Going Without: An Exploration of Food and Housing Insecurity Among Undergraduates

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The rising price of higher education and its implications for equity and accessibility have been extensively documented, but the material conditions of students' lives are often overlooked. Data from more than 30,000 two- and 4-year college students indicate that approximately half are food insecure, and recent estimates suggest that at least 20% of 2-year college students have very low levels of food security. At least one-third of 2-year students are housing insecure, including up to 14% who are homeless, whereas between 11% and 19% of 4-year students are housing insecure. Most of these students work and receive financial aid, but only a fraction receive public or private assistance to help make ends meet. Implications for research on college affordability and efforts to boost college graduation rates are discussed.

Keywords: descriptive analysis; educational policy; higher education; postsecondary education; poverty; survey research

America's higher education system includes students from diverse backgrounds with a variety of personal circumstances. Today, higher education is one of the only routes to upward mobility for those wanting to break the cycle of poverty (Chetty, Hendren, Kline, Saez, & Turner, 2014; Haskins & Sawhill, 2009). The college wage premium continues to be robust, and a college credential is associated with a variety of positive life outcomes including better health and happiness (Belfield & Bailey, 2011; Oreopoulos & Petronijevic, 2013). Although efforts to increase access have succeeded in enrolling approximately 10 million students from low-income families in college, degree completion gaps between the rich and poor are larger than ever. Just 14% of students from the lowest socioeconomic status (SES) quartile complete a bachelor's or higher degree within 8 years of high school graduation compared with 29% of those from middle SES families and 60% of students from the highest SES quartile (U.S. Department of Education, 2015).[1]

Income disparities in college attainment persist even among students academically prepared for college (U.S. Department of Education, 2015). One reason is the high price of college. Even after grants and scholarships are accounted for, the price of college grew substantially over the past several decades, in part because the purchasing power of need-based financial aid declined (Goldrick-Rab, 2016). Since 2000, real incomes of all but the wealthiest American families have declined or stagnated, leaving them with fewer resources for borrowing or paying high fractions of their annual income for college (Kochhar & Fry, 2015). After all grant aid is accounted for, the average dependent student from a family in the lowest annual income quartile (averaging $21,000 per year) must pay 40% ($8,300) of that income to attend a public 2-year college or 59% ($12,300) to attend a public 4-year institution (Goldrick-Rab & Kendall, 2014). The rising price of college also stretches the financial resources of middle-income families (Goldrick-Rab & Kendall, 2014). So, in addition to working, most students increasingly rely on loans, stretch their budgets, and attend school without first securing their basic needs (Goldrick-Rab, 2016).[2]

Human development theory holds that in order to learn higher level skills, individuals' basic needs must first be met (Alaimo, 2005; Maslow, 1943). In elementary and secondary education, this is understood and serves as a rationale for the provision of subsidized meals in school and subsidized housing

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Educational Researcher, Vol. 47 No. 2, pp. 121–133
DOI: 10.3102/0013189X17741303

(Levine, 2008). However, few such supports exist for students in tertiary education. To what extent are undergraduates now struggling to afford food and housing, potentially reducing their ability to complete degrees? This article is among the first to examine this question using data from tens of thousands of students across the United States.

Background

There is widespread attention to the problem of low college completion rates, particularly among economically disadvantaged students. Reviews of evidence on the contributing factors tend to emphasize insufficient academic preparation, a lack of information about how to navigate college, poor "fit" between the student and college, and financial constraints—although these are usually focused on challenges in covering tuition. In turn, interventions are typically informational or behavioral in nature, consist of affirmative action or financial aid policies, or focus on increased academic preparation (e.g., Caspar, 2015; Page & Scott-Clayton, 2015). They rarely focus on ensuring that students have sufficient access to food and housing despite conceptual and empirical evidence indicating that securing these most basic needs is consequential for student development and academic success (e.g., Alaimo, 2005; Broton, 2017; Jyoti, Frongillo, & Jones, 2005; Mullainathan & Shafir, 2013).

Efforts to document material hardship among college students typically focus on food insecurity, the limited or uncertain availability of nutritionally adequate and safe foods, or the ability to acquire such foods in a socially acceptable manner (Anderson, 1990). Food insecurity is a multidimensional concept and there is healthy debate about its measurement, but the higher education literature typically relies on the U.S. Department of Agriculture's (USDA) validated food security scale (Bickel, Nord, Price, Hamilton, & Cook, 2000; Carletto, Zezza, & Banerjee, 2013; Webb et al., 2006). Respondents are asked a series of questions related to their food situation and if they encountered challenges due to resource limitations. Based on the number of affirmative responses, respondents are categorized into one of the following four categories (Bickel et al., 2000):

- High food security: no reported indications of food-access problems or limitations.
- Marginal food security: anxiety over food sufficiency or shortage of food.
- Low food security: reports of reduced quality, variety, or desirability of diet.
- Very low food security: reports of multiple indications of disrupted eating patterns and reduced food intake.

Notably, food insecurity exists on a spectrum and encompasses a range of problems. Only the most severe forms are often associated with the physiological sensation of hunger.

There is also widespread debate regarding the best way to define and measure housing challenges. Housing insecurity can be measured in different ways, may take somewhat different forms depending on age and circumstances, and exists on a continuum. The most extreme case is homelessness where individuals lack a fixed, regular, and adequate nighttime residence. Individuals staying at shelters and in abandoned buildings or cars as well as those who have been thrown out or evicted or do not have a home or place to sleep at night are considered homeless (McKinney-Vento, 2001). Other dimensions of housing insecurity are unaffordability, measured as difficulty making rent payments or an inability to pay the full amount of rent or utilities (Johnson & Meckstroth, 1998), and instability, which includes moving multiple times per year, doubling up with other families, or moving in with others due to financial problems (Cutts et al., 2011).

The incidence of food and housing insecurity in K–12 education is growing. Today, 1.3 million students are homeless, up from 1.1 million just 3 years prior (National Center for Homeless Education, 2015), and nearly 8 million children live in households with low or very low levels of food security (Coleman-Jensen, Rabbit, Gregory, & Singh, 2015). Yet, there is very little attention to these concerns in higher education. In fact, none of the national studies of undergraduates, including those led by the federal government (e.g., the Beginning Postsecondary Study or the National Center for Education Statistics transition-to-college studies) or by private entities (e.g., the Higher Education Research Institute Freshman Survey or the National Study of Student Engagement), measure food and housing insecurity.

