Food Insecurity, Well-being, and Academic Success among College Students: Implications for Post COVID-19 Pandemic Programming

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ABSTRACT

College students experience food insecurity at higher

four-year institutions), geographic location (rural, urban, Northeast, South, Midwest, West), and demographics (e.g., minorities, undergraduates, graduate, international students) (Broton, Weaver, and Mai 2018; Bruening et al. 2017; El Zein et al. 2019; Freudenberg, Goldrick-Rab, and Poppendieck 2019; Henry 2017; Nikolaus et al. 2020; Owens et al. 2020). Moreover, in most of these studies, the prevalence of food insecurity was higher for college students

psychological distress and average-to-very poor perceived mental health status were higher in food insecure participants than in their food secure counterparts. Additionally, there were gender di□erences with women more likely than men to report these conditions. Meanwhile, Diamond, Stebleton, and delMas (2019) found that short- and long-term food insecurity were significantly associated with depression and perceived stress in 1,229 undergraduate

Methods

Data and participants

This study encompassed a secondary analysis of the American College Health Association-National College Health Assessment III (ACHA-NCHA III) which employed a battery of validated measures and instruments (see below for description). The ACHA-NCHA III is a national population-based assessment that assists institutions of higher education in collecting data about their students' self-reported health status and health behaviors on the most prevalent topics facing college students (ACHA 2020). More specifically, the ACHA-NCHA III was implemented in the first two weeks of March 2020 at a large research university in the southeastern U.S (early on during the COVID-19 pandemic). As a result, these data reflect scores from students at the very onset of the COVID-19 pandemic in the southeastern U.S. Total sample size included 1,767 students.

Measures-survey items utilized from ACHA-NCHA III

USDA Food Security. USDA Food Security 6-item Short Scale Score (5 items when self-administered) generates a score between 0-6 – higher scores reflecting higher levels of food insecurity. Scores are then collapsed into 3 categories including a score of 0–1 for high or marginal food security, a score of 2–4 for low food security, and a score of 5–6 for very low food security (Blumberg et al. 1999).

Diener Flourishing Scale-Psychological Well-being. The Flourishing Scale is a brief 8-item scale assessing self-perceived success in relationships, self-esteem, purpose, and optimism. The scale provides a single psychological well-being score ranging from 8–56 with higher scores indicating higher psychological well-being (Diener et al. 2010).

Kessler6-Population-Based Screening for Nonspecific Mental Illness. The K6 scale is a shortened version of the K10, a 10-question scale originally developed to provide an e□cient population-level screen for mental illness. A sum score is generated (0–24) and scores are collapsed for interpretation as follows: a score of 0–8 for no or low psychological distress, a score of 9–12 for moderate psychological distress, and a score of 13–24 for serious psychological distress (Kessler et al. 2003).

The Short UCLA Loneliness Scale. The scale has three items and a simplified set of responses to measure overall loneliness. The scale generates a sum score between 3 and 9 with higher scores revealing higher levels of loneliness. Scores are then categorized for interpretations including a score of 3–5 for a negative screening for loneliness and a score of 6–9 for a positive screening for loneliness (6–9).

Table 1. Sociodemographic characteristics and food insecurity (n = 1743).

	Total (%)	Food Insecure (%)	Food Secure (%)	p-value
Participants	100	46.8	53.2	
Sex				
• Male	30.8	47.4	52.6	.799
• Female	69.2	46.7	53.3	
Year in School				
• 1st Undergraduate	65.4	50.2	49.8	<.001
• 2nd Undergraduate		51.0	49.0	
• 3rd Undergraduate		54.6	45.4	
• 4th Undergraduate		49.5	50.5	
• 5th>Undergraduate		45.6	54.4	
• Master	33.4	41.3	58.7	
• Doctorate		34.1	65.9	
Enrollment Status				
• Full-time	84.9	48.9	51.1	<.001
• Part-time	14.5	34.9	65.1	
• Other	.6	45.5	54.5	

Table 1 shows that 46.8% of students were food insecure with about equal numbers of females (46.7%) and males (47.4%). Full-time students were more likely to be food insecure (48.9%) compared to part-time students (34.9%; $p < .001$). Interestingly, students living on campus were more likely to be food insecure (52%) when compared with those living o□-campus (46.3%) or living with a parent or family member (44.1%; $p < .001$).

