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"It's a feeling that one is not worth food": a qualitative study exploring the psychosocial experience and academic consequences of food insecurity among college students

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Abstract

BACKGROUND: The issue of food insecurity is one of growing concern among institutions of higher learning in the United States. In addition to understanding the prevalence and risk factors, research is needed to better understand the mechanisms by which food insecurity affects their health and well-being

OBJECTIVE: To critically explore the experience of food insecurity among college students and its impact on psychosocial health and academic performance

DESIGN: In-depth qualitative interviews were conducted with college students to better understand the mechanisms by which food insecurity affects their psychosocial health and academic performance

PARTICIPANTS/ SETTING: 25 undergraduate students from a large public university in California who were recruited from a campus food pantry

RESULTS: Students discussed several themes related to the psychosocial effects of food insecurity: the stress of food insecurity interfering with daily life, a fear of disappointing family, resentment of students in more stable food and financial situations, an inability to develop meaningful social relationships, sadness from reflecting on food insecurity, feeling hopeless or

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undeserving of help, and frustration at the larger academic institution for not providing enough support. Students also discussed how food insecurity affected their academic performance through physical manifestations of hunger and the mental trade-off between focusing on food versus academics.

CONCLUSION: These findings contribute to the understanding of what it means to experience food insecurity in higher education, and can inform how universities support students' basic needs.

Keywords

food insecurity; college students; psychosocial health; academic outcomes; qualitative research

INTRODUCTION

Food insecurity is "the limited or uncertain availability of nutritionally adequate, safe foods, or the inability to acquire personally acceptable food in socially acceptable ways." In 2016, 12% of American households experienced food insecurity. Food insecurity is known to affect health outcomes of children and adults, including poor diet quality, a physical inactivity, poor mental health, depression, and suicidal thoughts. In recent years, studies have highlighted the issue of food insecurity among college students. One report across 34 colleges estimated that 48% of students experienced food insecurity. Another recent report of 66 institutions estimated that 36% of college students were food insecure. Levels of food insecurity among students are notably higher than the national average, and have been observed across different types of colleges (e.g. two-year vs. four-year, geographic location, and student body composition), highlighting the robustness of these data and the urgency in addressing this issue. 11-13

In 2015, a study conducted across the 10 University of California campuses reported that 42% of students experienced food insecurity, with 57% of those experiencing it for the first time. 14 College students may find themselves experiencing food insecurity due to a number of factors, including insufficient resources to purchase food, a lack of grocery stores on campus, inadequate transportation or cooking facilities, or lack of cooking skills. 14-17 Food insecurity is more prevalent among college students of under-represented backgrounds, making it harder for these students to succeed academically and ensure their future economic potential. 17-19 Thus, food insecurity is a critical issue for the long-term health and success of students. 12,13,20

Rigorous quantitative studies of food insecurity have utilized the USDA food insecurity module, which is the most valid measure of food insecurity for Americans.²¹ This measure has been used to establish the prevalence of food insecurity for the college population, yet there are known issues that are specific to college students that remain unknown.²² Furthermore, as colleges have devised their own strategies to address food insecurity on campus,^{23, 24} questions remain about how college students experience food insecurity differently from the general population and subsequently, how food insecurity affects their health and well-being. ^{13,25-27} These questions can be better understood by using qualitative research methods. Thus, this study aimed to critically explore the impact of food insecurity

on college students' psychosocial health and academic performance using in-depth interviews with students attending a large California public university.

METHODS

Study Population and Data Collection

This study was conducted at the University of California (UC), Berkeley. Participants were recruited from the UC Berkeley Food Pantry, an emergency food provider launched in 2013 to address growing concerns of campus food insecurity. Students were eligible if they were:

1) 18 years of age; 2) enrolled as a student (undergraduate or graduate); and 3) a recipient of food or resources from the pantry in the past year. Students were recruited through posted fliers, social media, and snowball sampling. Written informed consent was obtained from all participants. The study's methodology was approved by the University of California, San Francisco.

