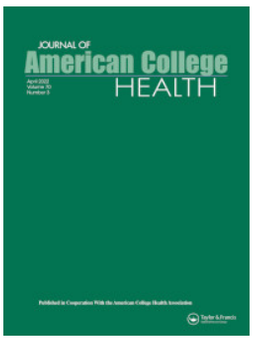

Journal of American College Health

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/vach20

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To cite this article: Mariah Kornbluh, Jennfier Wilking, Susan Roll & Robin Donatello (2022): Exploring housing insecurity in relation to student success, Journal of American College Health, DOI: 10.1080/07448481.2022.2068016

To link to this article: https://doi.org/10.1080/07448481.2022.2068016

Published online: 26 Apr 2022.

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JOURNAL OF AMERICAN COLLEGE HEALTH
https://doi.org/10.1080/07448481.2022.2068016

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BRIEF REPORT

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Exploring housing insecurity in relation to student success

Mariah Kornbluh, PhD[a], Jennfier Wilking, PhD[b], Susan Roll, PhD[c] and Robin Donatello, PhD[d]

[a]Department of Psychology, University of South Carolina, Columbia, South Carolina, USA; [b]Department of Political Science and Criminal Justice, California State University Chico, Chico, California, USA; [c]School of Social Work, California State University Chico, Chico, California, USA; [d]Department of Mathematics and Statistics, Chico, California, USA

ABSTRACT

Objectives: The relative high rates of homelessness and housing insecurity among college students has become a public health concern within the U.S. This study explores the relationship between housing instability in relation to academic and mental health outcomes. **Participants:** College students attending a larger public university ($N = 1{,}416$ students; M age = 22.54; 47.2% Pell Eligible; 54.6% racially/ethnically minoritized students) were surveyed employing cluster-sampling in the Fall Semester of 2019. **Methods:** Participants completed validated measures of housing instability, mental health outcomes, and demographics. Additional measures were matched with survey responses through the Office of Institutional Research (i.e., GPA, Pell Grant eligibility). **Results:** Students who experienced housing insecurity and homelessness were more likely to have a lower GPA as well as poorer mental health outcomes. **Conclusion:** Findings highlight implications surrounding the need for housing programs and additional financial support in an effort to bolster students' academic performance and mental well-being.

ARTICLE HISTORY
Received 27 May 2021
Revised 24 February 2022
Accepted 13 April 2022

KEYWORDS
Education; homelessness; housing insecurity; mental health

Purpose

Rates of housing insecurity (HI) and homelessness among college students have become an educational and public health concern within the US.[1] HI lacks a widely accepted definition, yet encompasses several dimensions of housing challenges college students may experience including: affordability, physical safety, quality of shelter, instability, crowding, as well as loss of housing.[2] *Homelessness* is defined as having no definitive place to sleep (e.g., street, shelter, car, and/or couch surfing).[3] Students experiencing HI and homelessness are frequently unable to fully engage in their educational process, as they struggle to locate basic resources.[4] In regards to health and well-being, research indicates that college students experiencing HI and homelessness often feel socially isolated from their peers and campus life.[5] These students encounter periods of uncertainty, heightened anxiety, and shame in accessing needed resources.[6] HI and homelessness have been associated with acute stress, social isolation, and alarming rates of suicidal ideation.[6] Exploring the relationship between HI and homelessness in relation to student academic success and mental health outcomes can inform educational services (i.e., student resource/learning accommodation centers) to help advocate for coursework accommodations, as well as the screening and treatment practices in college health clinics. Exploring students' housing situations as a source of anxiety may lead to more targeted educational support services and mental health treatment.