There were statistically significant di□erences in food insecurity by undergraduate year in school with third-year students experiencing the

highest level of food insecurity (54.6%; $p = .001$). Graduate students were less likely to be food insecure when compared with undergraduates. However, food insecurity was still high among master's level (41.3%) and doctoral level students (34.1%).

While food insecurity was high among all students regardless of self-reported ethnicity and race, White/Caucasian students were less likely to be food insecure (41.9%) when compared to Black/African American (60.4%), Hispanic/Latinx (52.1%), Asian (48.6%), and Other/Multiple Race (47%; $p < .001$) students. There were also statistically significant differences in food insecurity depending on whether or not students ever served/currently serve in the military ($p = .007$) or were parents/responsible for children under 19 years ($p < .001$).

Challenges to academic success by food insecurity status

Table 2 presents challenges to academic success by food insecurity status. Students with lower GPAs were much more likely to be food insecure than those with higher GPAs ($p < .001$). For example, 75% of students with a GPA equivalent grade of D/F were food insecure compared to 42.4% of those with a GPA equivalent grade A. The time spent working during leisure hours was also associated with food security status ($p = .006$). For example, 47.7% of students working zero hours were food insecure compared to 51.7% of those working 1–20 hours/week. However, those working over 20 hours/week reported were less likely to be food insecure (42.7%).

When reported challenges to academic success indicators were compared by food insecurity status, results reveal that students who were observed with any level of food insecurity were statistically significantly more likely to also experience challenges with academics ($p < .001$, phi = 0.18), careers ($p < .001$, phi = 0.15), procrastination ($p < .001$, phi = 0.13), and faculty ($p = .001$, phi = 0.08) as compared to their food secure counterparts (all small effect sizes).

Table 2. Comparison of challenges with student success indicators by food insecurity status.

Challenges		Food Secure	Food Insecure	N	X2 (df)	p-value	Effect Size
Academic	Yes	35.4	53.3	1731	54.96 (1)	< 0.001*	.18
	No	64.6	46.7				
Career	Yes	26.5	40.4	1731	37.38 (1)	< 0.001*	.15
	No	73.5	59.6				
Procrastination	Yes	48.9	75.6	1733	28.72 (1)	< 0.001*	.13
	No	62.9	24.4				
Faculty	Yes	9.2	14.7	1730	11.79 (1)	0.001*	.08
	No	90.8	85.3				

*p-value significant at $p < 0.05$
Summary:

Comparison of well-being indicators by food insecurity status

Analysis of di□erences in well-being indicators by food insecurity status revealed that students with any level of food insecurity were observed with statistically significantly higher mean scores for psychological distress ($p < .001$),

The third critical finding from this study is that students with any level of food insecurity were significantly more likely to experience psychological distress, loneliness, and suicidal behavior. Also, food-insecure students scored lower on measures of flourishing and resilience. These findings indicate that students might be experiencing increased stress from a combination of factors. Experiencing food insecurity in college decreases well-being. The findings in this study suggest reasons for concern and outreach related to the well-being of food-insecure students. For example, food-insecure students measured at moderate levels of psychological distress, indicating they could need advisement, counseling, or other supportive services.

Further, food-insecure students scored just outside the positive range for loneliness. This finding suggests that food-insecure students are possibly isolated from peers, faculty, student support sta□, and family. Altho 0#ms[(s B]0#qsK#s□#s;0

Implications for policy and programming post COVID-19

Public health emergencies such as the COVID-19 present a range of unforeseen stressors to vulnerable communities such as college students who present as an Asset Limited, Income Constrained, Employed (ALICE) population (United Way of Northern New Jersey 2020). More specifically, university closures, shift to online education, and sending residential students home may negatively impact students disproportionately as many who work also experience food insecurity and those without access to housing or the meal plan would be further exposed to food and/or housing insecurity (United Way of Northern New Jersey 2020).