The few studies that do exist suggest that undergraduates experience food insecurity at rates higher than the population writ large (Cady, 2014) (see Appendix Table A1 for details). In 2014, 14% of U.S. households experienced low or very low levels of food security and an additional 8% were marginally secure (Coleman-Jensen et al., 2015). A study of full-time returning students younger than 26 years at the University of Alabama reported that 14% of students had low or very low food security and an additional 20% had marginal food security (Gaines, Robb, Knol, & Sickler, 2014). At the University of Hawai'i at Mānoa, 21% of nonfreshman students had low or very low food security and another 24% were marginally secure (Chaparro, Zaghloul, Holck, & Dobbs, 2009), whereas a study at a 4-year college in rural Oregon found that 59% of its students experienced some form of food insecurity (Patton-López, López-Cevallos, Cancel-Tirado, & Vazquez, 2014). At the University of Massachusetts Boston, 27% of students skipped meals and 6% did not eat for 1 to 2 days due to resource limitations (Silva et al., 2017).

Almost all of the prior research in this area focuses on studies at individual public research universities rather than 2-year colleges, which educate nearly half of all undergraduates. Moreover, the higher education system is increasingly stratified along racial/ethnic and class lines with 2-year colleges serving a greater share of students from historically underserved backgrounds who may be particularly vulnerable to material hardship challenges. Just one published study has examined food insecurity among community college students: Maroto, Snelling, and Linck (2015) reported that 56% of students had low or very low food security and an additional 20% had marginal food security. Yet, like much of the prior research, this study relied on a convenience sample, limiting the generalizability of findings. Morris, Smith, Davis, and Null (2016) sought to address external validity concerns by studying food insecurity at four universities in Illinois, but low response rates (i.e., 4%) hindered the ability to draw generalizable conclusions. Although we anticipate variation in

prevalence of food insecurity by institutional type, for example, differences in research design, operationalization of terms, and study implementation limit direct comparison of such studies (see Table A1 for additional details).

The Free Application for Federal Student Aid (FAFSA) includes a question about homelessness, but those data are reported only for students who file that form (which is notoriously difficult to complete), who meet narrow eligibility criteria, and who offer proof of homelessness. Still, in 2012-2013, more than 58,000 college students were homeless according to that measure, up from 47,200 in 2009 (National Association for the Education of Homeless Children and Youth, 2014). A report from the City University of New York indicated that 42% of students (i.e., 100,000 students) were housing insecure, including 29% of students who stated that they did not have enough money to pay rent (Tsui et al., 2011).[3] Silva and colleagues (2017) found that 5% of surveyed students at the University of Massachusetts Boston were homeless, but there have been no published studies of undergraduates' housing insecurity more broadly defined.

At least some practitioners are aware of these challenges, reporting that they have long worked with students whose lives are marked by precarity—a condition of existence without the security or predictability of basic material or psychological welfare (Goldrick-Rab, Broton, & Gates, 2013). Increasingly, students are sharing their experiences of material hardship with college officials and policymakers (e.g., Abdul-Alim, 2017). The past president of Miami Dade College's Wolfson campus, Madeline Pumariega, explained the connection between precarity and academic success for students, noting (Goldrick-Rab et al., 2013),

> When a student is hungry, he does not feel safe, and it is hard to help him synthesize class material. We have to meet students' basic needs in order for them to fully concentrate on assimilating the information in a class in a way that they can apply it, learn, and take it forward. (p. 2)

This article builds on prior studies of material hardship among undergraduates and makes several key contributions. We use data from four survey studies, conducted by the Wisconsin HOPE Lab research team and affiliates, each with different strengths and limitations. Taken together, these studies provide the best estimates of the incidence of food and housing insecurity among college students with a focus on the previously overlooked population of community college students. All four study samples include community college students from multiple institutions, including one study of a statewide public higher education system. Two of the studies include 2- and 4-year college students from Wisconsin and allow us to examine sector variation in this state. These two studies have defined sampling frames and relatively high response rates, suggesting that the findings are representative of the particular population. The other two studies include information from thousands of community college students across 26 states but rely on convenience samples and have low response rates, limiting our confidence in the generalizability of findings. One study allows for an examination of the types of strategies that community college students employ to cope with material challenges.

Methodology

This article draws on data from four surveys that represent the experiences of more than 30,000 two- and 4-year college students attending 121 colleges and universities across 26 states. Studies 1 and 2 are national in scope and include only community college students. The first study, conducted in 2016, represents the largest survey of food and housing insecurity among college students ever conducted. It includes information from more than 33,000 students at 70 community colleges in 24 states. Although this is not a nationally representative sample of students or colleges, it is far greater in size and diversity than prior samples. Notably, the Study 1 questionnaire was administered at the very start of the fall semester, helping to capture the experiences of some of the most vulnerable students who may stop or drop out before the end of the term.[4]

The second study, conducted in 2015, includes information from approximately 4,000 undergraduates from 10 public community colleges in seven states: California, Louisiana, New Jersey, New York, Pennsylvania, Wisconsin, and Wyoming.[5] Six of the 10 colleges have typical rates of poverty in their surrounding communities (i.e., around 15%), whereas 3 are in areas with lower-than-average rates of poverty (7%-9%), and 1 college is located in an area with a very high poverty rate (27%) (U.S. Census Bureau, 2016). Due to budget limitations, we were able to provide limited incentives for participation only in Study 1 and were unable to provide monetary incentives for responding to the survey questionnaire in Study 2. Additionally, the Study 2 questionnaire was administered several weeks after the start of the fall semester after some students had already stopped or dropped out. Both studies administered a questionnaire via email, and the quality of the email addresses used is unknown. Community college students are difficult to reach for survey studies, and the population of greatest interest here—economically disadvantaged students—is especially unlikely to have regular email access. The response rate was 4% in Study 1 and 9% in Study 2, typical for online questionnaires administered by external entities, which are rarely conducted with such vulnerable populations (Porter & Whitcomb, 2005; Sax, Gilmartin, & Bryant, 2003), and similar to prior response rates in survey studies of college food insecurity (see Table A1 for details).

