced hunger, which has implications for policy initiatives at those types of institutions. Overall, food insecurity is significantly related to dropping out of school, and that relationship maintains for both those with moderate food insecurity and for those who had not eaten for one or two days (see Appendix Note 7).

Another way to understand this critically important finding is to consider the dropout rates for food-insecure vs food-secure students. Given higher education’s concern with student retention, this metric highlights the degree to which food insecurity puts students’ education at risk. For public four-year institutions, we found that food-insecure students had 4.2 times the dropout rate of food-secure students. For private institutions, the rate is 5.4 times that of food-secure students, and for community colleges, the dropout rate for food-insecure students is 6.1 times that of food-secure students.

Housing Insecurity

While not the primary focus of this report, it is important to mention that food insecurity and housing insecurity tend to co-occur. Recall that housing insecurity is measured by both uncertainty in the ability to stay in one’s current living space as well as having experience with being unhoused. Table 3 shows this relationship, and we see that as housing insecurity increases, so does the incidence of food insecurity.

Food Insecurity and Resource Use

Students reported having access to helpful resources and, in many cases, using them. Overall, 30.3 percent of the respondents said that they had tried to access help and support from their educational institution or the community. A number of them were successful—15.8 percent

TABLE 3. Food Insecurity Incidence by Housing Insecurity Level

Housing insecurity level	# reporting	Percentage at least moderately food insecure
None	1533	25.5
Moderate	179	63.1
High	32	84.4

used food assistance, and 5.3 percent used housing assistance. Regarding food services, 4.1 percent of students used a campus food pantry and 7.7 percent used a local community food pantry. Additionally, 10.6 percent of respondents had used free or reduced meals, either for themselves or their children. In the area of housing services, 3.2 percent received some sort of rental or housing assistance, 2.1 percent used temporary housing, and 1.8 percent used a shelter or transitional living facility. Students also used ancillary services such as healthcare (12.5 percent) and life-skills (5.2 percent) services.

Respondents who used either food or housing services generally found them helpful, with 76 percent indicating the services were either somewhat or very helpful. Furthermore, despite the common perception that students do not take advantage of available services due to concerns about how they are perceived, a relatively low proportion of those needing services indicated such concerns. Only 6.6 percent said they were not comfortable asking for help, and only 2 percent said they did not want anyone knowing they were hungry or homeless. Even information about and access to services seemed to be relatively low barriers, with only 4.4 percent saying they did not know about the services that were available, and 3.1 percent saying they did not know where to go for resources. A few (1.8 percent) had transportation issues and could not get to the available services, and 3 percent did not believe they could get help, often because of experiences in the past when they sought help and were not eligible. Like the Maine population generally, our students expressed a great deal of self-reliance, with 7.2 percent agreeing that “I think I can work out my own problems.” Generally, they were not fatalistic, but saw the potential for resources to be helpful. Less than 1 percent of respondents felt that nothing would change the problems they had.

DISCUSSION

This study of food and housing insecurity among Maine college students demonstrated that a significant number of students are experiencing these issues. In our sample of almost 2,000 students, over 30 percent experienced moderate or severe food insecurity. We found that the levels and impacts of food insecurity tend to be most severe for community college students and least severe (but still existing) for private school students. Food insecurity is related to numerous student demographics, which are in turn indicators often seen in student precarity, such as nontraditional age and presence of children in the home, BIPOC students, and LGBTQIA students.

Food insecurity is higher in some regions of Maine, specifically in rural areas, which is likely due to fewer available resources for dealing with it in those areas. Food insecurity and housing insecurity tend to occur together and exacerbate one another.

The adverse effects of food and housing insecurity are unfortunately not just results of the most severe instances. Students with moderate levels of food insecurity were more likely to experience school performance issues including the most severe outcome, dropping out of school. With recent public concern about the rising costs of higher education and the negative effects of leaving school with debt but without a degree, higher education institutions are emphasizing student retention and completion rates as metrics of institutional success. Systematic, institutional, and public initiatives to resolve issues of food and housing insecurity should help colleges and universities improve those metrics.