In the wake of the COVID-19 pandemic, understanding college food insecurity is all the more crucial, with the number of food insecure individuals in the United States increasing from 35 million to more than 50 million (Feeding America 2020). In the early weeks of the pandemic (April – May 2020), The Hope Center for College, Community, and Justice surveyed more than 38,000 students (Goldrick-Rab et al. 2020). They found that 3 in 5 students experienced basic needs insecurity, with food insecurity a□ecting 44% of students at two-year institutions and 38% of students at four-year institutions. In addition, two-thirds of students surveyed experienced job insecurity, which impacted their ability to meet their basic needs.

The results presented in this study have multiple implications for institutions of higher education. First, given that food insecurity was prevalent among undergraduate students and graduate students, colleges and universities should devote more attention and resources to addressing food insecurity on campus. Although it is unclear to what degree or duration the pandemic might disrupt traditional functioning, campuses need to be prepared to provide outreach and virtual services instead of in-person contact. Higher education institutions should consider adapting student supportive services during the pandemic, establishing virtual academic, social, and mental health support services for students, and increasing outreach to food-insecure students. Collaborating with campus food pantries can be a way to inform students experiencing food insecurity about any transitions to virtual services. Further, colleges should work with local nonprofit food pantries to help meet the needs of food-insecure students not on campus.

The literature, along with the data presented, confirms the finding of increased academic challenges among food-insecure students. As colleges shift to virtual instruction for the remainder of spring 2020, it is critical to inform and support food-insecure students through that transition. Most academic support units (e.g., advising, career counseling, counseling services, recreation, and wellness) will need to provide virtual services in the initial stages of the pandemic. Campuses should try to have students, particularly food-insecure students, meet with an academic advisor to discuss any short- or

long-term transition to online services or instruction. Such meetings are a valuable way to connect food-insecure students to on- and o□-campus services.

Another area to address for students experiencing food insecurity is social interactions with peers. College is a social and academic endeavor, and as the campuses adjust to social distancing guidelines, the social aspect can be diminished, possibly leading to isolation and hindering well-being. As the data has identified, food-insecure students are more likely to experience psychological distress, loneliness, and suicidal behavior, a component of that could be feelings of isolation and lack of in-person student interaction. While it is unclear how long the pandemic will endure, colleges should consider creating virtual or socially distant structured interaction opportunities for students. Such activities and programs help promote a sense of belonging and resilience.

The final implication is to provide information and training for sta□ and faculty regarding changes to campus food pantries and academic support services. Keeping sta□ and faculty aware of any changes to academic and supportive services will allow them to update any course or programmatic content and make it available. Some food-insecure students may not receive or read university e-mail updates, so placing information in as many places as possible is key to reaching this student population. Further, some food-insecure students may feel more comfortable meeting with faculty and instructors about their experiences. Ensuring that faculty and sta□ can provide accurate information about what resources are available is crucial to supporting student success and well-being.

assistance. Another issue related to increased reliance on virtual instruction is that students may have limited access to broadband internet or an adequate computer or private space to engage in class, virtual office hours, or virtual campus events. Many of these issues will require further exploration as the pandemic endures or subsides.

It is plausible that the change in instructional format due to the pandemic might not impact student success but could also limit students' ability to build their capacity for resilience. Given the findings presented in this study related to well-being, a prolonged disruption to in-person courses and academic services could further isolate food-insecure students. Colleges and universities should strategically and actively increase their outreach and support efforts to food-insecure students. Another concern that will need further study is to what degree if at all did, food-insecure students overextend their capacity for resilience during the pandemic. The inability to meet basic needs during a growing health crisis might take a more significant toll on students' psychological and socioemotional health and require more support as students return to in-person activities. While the outlook is concerning, there are multiple opportunities for colleges and universities to adapt services and instruction as necessary to meet the needs of food-insecure students. The data and implications in this paper are a guide to help universities think through strategies to promote well-being and academic success for food-insecure students.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This study was not funded.

ORCID

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