Studies 3 and 4 include 2- and 4-year college students from low- and moderate-income families in Wisconsin. The third study includes undergraduates who were in their 1st or 2nd year of college at one of ten 2- or 4-year colleges in the state of Wisconsin in 2015. These students were randomly selected to participate in a larger study that focused on science, technology, engineering, or math (STEM) from a pool of eligible students; therefore, they all had completed a FAFSA, had an expected family contribution within 200% of the Pell Grant eligibility cutoff, had at least $1,000 in unmet financial need when they started college, and had demonstrated a modest interest in a STEM field, and their test scores indicated that they would not require remediation in math.[6] Five of the 10 colleges and universities in Study 3 are located in areas with poverty rates below the national average (10%-14%), 2 of the colleges are in areas with average poverty rates (15%), and 3 colleges are located in an area with a high poverty rate (22%). The survey questionnaire,

fielded in 2015, was administered to 1,565 students, and 1,007 responded for a 64% response rate (financial incentives were employed).

The fourth study includes undergraduates from all of Wisconsin's 42 public 2- and 4-year colleges and universities who were randomly selected to participate in a longitudinal study of financial aid. Study respondents were selected among those who met the following criteria: Wisconsin residents who, within 3 years of completing high school, enrolled in one of Wisconsin's public colleges or universities full-time for the first time in 2008. After completing the FAFSA, students had to have qualified for a federal Pell Grant, while still possessing unmet need (excluding loans) of at least $1.[7] In 2009, study researchers administered a general questionnaire that included questions about food and housing insecurity. That questionnaire had a response rate of 77% (financial incentives were employed) and included information from 1,442 students from across the state of Wisconsin, which had a poverty rate of 12% in 2009.

Measurement of Food and Housing Insecurity

The questionnaires administered in all four studies were designed as general surveys of students' college experiences and included several measures of housing and food insecurity described earlier in the article. The questionnaires included similar, but sometimes distinct, measures of food and housing insecurity as our measurement strategy was refined over time.[8] Questionnaires from Studies 1, 2, and 3 used the USDA's validated 6-item food security scale and Study 4 used the USDA food screener and part of the 6-item scale (Bickel et al., 2000). In Studies 3 and 4, we also asked students if they had gone a whole day without eating due to a lack of money.

Regarding housing insecurity, questionnaires from Studies 1 and 2 included several questions related to the affordability and stability of students' living circumstances, including the ability to sufficiently pay rent and utilities and whether students had to move or double up with others due to financial problems. Additionally, students were asked if they were homeless, including both sheltered and unsheltered circumstances. Studies 3 and 4 included a more limited set of housing insecurity questions. Study 3 asked respondents if they were unable to pay the rent/mortgage or utilities on time, had moved in with others due to financial problems, and had experienced some form of sheltered or unsheltered homelessness. Study 4 included questions only about respondents' ability to pay the rent/mortgage or utilities on time and did not include any questionnaire items related to instability or homelessness. We term individuals who report any housing-related challenge as "housing insecure" and provide more nuanced information about the specific type and form of insecurity in the tables.

Samples and Analysis

The characteristics of students in the four study samples are displayed in Table 1. Students in Studies 1 and 2 are similar to community college students nationally, although female students are overrepresented in Study 1 (Association of Community Colleges, 2015). The samples for Studies 3 and 4 are more typical of traditional-age lower income students attending public higher education in Wisconsin.

For each sample, we estimated the proportion of undergraduates experiencing food and/or housing insecurity. Additionally, we used information from Studies 3 and 4 to test for variation in prevalence rates by college institutional sector using chi-square tests given the categorical nature of the data. Finally, we examined the coping strategies employed by community college students in Study 2 and tested if they vary by food and housing security status using chi-square tests for categorical data and *t* tests for continuous data.[9]

Prevalence of College Food and Housing Insecurity

In each study, more than half of 2- and 4-year college students reported that they had some level of food insecurity, ranging from anxiety over food sufficiency to reduced food intake. Specifically, 67%, 52%, 61%, and 57% of undergraduates indicated marginal, low, or very low levels of food security in Studies 1 through 4, respectively. Among community college students, between 11% and 38% indicated that they had very low food security, which is often associated with feelings of hunger. The two earlier studies of 4-year college students indicate that 9% and 25%, respectively, have very low levels of food security. Notably, the lowest estimates come from Study 4, which is the oldest study and includes only part of the USDA-validated food security scale measurement. Results from the more recent studies that include the validated measurement scale indicate that at least one in five 2- and 4-year college students have very low food security (see Tables 2, 4).

The most common food security challenges include an inability to afford to eat balanced meals, affirmation that the food students bought just did not last and they could not afford to buy more, and reports of cutting the size of meals or skipping meals altogether because there was not enough money for food. Although less common, between 22% and 36% of respondents (depending on the study) reported that they were hungry and did not eat because there was not enough money for food (see Table 2). Perhaps most concerning, when we asked students if they had gone a whole day without eating due to lack of money, 11% of students in Study 3 and 7% of students in Study 4 responded in the affirmative.

Unlike food insecurity, there was considerable variation in the prevalence of housing insecurity across college sectors. Students attending 2-year colleges are statistically more likely to report housing challenges than those attending 4-year colleges. Among community college students, at least one-third indicated that they had experienced some form of housing insecurity in the past year. In each of the three most recent survey studies, approximately half of community college students reported at least one challenge related to housing affordability or stability. The most common challenges include difficulty or an inability to pay the full amount of rent/mortgage and an inability to pay the full utility bill. Among 4-year college students, 11% of respondents in Study 3 and 19% of respondents in Study 4 indicated that they were housing insecure. Due to the measurement design, housing insecure students in Study 4 indicated that they were