Furthermore, the pandemic of the last year has only exacerbated the challenges students were facing at the time of this survey. While data for Maine higher education institutions specifically is not readily available, national level indicators show the impacts of COVID-19. A significant study from the Hope Lab included one Maine school—Southern Maine Community College (Goldrick-Rab et al. 2020). That study found that nearly 60 percent of students were experiencing basic needs (food, housing) insecurity. Similar to the findings here, food insecurity rates were highest at two-year institutions (44 percent). That figure is much higher than our finding prepandemic, and their number for food insecurity at four-year institutions (38 percent) is also higher than the 31.2 percent overall rate in our study.

In December 2020, *Inside HigherEd* published a study showing similar overall rates; nearly one-third of students said they had experienced food insecurity since the start of the pandemic (Anderson 2020). Students in that study noted that food insecurity has affected their ability to study. Over 50 percent indicated that they had accessed an off-campus food bank. Interestingly, in their study, male students indicated having more access to food, both on- and off-campus, than female students did. Another study at the University of California, Berkeley in California echoed these results, also finding higher food insecurity rates with the pandemic (Young 2020).

To address these issues, we need new policies at both the public and institutional levels. At the broader, public policy level, we recommend attention to higher education funding and management of our public institutions of higher learning to incorporate knowledge of how students experience precarious funding. That so many students reported using government benefits to fund their education, whether federally managed Social Security benefits or state-managed unemployment benefits, speaks to the role Maine can play in improving support for our students. An example is the Mitchell Scholars program through the Mitchell Institute, which aims to counteract the effects of limited financial resources for Maine students with academic promise, and combines financial support with mentoring and guidance.⁵

One of the consistent gaps in assistance for college students has been access to SNAP (Supplemental Nutrition Assistance Program). In many cases, college students are ineligible for SNAP benefits. During the pandemic, the US legislature introduced two bills that would have expanded access for college students—H.R. 6565 (Emergency Ensuring Access to SNAP) and H.R. 6756 (End Pandemic Hunger for College Students) (Adamczyk 2020; Laska et al. 2020). Neither bill made it out of committee. Meanwhile, states have been applying for waivers on restrictions on student eligibility, but the USDA Food and Nutrition Service has been denying these requests. Even if they were granting requests, Maine is not on any of the lists of appeals either granted or denied, leading the authors to conclude that Maine did not apply. However, the current stimulus bill, which passed the Senate in early March, looks likely to change students' eligibility for stimulus money (Janes 2021). Student eligibility is proposed, although students claimed as dependents will likely see

their payment go to the parent(s) claiming them as dependents. If they became independent in 2020, they may be able to file for the funds as a back payment when filing their 2020 tax return.⁶

Getting students to college is important, but retention and graduation are also key. The Maine economy needs graduates, and it benefits our economy to make sure students complete their education. In recognition of this need, Maine has seen recent initiatives to keep college graduates in the state, notably a 2019 joint initiative of Live + Work in Maine and Educate Maine announced in the *Portland Press Herald* (Anderson [2019](#)).

For educational institutions, this study, along with national data, is a call to examine policies at all institutional levels to see how they can better support students in precarious circumstances. This includes practices on campus as well as connections to outside resources. Institutions can leverage external resources by adopting policies that support students learning about and gaining access to state and federal assistance programs. On most campuses there are students who are eligible for programs

For educational institutions, this study...is a call...to see how they can better support students in precarious circumstances.

like SNAP and WIC, but who don't know they are eligible or don't know how to apply. Universities can also leverage the intellectual capital of their research faculty to influence public policy. For example, Laska et al. ([2020](#)) propose that nutrition professionals should work with others to advocate for policy change. They also call for government action that is responsive to higher education students' needs, including agencies such as the USDA and the Centers for Disease Control and Prevention.

More campuses should examine their students' needs and consider the institutions' levels of tolerance for students experiencing food or housing insecurity. In a school with 2,000 students, for example, every 1 percent of students experiencing hunger translates into 20 students. Campus initiatives both in Maine and beyond include

programs like campus food shelves and meal plan sharing, where students can take unused meal plan funds at the end of the semester and donate them to a pool that then funds dining cards for students in need. A number of Maine schools have embraced campus food shelves, and some are looking at meal plan sharing as that idea continues to gain traction nationally.