The current study employed cluster sampling to survey a diverse sample of college students (1,416) in the Fall Semester of 2019 regarding: (1) housing status, (2) mental health, (3) awareness of basic need services, (4) exposure to an environmental disaster (discussed below), and (5) demographics. Additional measures were matched with survey responses through the Office of Institutional Research (i.e., GPA, Pell Grant eligibility). The purpose of this case study is to examine the relationship between housing instability (HI and homelessness), academics, and mental health outcomes for college students. Based on prior studies,[6,7] we anticipate that students whom experience HI or homelessness will be more likely to have lower GPAs and poorer mental health outcomes as compared to their unhoused peers. However, this study is a first in employing multivariable analyses. Notably, the year prior to data collection the surrounding university city experienced the deadliest fire in US history. Climate-induced disasters have been associated with a sequalae of unique economic and mental health needs.[8,9] Wildfires are becoming a yearly phenomenon in California,[10] and thus have important implications in understanding such impacts on HI and homelessness. In this study, we captured students' direct experiences with the environmental disaster (e.g., being forced to move, housing expenses increased) in order to tease apart this experience from HI and homelessness in association with academic and mental health outcomes.

CONTACT Mariah Kornbluh mariahk@mailbox.sc.edu Department of Psychology, University of South Carolina, 1512 Pendleton Street, Columbia, SC 29208, USA.
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Methods

Participants and procedures

All study participants provided consent to participate. The study was approved by the institutional review boards of the California State University, Chico (IRB# 26262). We employed a random cluster sample design. Specifically, 94 courses were randomly sampled from all Fall 2019 courses at the university. Instructors received an email from the research team prior to the start of the semester, advising them that their course was randomly selected and requesting that they dedicate class time to administering the survey during the first few weeks of the semester. If sampled students had not completed the survey by the third week of the study's implementation, researchers reached out to them directly via email, with entry into a lottery as an incentive. The random cluster sampling design, with supplemental direct outreach, yielded a total of 1,416 completed surveys with a response rate of 48.2% (77.5% of responses came from surveys completed in class, whereas 22.5% of responses took the survey online).

Measures

Housing insecurity and homelessness

Housing insecurity was measured using an eight-item scale that included questions previously used by the Hope Lab, a survey conducted at California State University (CSU), Sacramento, and additional questions developed in consultation with local stakeholders. All questions asked respondents to reflect on their experiences over a 12-month period. Specifically, from the Hope Lab[2] six item scale, the following three questions were used: *Have you been unable to pay or underpaid your rent or mortgage? Have you been unable to pay or underpaid a utility bill? Have you lived with others beyond the expected capacity of your house or apartment?* From the CSU, Sacramento Basic Needs Survey: *Have you been asked to leave your home by someone you lived with? Have you been evicted? How many times have you been unsure of where you are going to sleep at night?* Based on feedback piloting the survey with campus stakeholders, including students, mental health professionals, and student affairs representatives, we added two additional questions to the measure (*Have you been late paying a rent or mortgage?* and, *Have you had to stay in a hostile housing environment or abusive relationship because you had no other place to live?*). Employing a standard measure of homelessness[2,10] respondents were also asked: *Have you slept in any of the following places?* Items ranged from campus/university housing to an outdoor location (i.e., street, sidewalk, park, or alleyway). The measure of homelessness is based on the definition used by the Department of Education, following the McKinney-Vento Act of 1987.[11] Thus, a student is considered homeless if they stayed in any of the following places: at a shelter, temporarily with friends or relatives, temporarily at a hotel or motel, in transitional housing, at a group home, outside, in a vehicle, or in a space not meant for human habitation.

Mental health outcomes

The mental wellness measure was developed by the Center for Disease Control in their Behavioral Risk Factor Surveillance System.[12] Mental health was assessed by asking respondents: *how many days in the past month has your mental health kept you from doing your usual activities such as self-care, work, and recreation?* Response options entailed: 0, 1-2, 3-4, or 5+ days.

Exposure to the environmental disaster

Impact of the recent environmental disaster was captured by a survey question explicitly asking: *As a result of the fire (check all that apply).* Response options encompass: a permanent move, a temporary move, increase in housing expenses and fees, and/or other impact. Respondents could select more than one impact.