Table 1
Survey Studies and Sample Characteristics

	Study 1	Study 2	Study 3	Study 4
Questionnaire Year	2016	2015	2015	2009
Questionnaire Response Rate (%)	4	9	64	77
Sample Frame and Colleges	Convenience sample of undergraduates attending 1 of 73 community colleges in 24 states	Convenience sample of undergraduates attending 1 of 10 public community colleges in 7 states	Random sample of undergraduates who met certain criteria including attending 1 of 10 public and private 2- and 4-year colleges in Wisconsin	Random sample of undergraduates who met certain criteria including attending 1 of Wisconsin's 42 public 2- and 4-year colleges and universities
Sample Characteristics				
2-Year or Community College (%)	100.00	100.00	11.82	36.41
Female (%)	71.80	55.29	49.70	60.36
Average Age (years)	27.73	29.80	19.43	18.35
Race/Ethnicity				
Non-Hispanic White (%)	43.58	54.68	78.95	71.28
African American or Black (%)	11.14	14.93	3.08	7.59
Hispanic or Latino (%)	24.44	19.61	4.47	6.02
American Indian or Pacific Islander (%)	1.34	4.36	0.79	3.80
Southeast Asian (%)	2.07	3.78	2.18	8.74
Other Asian or Asian American (%)	4.17	6.20	2.58	1.79
Two or More Races (%)	11.34	5.02	6.65	NA
Unknown (%)	1.91	7.24	1.29	0.79
Family Income				
< $5,000	NA	7.33	3.97	16.78
$5,000–$15,000	NA	10.36	4.37	10.49
$15,000–$25,000	NA	9.46	8.64	18.04
$25,000–$50,000	NA	16.89	25.92	43.08
$50,000–$75,000	NA	11.40	27.81	11.05
$75,000–$100,000	NA	6.57	16.39	0.42
$100,000+	NA	8.54	4.97	0.14
Not Reported	NA	29.47	7.94	NA
Financial Aid Recipient (any)	NA	67.08	100.00	100.00
Financial Dependent	NA	NA	91.56	94.06
Zero Expected Family Contribution	NA	NA	24.43	35.59
Pell Grant Eligible	NA	NA	63.16	100.00
Highest Level of Parental Education				
Less Than High School	13.61	12.44	5.10	12.74
High School Diploma	21.64	21.44	23.57	29.48
Associate's Degree, Technical Certificate, or Some College	37.68	31.51	30.30	38.14
Bachelor's Degree	16.93	21.40	26.84	14.48
Graduate Degree	10.14	13.20	14.18	5.17
Family				
Has a Child(ren)	28.07	25.53	3.90	3.71
Married	18.34	21.70	1.19	0.98
Year in College				
1st Year	28.26	42.37	82.12	100.00
2nd Year	39.30	39.86	16.39	0
3rd or Later Year	32.45	17.77	1.50	0
Enrollment Status				
Full-Time (at least 12 credits)	59.16	53.50	93.61	98.27
N	26,131	4,185	1,007	1,442

Note. Study 1 and 2 information was self-reported on a questionnaire; respondents were able to select multiple race/ethnicities. Study 3 information came from the 2014 Free Application for Federal Student Aid (FAFSA) except race, which was self-reported on a questionnaire, and enrollment status, which was from spring 2015 academic records. Study 4 information came from the 2008 FAFSA except race, which was self-reported on a questionnaire. Study 3 and 4 respondents' primary race/ethnicity was reported. NA = not available.

Table 2
Food Insecurity Among Undergraduates

	Study 1	Study 2	Study 3	Study 4
Food Security Level				
High Security (score = 0)[a]	32.62	47.90	39.42	43.17
Marginal Security (score = 1)	11.56	12.88	10.03	47.23
Low Security (score = 2–4)	22.81	19.41	23.63	
Very Low Security (score = 5–6)	33.01	19.81	26.91	9.60
Items				
1. The food that I bought just did not last and I did not have money to get more.	51.53	38.44	41.91	20.04
2. I could not afford to eat balanced meals.	59.50	43.23	46.97	NA
3. Any days: Did you ever cut the size of your meals or skip meals because there was not enough money for food?	46.01	27.21	41.51	20.90
4. 3+ days/months:[b] Did you ever cut the size of your meals or skip meals because there was not enough money for food?	31.79	21.94	19.58	NA
5. Did you ever eat less than you felt you should because there was not enough money for food?	43.31	25.78	37.21	20.72
6. Were you ever hungry but did not eat because there was not enough money for food?	36.37	21.59	30.35	NA
N	26,067	3,921	1,007	1,427

Note. Reference period is past month for Studies 1, 2, and 4 and past 12 months for Study 3. NA = not available.
[a]Study 4 used the U.S. Department of Agriculture food screener rather than the 6-item survey module, which was used in Studies 1, 2, and 3 to categorize respondents. Study 4 respondents who indicated that in the prior month they got "enough of the kinds of food I want" are considered high security; respondents who got "enough but not always the kinds of food I want to eat" are considered low security; and respondents who "sometimes or often do not get enough to eat" are considered to have very low food security (Bickel, Nord, Price, Hamilton, & Cook, 2000). [b]Studies 1 and 2 asked about 3+ days over the past month, whereas Study 3 asked about 3+ months over the past year.

unable to pay the rent/mortgage and/or utilities on time, whereas those in Study 3 also indicated a need to move in with others due to financial problems (see Tables 3, 4).

Homelessness is the most severe form of housing insecurity, and between 6% and 14% of community college students in Studies 1, 2, and 3 reported that they had been homeless in the prior year. Notably, the two most recent national studies of community college students both found that 13% to 14% of students are homeless. The most common forms of homelessness include not having a place to sleep at night, being informally thrown out of the home, staying in an abandoned building or car, and being formally evicted from the home. It was less common for community college students to report that they had stayed in a shelter or did not have a home. Only Study 3 included questions about homelessness among 4-year college students, and 2% reported that they did not have a place to sleep at night, had stayed in an abandoned building or car, were evicted from home, or had stayed in a shelter (see Tables 3, 4).

Coping With Food and Housing Insecurity

In theory, when undergraduates are struggling to make ends meet, they can turn to public assistance programs, private charities, friends, and family and can rely on strategies such as trimming their budgets and working longer hours. In reality, it can be difficult to make these strategies work.

Using data from the second study, we found that 62% of community college students were employed, working an average of 30 hours per week. Rates of employment and number of hours worked were not statistically different according to food or housing security status; students experiencing food insecurity appear just as likely as food secure students to work. However, students who had recently experienced homelessness (the most severe form of housing insecurity) were less likely to work than those who had not; 58% of homeless undergraduates were currently employed compared with 63% of those with a home ($p < .05$). Among working students, however, homeless undergraduates worked a statistically similar number of hours, on average (31 hours/week), to students who were not homeless (30 hours/week) (see Table 5).