Other initiatives throughout the country include formal classes on how to eat healthy meals on limited budgets, such as the University of Minnesota's FSCN 2002, Healthy Foods, Healthy Lives—Cooking on a Student's Budget. Students presented with seminars or classes on the topic are eager to learn more about food systems and food insecurity. Some institutions have started student-run gardens tied to classes in the curricula ranging from sustainability to biology to creative writing that may feed students, contribute to dining services, and even share produce with the neighborhood. Husson University, for example, offers SC 109—Introduction to Gardening at Husson University.⁷

Increasing the visibility of food and housing insecurity invites students to be part of the solution and engage their creativity to find initiatives that are appropriate for their campus community and geography. These initiatives can be eligible for external funding. It is possible that some of the 2021 federal stimulus money might be eligible to support campus initiatives to ameliorate student hunger. The Maine Hunger Dialogues, a cooperative effort between the University of Maine Cooperative Extension and the Maine Campus Compact, sponsors grants for student initiatives to address hunger on campus. Campuses should make it a priority to nurture these initiatives and help amplify their effects on campus.

Finally, not only should campuses build support infrastructure for students, they need to make the use of those resources easy and free of stigma. Just because a campus has resources does not mean all students are aware of them. Furthermore, being aware of a resource does not mean that a student understands how it works or will be confident in using it. Uncertainty and anxiety can be significant barriers to students' ability to access available resources. Transparency about operations, wide promotion and ongoing information campaigns, and designing services to combat stigma are all keys to successfully fighting food and housing insecurity while nurturing students for retention, graduation, and a successful future.

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NOTES

- 1 The Economic Research Service's food insecurity numbers are available on the Good Shepherd Food Bank's website: <https://www.gsfb.org/hunger-in-maine>.
- 2 To learn more about hunger in Maine, visit this website: <https://www.preblestreet.org/what-we-do/advocacy/maine-hunger-initiative/>.
- 3 The appendix is available here: <https://digitalcommons.library.umaine.edu/mpr/vol30/iss1/2/>.
- 4 Data on Maine college student numbers is available here: https://en.wikipedia.org/wiki/List_of_colleges_and_universities_in_Maine.
- 5 More information about the Mitchell Scholars Program is available here: <http://mitchellinstitute.org/about-mitchell-institute>.
- 6 For SNAP eligibility waivers: <https://www.fns.usda.gov/disaster/pandemic/covid-19/snap-other-waivers> and <https://www.fns.usda.gov/snap/covid-19/denial-certain-state-requests>. For student eligibility for stimulus funds: <https://www.congress.gov/congressional-record/2021/03/04/senate-section/article/S1128-1>.
- 7 Information about the University of Minnesota class: <https://oneclass.com/blog/university-of-minnesota-twin-cities/4843-10-coolest-classes-at-the-university-of-minnesota.en.html>. Information about the Husson University course: <http://catalog.husson.edu/coursedescriptions/sc>.

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Kim McKeage teaches statistics and data analytics, using data to understand complex problems like hunger. She also teaches about the political economy of food. She has been involved with emergency food assistance for more than 15 years in Maine and Minnesota. She helped establish a campus food shelf at Hamline University and is currently exploring Maine students' food and housing insecurity.



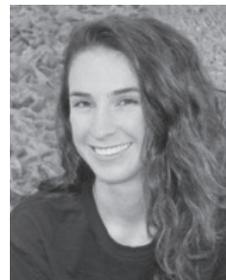
Frank S. Wertheim is an associate extension professor of agriculture/horticulture with the University of Maine Cooperative Extension. During his 30+ year career, Wertheim has developed educational programs for the farming and gardening communities across Maine. He also has worked on hunger related issues

his entire career, from being a US Peace Corps Volunteer in Chile to leading the Maine Hunger Dialogue and Maine Harvest for Hunger.



Sally Slovenski is the executive director of Maine Campus Compact (MCC), where she is responsible for working with MCC's 17 member campuses to advance community engagement and community-based education. She is MCC's key liaison to the Maine Hunger Dialogue Project. Prior to her role at MCC, she was executive director of States United

to Prevent Gun Violence and the manager of teacher and student programs at Earthwatch Institute in Massachusetts.



Sumaya El-Khalidi is head grower for Springworks Farm, the largest aquaponics farm in New England. She studied ecology and environmental economics and management at the University of Georgia. She then moved to Maine to serve in AmeriCorps with Maine Campus Compact. As a VISTA volunteer she focused on enhancing food security in Maine.