Awareness of campus resources

Survey measures also tapped into participants' awareness of existing campus resources encompassing: *Do you use any of the following on campus resources?* Responses options varied from: "*unaware of resource*", "*aware, but do not use resource*", "*have used in the past*", and "*currently use*". Services ranged from food assistance (e.g., Food Pantry), to financial aid services (e.g., advising), as well as housing services (e.g., Office of Off Campus Student Services, Emergency Grant, or Short-Term Emergency Housing).

Demographics

Survey measures captured basic demographic variables (i.e., gender, race/ethnicity, sexual orientation, and parental status), exposure to the environmental disaster (e.g., being forced to move, housing expenses increased), and awareness of campus resources (e.g., food pantry, campus housing liaison, short-term emergency housing). Additional measures were matched with survey responses through the Office of Institutional Research (i.e., GPA, Pell Grant eligibility).

Analysis

Analysis

Descriptive statistics are provided to describe the sample demographics. Next, an ordinary least squares regression model (OLS) was used for all analyses. In the multivariable analyses, we used a more conservative measure of HI, considering a student housing insecure if they experienced 3 or more instances of housing insecurity. During the model building phase, we explored several additional modeling strategies including a multi-level model to account for clustered sampling design, and multiple imputation in order to assess the impact of missing data on the results.[13] Since neither multi-level modeling nor multiple imputation resulted in different effects or interpretations, we present the simpler OLS and ordered logistic regression models.

Additionally, we explored the possibility that covariates such as LGBTQ + or student-parent status moderated the effect of homelessness or housing insecurity on the dependent variables with violin plots. The within group comparisons suggested possible interactive relationships between gender and housing insecurity/homelessness on GPA, and between LGBTQ + status and homelessness on mental health. When interactive terms were included in models, the terms did not achieve significance.

Results

Strikingly, 43.9% of the sample had one or more experiences with HI (a level consistent with national trends).[14] Furthermore, 12.4% of the sample ($n = 173$) experienced 3 or more instances of HI. In regards to homelessness, 14.6% ($n = 191$) of the sample experienced some form of homelessness. In regards to mental health outcomes, 562 participants (42%) reported feeling unwell mentally for 3 or more days over the past 30 days. Concerning race/ethnicity, 42% of the sample identified as White, 37% as Hispanic/Latino, 1% Native American, 6% Asian, 3% Black/African American, .4% Pacific Islander, 5.3% multi-racial, and 5% unknown. Regarding gender, 54.9% identified as women, 43.4% as men, and 1% as Transgender or Non-Binary. Slightly, under half of the sample was Pell eligible (47.2%). In the context of impact from the environmental disaster, 185 students (13%) had to temporarily or permanently move due to the fire, 14 students (1%) home was destroyed in the fire, and 321 students (22.6%) reported that their rent or housing fees increased after the fire. Concerning awareness of services, half or more of respondents were aware of the food and financial services. However, only 1/3 of respondents reported awareness of services around housing. The demographics of the sample reflect the general student population at the university. Both χ^2 tests for equality of proportions in race/ethnicity and gender, along with a T-test for difference in mean age indicated no statistically significant difference from campus population parameters.

Figure 1 presents a forest plot showing the results of the OLS regression analyses for Fall 2019 GPA, with HI and homelessness as an independent variable (in separate models). Students who experienced three or more instances of HI had GPAs lower than their housing stable peers by 0.30 grade points 2.7 versus 3.0, *respectively* (CI: 0.14–0.45). Students who have experienced homelessness in the past year, had lower GPAs by 0.20 grade points relative to peers who have not experienced homelessness 2.84 versus 2.97, respectively (CI: 0.06–0.34). Several other factors significantly impacted student GPA across the two regression models. Students who were female, or a parent had a significantly higher GPA than their peers (males and non-parents respectively). Students who were Pell Grant eligible, and racially/ethnically minoirtized students had a significantly lower GPA than their peers (students not Pell