We asked students if members of their current household had used any public benefits[10] in the past year and if they had used any benefits specifically related to food (i.e., Supplemental Nutrition Assistance Program (SNAP); Special Supplemental Nutrition Program for Women, Infants, and Children; or free- or reduced-price K–12 school lunch) or housing (i.e., utility or housing assistance including currently living in public housing or using a housing voucher). We found that nearly two-thirds of undergraduates' households used some type of public benefit in the past year. However, tax refunds were the most widely reported benefit (49%), followed by public health insurance (30%). Just 21% of students used SNAP (formerly known as food stamps), and 15% had received utility assistance (see Table 5).

Overall, 29% of respondents' households had received food-related public assistance in the past year and 15% had received housing-related public assistance. Students who are food and/or housing insecure were more likely to report receiving any public benefit, food-related public benefits, or housing-related public benefits in the past year. For example, 41% of students with very low food security compared with 21% with high food security received

Table 3
Housing Insecurity and Homelessness Among Undergraduates

	Study 1	Study 2	Study 3	Study 4
Housing Insecurity				
Any of the Below Items	50.70	51.81	15.07	23.96
1. Difficulty paying rent	NA	22.87	NA	NA
2. Did not pay full amount of rent[a]	20.79	18.85	6.59	17.88
3. Did not pay full amount of utilities[b]	27.94	23.16	6.89	18.67
4. Moved two or more times per year	13.80	11.88	NA	NA
5. Doubled up	16.74	12.05	NA	NA
6. Moved in with other people due to financial problems	18.24	15.23	8.69	NA
Homelessness				
Any of the Below Items	14.39	12.81	2.30	NA
1. Thrown out of home	6.28	4.72	NA	NA
2. Evicted from home	3.27	2.20	0.80	NA
3. Stayed in shelter	1.96	1.04	0.60	NA
4. Stayed in abandoned building or car	4.26	3.02	1.00	NA
5. Did not have a place to sleep at night	7.77	8.14	1.40	NA
6. Did not have a home	2.24	0.94	NA	NA
N	24,608	4,066	1,002	1,436

Note. Reference period is past 12 months for all measures and studies. NA = not available.
[a]Studies 3 and 4 asked if respondents were unable to pay rent or mortgage on time. [b]Studies 3 and 4 asked if respondents were unable to pay the gas, oil, or electric bill on time.

Table 4
Variation in Food and Housing Security Status by Institutional Sector

	Food Security Status						Housing Security Status				
	High Security	Marginal Security	Low Security	Very Low Security	χ^2	*N*	Housing Insecure	χ^2	Homeless	χ^2	*N*
Study 3 (all)	39.42	10.03	23.63	26.91		1,007	15.07		2.30		1,002
Institutional Sector					*			***		**	
2-Year College	27.73	8.40	26.05	37.82		119	48.31		5.93		118
4-Year College	40.99	10.25	23.31	25.45		888	10.63		1.81		884
Study 4 (all)	43.17	NA	47.23	9.60		1,427	23.96		NA	NA	1,436
Institutional Sector								***			
2-Year College	45.49	NA	43.38	11.13		521	32.31		NA	NA	523
4-Year College	41.83	NA	49.45	8.72		906	19.17		NA	NA	913

Note. Chi-square tests were used to test for statistically significant differences across institutional sector. NA = not available. See Tables 2 and 3 for details on food and housing security status categorization.
*$p < .05$. **$p < .01$. ***$p < .001$.

household-level food-related public assistance ($p < .001$). Similarly, 19% of housing insecure students received a housing-related public benefit compared with 10% of those who are housing secure ($p < .001$). Students who experienced homelessness were more likely to have received a food- or housing-related public benefit in the past year ($p < .01$), but similar shares of homeless and housed undergraduates had received any public benefit (see Table 5).

We also considered whether students turned to private assistance, including receiving free food or meals because there was not enough money for food or borrowing from friends or family to help pay bills. Fourteen percent of respondents indicated that they had received free food in the past year, but a greater share of food insecure, housing insecure, and homeless students had employed this coping strategy. For example, 31% of students with very low levels of food security reported that they had received free food compared with 5% of food secure undergraduates ($p < .001$). Among all respondents, 38% had borrowed money to help pay bills, but food and/or housing insecure students and those without a home are statistically more likely to do so. For example, 58% of housing insecure students had borrowed money for bills compared with 17% of housing secure students ($p < .001$) (see Table 5).

Table 5
Coping With Food and Housing Insecurity

	Self-Reliance		Public Assistance			Private Assistance	
	Currently Working[a] (%)	Average Hours Worked[b] (no./week)	Food Related[c] (%)	Housing Related[d] (%)	Any[e] (%)	Food Related[f] (%)	Borrow to Pay Bills[g] (%)
Study 2 (all)	62.31	30.21	28.97	14.69	64.47	14.29	37.74
Food Insecurity			***	***	**	***	***
High Security	61.91	29.96	20.69	11.69	60.71	4.79	17.70
Marginal Security	63.89	28.23	28.66	15.09	66.42	12.32	37.42
Low Security	63.94	31.48	34.07	17.08	67.54	20.94	48.60
Very Low Security	59.31	30.68	40.80	18.48	67.45	31.29	73.33
Housing Insecurity			***	***	***	***	***
Secure	61.98	29.66	19.55	10.10	60.12	5.11	17.08
Insecure	63.30	31.11	38.44	18.85	69.44	23.47	58.05
Homeless Status	*		***	**		***	***
Not Homeless	63.34	30.03	26.56	13.77	64.22	11.33	32.99
Homeless	57.79	31.26	43.58	18.97	64.92	33.61	67.50

Note. The table displays percentages among each type of food or housing insecurity category (i.e., each row). The Study 2 sample includes 4,185 respondents who completed the food and/or housing insecurity survey questions. Chi-square and *t* tests were used to test for statistically significant differences across food/housing security status level. No imputation was performed for missing data items.

[a]Currently working includes anyone who reported having a job in the past week. [b]Work hours is the number of hours worked the past week among those who had a job in the past week. [c]Food-related public assistance includes those who live in households that received Supplemental Nutrition Assistance Program (SNAP) benefits (20.5%), Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) benefits (9.5%), or free or reduced-price K–12 school lunch (20.5%) in the past year. [d]Housing-related public assistance includes those who live in households that received utility (14.8%) or housing assistance (7.4%) in the past year or those currently living in public housing (8.7%) or using a housing voucher (4.2%). [e]Any public assistance includes those who live in households that received SNAP benefits (20.5%), WIC benefits (9.5%), Temporary Assistance for Needy Families (6.2%), Supplemental Security Income (6.1%), Social Security Disability Insurance (7.2%), Medicaid or other public health insurance (29.8%), child care assistance (4.3%), unemployment insurance (8.4%), utility assistance (14.8%), housing assistance (7.4%), transportation assistance (5.2%), tax refunds (49.1%), or veterans' benefits (9.5%) in the prior year. [f]Private food assistance includes those who received free food or meals in the past 12 months because there was not enough money. [g]Borrow to pay bills includes those who borrowed money from friends or family to help pay bills in the past 12 months because there was not enough money.

*$p < .05$. **$p < .01$. ***$p < .001$.

Discussion

Low college completion rates coupled with the declining affordability of higher education are a frequently discussed and researched concern, but little attention has been paid to the material conditions of students' lives. The data reported in this article illustrate the material challenges of community college students and 4-year college students from low- and moderate-income families. Despite variation in methodology and study samples, we found that many students are struggling with economic precarity such that they do not have the security or predictability of basic material welfare.

More than half of the 2- and 4-year college students we surveyed reported some type of food-access problem or limitation. Estimates from the most recent studies, conducted in 2015 and 2016, indicate that at least 20% of community college students have very low food security, marked by disrupted eating patterns and reduced food intake that is often associated with hunger. There is some evidence that 2-year college students are statistically more likely to report food insecurity challenges than 4-year college students from low- and moderate-income families, but results are mixed. Estimates from the two earlier studies indicate that 9% and 25%, respectively, of 4-year college students have very low food security.

Rates of housing insecurity were more variable and community college students were statistically more likely to report housing challenges than 4-year students in the same state higher education system. The most recent estimates indicate that one in two community college students has experienced housing insecurity challenges in the past year. Among 4-year college students, at least 1 in 10 and up to 1 in 5 indicated that they were housing insecure. Housing insecure students most commonly report affordability challenges related to an inability to pay the rent and/or utilities.

Homelessness is a severe form of housing insecurity, and estimates of homelessness converged in the two recent national studies of community college students at 13% to 14%. Among 4-year college students, 2% reported that they were homeless or had been in the prior year. We define homelessness to include both sheltered and unsheltered living circumstances, and the most common forms of homelessness include being formally or informally thrown out of the home; not having a place to sleep at night; or staying in abandoned buildings, cars, or other places not meant for human habitation.

Together, these data sources provide the best evidence available on the prevalence of food and housing insecurity among community college students and shed light on the ways in which material hardship varies across the college sector. Although

geographic and measurement differences limit our ability to draw direct comparisons across study samples, the evidence consistently indicates that a substantial share of students is struggling to secure adequate food and shelter. Moreover, there is no evidence that the problem of food and housing insecurity has improved over the past 8 years.

However, we need additional data to better understand the extent and nature of material hardship among college students. Specifically, we recommend that nationally representative studies of college students, such as the National Postsecondary Student Aid Study, include validated measures of material hardship (Goldrick-Rab, Broton, & Cady, 2017; Wisconsin HOPE Lab, 2015).[11] This is the best way to obtain representative estimates of food and housing insecurity among college students, enable scholars to study relationships to other factors and outcomes, and allow for comparisons with other household studies (e.g., Current Population Survey or Survey of Income and Program Participation).[12] At the same time, scholars should not be complacent with describing a problem and its implications (Gamoran, 2014). Additional research examining the efficacy of programmatic and policy responses to students' material hardship challenges is crucial to promoting student well-being and college attainment (e.g., Daugherty, Johnston, & Tsai, 2016; Goldrick-Rab, Broton, & Hernandez, 2017).

Community college students, in particular, have been overlooked in prior studies of food and housing insecurity in higher education. This may be due to the misconception that community college attendance is free or nearly free in the United States (e.g., Alexander, 2015). Instead, annual out-of-pocket costs for community college attendance average $8,300 for dependent students from families in the lowest income quartile (Goldrick-Rab & Kendall, 2014). The open access mission of community colleges has contributed to their relative success in enrolling students from economically disadvantaged and historically underserved backgrounds, and these characteristics are associated with increased risk of material hardship (Coleman-Jensen et al., 2015). In addition to individual-level factors, structural differences across college sectors may also contribute to variation in prevalence rates. Community colleges rarely provide on-campus housing, and there are few resources for those in need of housing support.

When we examined how community college students cope with material challenges, we found that most received financial aid and worked an average of 30 hours per week. Students experiencing food and housing insecurity worked at similar rates to those who were materially secure. This finding is consistent with prior research indicating that students who are food and/or housing insecure are unable to secure additional work despite seeking additional employment opportunities (Goldrick-Rab, 2016). Among those with very low food security, just 41% reported receiving any food-related public assistance such as SNAP. These low take-up rates are in part due to a lack of awareness or stigma about public benefits as well as regulations that limit undergraduates' ability to access the social safety net. Low-income individuals enrolled in college must meet additional criteria, such as caring for a dependent child, to be eligible for SNAP benefits (Lower-Basch & Lee, 2014). Similarly, just 19% of homeless undergraduates received any public housing-related assistance in the past year. Although lack of affordable housing is a nationwide problem, certain housing assistance programs specifically limit eligibility for college students (Sackett, 2015).

Conclusion

Efforts to increase college completion rates must be broadened to include attention to material hardship and shed light on this all-too-often hidden cost of college attendance. Stereotypes of undergraduates eating ramen noodles or couch surfing work against this. The data presented in this article suggest that assumptions trivializing students' basic needs are misplaced. Further research is needed to understand the correlates of housing and food insecurity, and interventions must be created and tested to help ensure that students' basic needs are met so that they can focus on learning.

NOTES

The authors would like to thank the Institute of Education Sciences Grant No. R305B090009, National Science Foundation Grant No. DGE-1256259, and the Lumina Foundation for research support. The following organizations provided funding and support for the studies in this article: Association of Community College Trustees, Bill and Melinda Gates Foundation, Great Lakes Higher Education Guaranty Corporation, Healthy Minds Study, Institute for Research on Poverty, The Kresge Foundation, Single Stop, Spencer Foundation, William T. Grant Foundation, and Wisconsin Center for the Advancement of Postsecondary Education. The authors also thank Daniel Eisenberg, principal investigator of the Healthy Minds Network; Jed Richardson, acting director of the Wisconsin HOPE Lab; and Anthony Hernandez for their support and assistance.