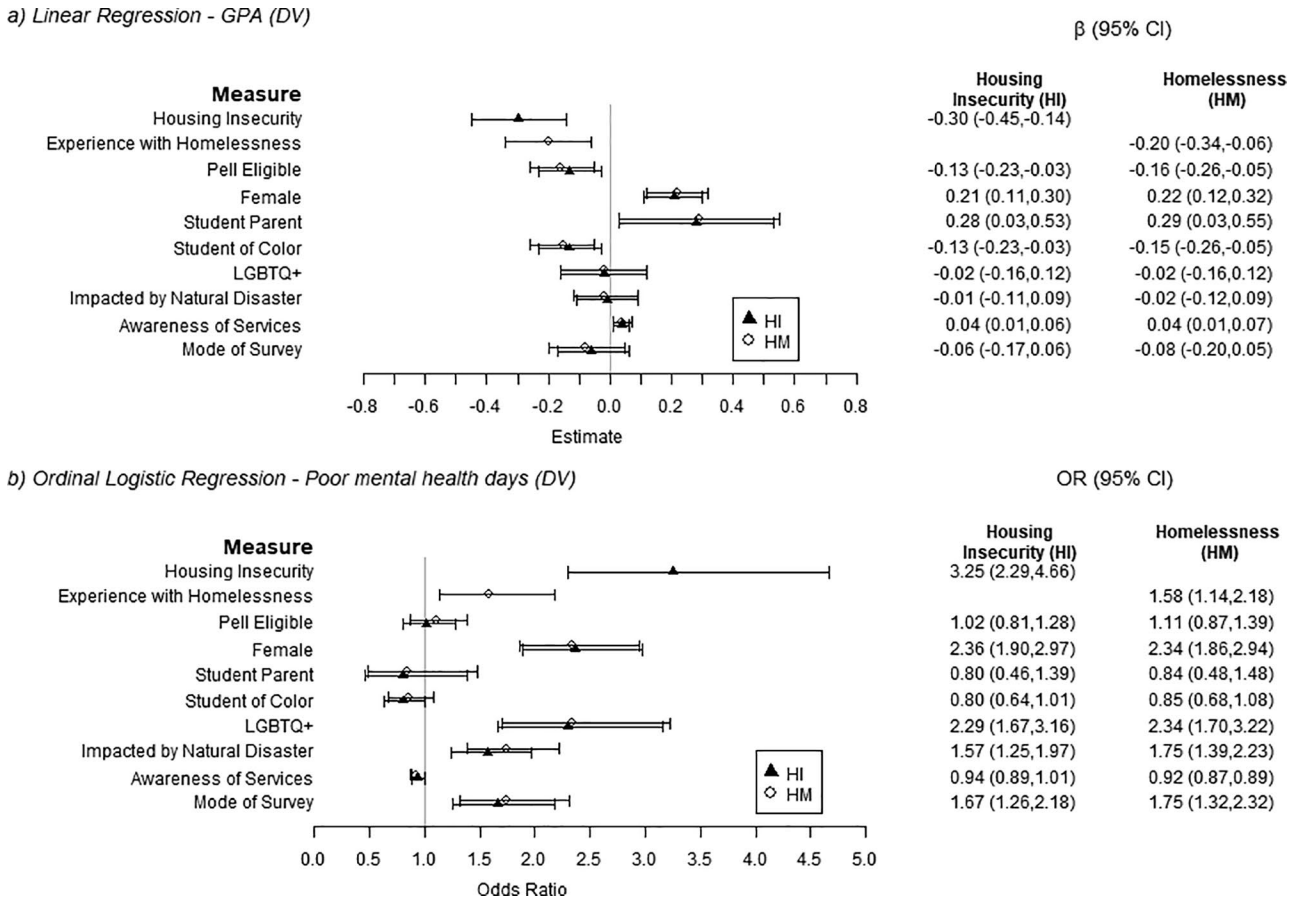

Figure 1. (a) Linear Regression - GPA (DV), (b) Ordinal Logistic Regression - Poor mental health days (DV).