[1]Students' SES was based on their parents' education and occupations as well as the family income in 2002 and was measured by a composite score on these variables. The low SES group is the lowest quartile, the middle SES group is the middle two quartiles, and the high SES group is the upper quartile. Data are from the Education Longitudinal Study of 2002 (U.S. Department of Education, 2015).

[2]Federal student loans cannot cover students' unmet financial need as they are capped at $5,500 for freshmen, $6,500 for sophomores, and $7,500 for juniors and seniors.

[3]CUNY undergraduates were defined as "housing instable" if they reported that they had experienced one or more of the following problems in the previous year: not having enough money to pay rent, experiencing a rent increase that made paying rent difficult, being required to appear in housing court, leaving because of feeling unsafe in the household, being threatened with foreclosure, being thrown out by someone in the household, being evicted by a landlord, trying but not being able to get into a shelter, being removed from a shelter, losing housing as a result of fire or other building problems, losing housing as a result of a foreclosure, or losing housing as a result of a Workfare requirement.

[4]Study 1, a national study of basic needs insecurity in higher education, was conducted by the Wisconsin HOPE Lab at the University of Wisconsin-Madison under the direction of Drs. Sara Goldrick-Rab and Jed Richardson. The sample includes students from the following community colleges: Bergen Community College (NJ), Bladen Community College (NC), Brookhaven College (TX), Bunker Hill Community College (MA), Cedar Valley College (TX), Central Lakes College (MN), Chandler-Gilbert Community College (AZ), Chippewa Valley Technical College (WI), College of Southern Idaho (ID), Community College of Philadelphia (PA), Contra Costa College (CA), Cuyahoga Community College (OH), Cuyamaca College (CA), Dakota County

Technical College (MN), Dallas Colleges Online (TX), Dallas County Community College District (TX), Daytona State College (FL), Des Moines Area Community College (IA), Diablo Valley College (CA), East Los Angeles College (CA), Eastfield College (TX), El Centro College (TX), Estrella Mountain Community College (AZ), Flathead Valley Community College (MT), GateWay Community College (AZ), Glendale Community College (AZ), Grand Rapids Community College (MI), Grossmont College (CA), Harper College (IL), Highline College (WA), Inver Hills Community College (MN), Jackson College (MI), Kishwaukee College (IL), Los Angeles City College (CA), Los Angeles Community College District (CA), Los Angeles Harbor College (CA), Los Angeles Mission College (CA), Los Angeles Pierce College (CA), Los Angeles Southwest College (CA), Los Angeles Trade-Tech College (CA), Los Angeles Valley College (CA), Los Medanos College (CA), Maricopa Community Colleges (AZ), Mesa Community College (AZ), Midlands Technical College (SC), Milwaukee Area Technical College (WI), Mineral Area College (MO), Mohave Community College (AZ), Monroe Community College (NY), Mott Community College (MI), Mount Hood Community College (OR), Mountain View College (TX), North Lake College (TX), Northern Virginia Community College (VA), Olympic College (WA), Ozarks Technical Community College (MO), Paradise Valley Community College (AZ), Phoenix College (AZ), Richland College (TX), Rio Salado College (AZ), San Antonio College (TX), Santa Fe Community College (NM), Scottsdale Community College (AZ), South Mountain Community College (AZ), Spartanburg Community College (SC), St. Louis Community College District (MO), State Fair Community College (MO), Tacoma Community College (WA), United Tribes Technical College (ND), The University of Wisconsin Colleges (WI), West Los Angeles College (CA), Wilson Community College (NC), and Wisconsin Indianhead Technical College (WI).

[5]Study 2 was conducted by the Healthy Minds Network at the University of Michigan under the direction of Dr. Daniel Eisenberg in partnership with Sara Goldrick-Rab and Katharine M. Broton at the Wisconsin HOPE Lab. The study sample includes a random sample of students from each of the following colleges: San Diego Community College District at Mesa, Miramar, City & Continuing Education, all in California; Delgado Community College in Louisiana; Essex County College in New Jersey; State University of New York at Onondaga; Montgomery County Community College in Pennsylvania; Moraine Park Technical College in Wisconsin; and Western Wyoming Community College. At one small college, all students were invited to participate.

[6]Study 3 was conducted by the Wisconsin HOPE Lab at the University of Wisconsin-Madison under the direction of Dr. Sara Goldrick-Rab as part of a larger project examining STEM education in Wisconsin. The sample includes students from seven campuses of the University of Wisconsin system, two public technical colleges, and one private technical college. Students had to have an expected family contribution of $10,314 or less to be within 200% of the Pell Grant cutoff. One thousand students in the study were offered an additional grant, but this grant offer did not impact food or housing security. Thus, we report prevalence rates for the entire sample.

[7]Study 4 was conducted under the direction of Drs. Sara Goldrick-Rab and Doug Harris at the University of Wisconsin-Madison. The Wisconsin Scholars Longitudinal Study started prior to the creation of the Wisconsin HOPE Lab and now falls under the Wisconsin HOPE Lab agenda. The study includes students from all 42 public colleges and universities in Wisconsin: UW-Eau Claire, UW-Green Bay, UW-La Crosse, UW-Madison, UW-Milwaukee, UW-Oshkosh, UW-Parkside, UW-Platteville, UW-River Falls, UW-Stevens Point, UW-Stout, UW-Superior, UW-Whitewater, UW-Baraboo/Sauk County, UW-Barron County, UW-Fond du Lac, UW-Fox Valley, UW-Manitowoc, UW-Marathon County, UW-Marinette, UW-Marshfield/Wood County, UW-Richland, UW-Rock County, UW-Sheboygan, UW-Washington County, UW-Waukesha, Blackhawk Technical College, Chippewa Valley Technical College, Fox Valley Technical College, Gateway Technical College, Lakeshore Technical College, Madison Area Technical College, Mid-State Technical College, Milwaukee Area Technical College, Moraine Park Technical College, Nicolet Area Technical College, Northcentral Technical College, Northeast Wisconsin, Southwest Wisconsin Technical College, Waukesha County Technical College, Western Technical College, and Wisconsin Indianhead Technical College. Twelve hundred students in the study were offered an additional grant, but this grant offer did not impact food or housing security. Thus, we report prevalence rates for the entire sample. (See Goldrick-Rab, 2016, for additional methodological information.)

[8]See Tables 2 and 3 for measurement details.

[9]Sample weights are used in the analyses so that each of the 10 institutions are given the same aggregate weight and are designed such that the estimates are representative of the actual sex ratio at each college.

[10]Public benefits include the Supplemental Nutrition Assistance Program or food stamps, the Special Supplemental Nutrition Program for Women, Infants, and Children or nutritional assistance for pregnant women and children, Temporary Assistance for Needy Families or public cash assistance, Supplemental Security Income, Social Security Disability Insurance, Medicaid or public health insurance, child care assistance, unemployment compensation/insurance, utility assistance, housing assistance (public housing or housing voucher), transportation assistance, tax refunds, or veterans' benefits.

[11]Specifically, we recommend that the National Postsecondary Student Aid Study assess food insecurity using the USDA-approved 10- or 18-item U.S. Food Security Survey Module. The 6-item short form of the Food Security Survey Module is also appropriate if space or time is limited. Regardless of which standardized survey module is used, it should be implemented in full at the student level (Bickel et al., 2000). We recommend assessing housing insecurity using a series of questions adapted from the Survey of Income and Program Participation Adult Well-Being Module and supplemented with measures of homelessness. For details, please see the Wisconsin HOPE Lab's *Guide to Assessing Basic Needs Insecurity in Higher Education* (Goldrick-Rab, Richardson, & Kinsley, 2017).

[12]Nationally representative household studies (e.g., Current Population Survey, Survey of Income and Program Participation) are inappropriate for measuring material hardship among college students. Specifically, these studies exclude homeless individuals and often miss those who are housing instable, include a poor measure of college enrollment, and measure material hardship at the household level rather than the student level. Thus, these studies likely provide a conservative estimate of the problem nationwide (Goldrick-Rab & Broton, 2017).

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Manuscript received May 10, 2016
Revisions received August 4, 2017, and October 11, 2017
Accepted October 12, 2017

Appendix

Table A1
Peer-Reviewed Studies on the Prevalence of Food Insecurity Among College Undergraduates

State/Region, Poverty Rate	College	Food Security	Sample Information	Citation
Alabama, 19.2%	University of Alabama (4-year public research university)	66% high security 20% marginal security 9% low security 5% very low security (10-item USDA survey module)	Questionnaires were administered in 16 nonfreshman classrooms. 598 students participated for an 87% in-class response rate and 557 met inclusion criteria (i.e., full-time returning student age 19-25 and not pregnant).	Gaines, Robb, Knol, & Sickler, 2014
Hawai'i, 10.4%	University of Hawai'i at Mā noa (4-year urban public research university)	55% high security 24% marginal security 15% low security 6% very low security (10-item USDA survey module)	33% of 95 randomly selected nonfreshman classrooms agreed to participate in the study and 441 of 445 present students participated.	Chaparro, Zaghloul, Holck, & Dobbs, 2009
Illinois, 13.6%	Four Illinois universities (4-year public universities)	42% high security 23% marginal security 17% low security 18% very low security (10-item USDA survey module)	The sample includes 1,882 undergraduates out of 48,658 who were invited to participate for a 4% response rate.	Morris, Smith, Davis, & Null, 2016
Maryland, 10.4%	Two community colleges (one suburban and one urban)	24% high security 20% marginal security 26% low security 30% very low security (10-item USDA survey module)	Convenience sample of 301 students	Maroto, Snelling, & Linck, 2015

(continued)

Table A1 (continued)

State/Region, Poverty Rate	College	Food Security	Sample Information	Citation
Massachusetts, 11.7%	University of Massachusetts Boston (4-year urban public research university)	27% worry about food supply 27% are unable to eat balanced meals 27% skip meals 6% did not eat for 1-2 days (4 items based on USDA survey modules)	15% of 183 randomly selected undergraduate and graduate-level classrooms agreed to participate in the study and 390 students completed the questionnaire.	Silva et al., 2017
Ohio, 14.8%	Wright State University (4-year suburban public research university)	52% secure 48% insecure Food insecurity was defined as "not having enough money to buy enough food."	A convenience sample of nearly 150 students from student government, the honors program, an English 101 course, and social work majors	Twill, Bergdahl, & Fensler, 2016
Oregon, 16.4%	Western Oregon University (rural midsize 4-year university)	41% food secure 59% food insecure (marginal, low, and very low security) (6-item USDA survey module)	All 5,438 students were invited to participate in the web questionnaire and 354 completed the questionnaire for a 7% response rate.	Patton-López, López-Cevallos, Cancel-Tirado, & Vazquez, 2014
Texas, 15.9%	The University of Texas at San Antonio (4-year urban public research university)	69% secure 19% low security 12% very low security (6-item USDA survey module)	15 courses were invited to participate in the study and 8 instructors (53%) agreed for a sample size of 258 undergraduate and graduate students.	Biediger-Friedman, Sanchez, He, Guan, & Yin, 2016
	Texas A&M University main campus (4-year public research university)	52% secure 20% low security 28% very low security (6-item USDA survey module)	The questionnaire was available to all undergraduates and 263 responded for an approximate response rate of less than 1%.	Calvez, Miller, Thomas, Vazquez, & Walenta, 2016
Midwest	Large public university	46% high security 12% marginal security 25% low security 16% very low security (6-item USDA survey module)	Two anonymous questionnaires were e-mailed to random samples of 5,000 undergraduate and graduate students each. Overall, 514 students responded for a 5% response rate.	Mirabitur, Peterson, Rathz, Matlen, & Kasper, 2016
United States, 15.5%	None	78% food secure 8% marginal security 8% low security 6% very low security (18-item USDA survey module)	The 2014 food security survey covered 43,253 households composing a representative sample of the U.S. civilian population of 124 million households.	Coleman-Jensen et al., 2015

Note. This table excludes information from conference proceedings, reports, students' theses, single classroom studies, and research conducted outside of the United States. For details on the U.S. Department of Agriculture's (USDA) food insecurity survey modules, see Bickel, Nord, Price, Hamilton, and Cook (2000). Poverty rates are for the year or closest available journal citation year (U.S. Census Bureau, 2016).