Grant eligible, and white students). Students who were aware of basic needs services on campus had higher GPAs than students who were less aware of these services. Interestingly, being impacted by the environmental disaster did not significantly impact student GPA for the Fall 2019 semester, nearly a year after the incident.

Figure 1 also presents a forest plot showing the regression results regarding student mental health. Similar to GPA, both HI and homelessness had a significant negative impact on mental wellness. Experiencing three or more instances of housing insecurity increased the odds of reporting a higher category of adverse mental health days by a factor of 3.25 (CI: 2.29–4.66), relative to housing stable peers. Similarly, experiencing homelessness increases the odds of reporting a higher category of adverse mental health days by a factor of 1.58 (CI: 1.14–2.18). In other words, students who report experiencing homelessness have 1.58 times the odds of reporting 1-2 days of adverse mental health instead of 0 days, and they have 1.58 times the odds of reporting 5+ adverse mental health days instead of 3–4 days. Across the two regression models, students who identified as female, LGBTQ+, or those who were impacted by the environmental disaster were all more likely to experience increased mental health challenges relative to their peers who identified as male or straight, and were not impacted by the environmental disaster.

Comments

Prior quantitative research has documented the growing prevalence of HI and homelessness amongst college students.[1,2] Research suggests that housing instability is associated with additional stress impacting students' educational activities and mental well-being.[2,5–7] This study is novel in that it employs multi-variable analyses identifying HI and homelessness were significantly associated with poorer student outcomes in the domains of academics and mental health.

College students by virtue of their age are at a higher risk for developing a psychological disorder following a stressful life event.[15] Thus, the strong association between HI and homelessness in relation to mental health outcomes suggests that college health practitioners screen for housing stability in their assessment and treatment of students. Direct impact from the environmental disaster was also associated with lower overall student mental health outcomes, while awareness of basic need services was associated with improved GPA outcomes.

Limitations

The term "HI" varies within the literature making it challenging to identify singular measures for capturing such a complex phenomenon. Further, findings are self-reported (i.e., non-randomized) and cross-sectional. Thus, we can neither infer causal mechanisms nor establish changes over time. The community setting of the study is novel in that students experienced one of the deadliest fires in US history. Thus, inferences from our findings ought to be interpreted with this unique context in mind.

Conclusion

This study is a potential first step using multivariable analyses to explore the relationship between HI, homelessness, and student success (i.e., academic and mental health outcomes). Professional development networks (such as the California Higher Education Basic Needs Alliance, and the #RealCollegeMovement hosted by the Hope Center) are available to build college administrator, practitioner, and faculty capacity in identifying, in a trauma-informed and non-stigmatizing manner, college students experiencing HI and homelessness. Strategic university-community partnerships with county and community-based agencies (such as the local Homeless Task Force or Point-In-Time Committee) can also enrich universities' networks of support and resources to link students to housing and basic need supports. Furthermore, internal evaluations surrounding university messaging, dissemination, and outreach that intentionally works to destigmatize HI and homelessness are needed to better reach students in need of available basic services surrounding housing support (i.e., housing vouchers, emergency housing). Recent legislation in California (SB 568) has also provided unique opportunities to partner with local housing agencies to create rapid rehousing programs for HI students. College administrators and practitioners in other states ought to work to advocate for similar programming and services.

Conflict of interest disclosure

The authors have no conflicts of interest to report. The authors confirm that the research presented in this article met the ethical guidelines, including adherence to the legal requirements, of the United States of America and received approval from the California State University, Chico.

Funding

California State University Chancellor's Office. The authors would like to thank the California State University Chancellor's Office for funding this study.

ORCID

Mariah Kornbluh http://orcid.org/0000-0001-6958-6247
Jennfier Wilking http://orcid.org/0000-0001-8353-5710
Robin Donatello http://orcid.org/0000-0001-8487-5995

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