An open-ended interview question guide was developed by the entire project team through a review of the college food insecurity literature and in consultation with key food insecurity and public health experts in the field. The final interview guide consisted of questions that examined students' struggles of food insecurity, their thoughts and emotions about food insecurity, and how food insecurity affected their psychosocial health and academic performance (Supplemental Table 1).

Prior to each interview, participants completed a survey about their demographics and food security status. In-depth, semi-structured interviews were used to explore the experiences of 25 undergraduate students and were conducted by two trained interviewers between January and May of 2017. The interviews lasted approximately 20-25 minutes and were conducted in a private location on campus. Participant recruitment was stopped when data saturation had been reached, that is when the content from student interviews began to sound repetitive and the emergent themes overlapped with those raised in prior interviews.

Data Analysis

Interviews were transcribed verbatim from audio recordings and checked for errors. Transcriptions of the interviews were analyzed for thematic content using a general inductive approach. A coding scheme of emergent themes was developed from the interviews. Three project team researchers independently reviewed each transcript and applied relevant codes. The project team met regularly to resolve discrepancies and achieve consensus. The transcripts were coded based on categories of themes in the interview guide and other topics that were consistently discussed. The final transcripts were entered into NVivo (QSR International Pty Ltd, version 11) to assist in organizing the themes and examine whether any patterns emerged by participants' responses.

RESULTS

The mean age of participants was 22.9 years; 16 students (64%) were female (Table 1). Two students (8%) identified as White, 12 (48%) as Asian, and 11 (44%) as Latino. While most students (88%) received financial aid, only 4 students (16%) had a campus meal plan and 3

students (12%) received CalFresh benefits. Three students (12%) had high or marginal food security, 7 students (28%) had low food security, and 15 students (60%) had very low food security. Student interviews revealed several overarching themes regarding the psychosocial and academic effects of food insecurity.

Psychosocial effects of food insecurity

Students discussed seven themes related to the psychosocial effects of food insecurity (Table 2): 1) the stress of food insecurity interfering with daily life, 2) fear of disappointing their family, 3) jealousy or resentment of students in more stable food and financial situations, 4) inability to develop meaningful social relationships, 5) sadness from reflecting on food insecurity, 6) feeling hopeless or undeserving of help, and 7) the frustration and anger they felt at the larger academic institution for not providing enough resources to support students. There was overlap among some themes, due to the similarities of some psychological elements discussed.

Stress of food insecurity

Most students described feeling anxious, worried, or stressed about their food and financial situation, and that this affected their academic performance and daily life. Some students discussed the stress of constantly having to keep track of their food resources, or navigating events on campus providing free food. One male student described the stress of eating "trans-fat and unhealthy food" as a result of not being able to afford a more healthful diet, which affected his physical health and further aggravated his anxiety. Another female student described the challenge of recovering from an eating disorder while experiencing food insecurity. For her, it was a constant internal struggle between knowing that she should eat and wanting to save the food for a later time.

Other students described the stress of food insecurity as a barrier to thinking clearly and planning for the future. One female student said, "When you're so stressed about food all the time, that takes a lot of mental power. You need room for creativity, you need room to do certain things. But, if all that's in your head is cluttered, everything becomes blurry, you're not focusing on the bigger picture, you're only focused on what's happening next."

Fear of disappointing family

While the fear of not having enough food was tied to the experience of food insecurity, some students also expressed fear of disappointing their family as a result of their food insecurity. As one male student described, "I was scared to let my parents know what was going on. I don't want them to worry too much because they're pretty old now. If they knew that [I didn't have enough money for food], they would work even harder. I don't want them to do that. My parents have a lot of hope in me because they were new to this country and I'm the only one going to college. I don't want them to feel like a failure because I can't eat here."

Resentment of other students

Resentment and/or jealousy of students in more stable food and financial situations were prominent themes across several interviews. Students discussed feeling resentful of classmates who always had the luxury of eating at restaurants, who could focus on their

schoolwork without worrying about their basic needs, and who lacked an understanding of situations that were different from their own upbringing or current situation. One female student said, "I have quite a few friends who just don't understand. They say, 'You can do it, you can rise out of this.' Well, [they] don't understand. I'm doing all that I can. That's the difference in my friends - some people acknowledge that it's larger than the individual, and [some]people don't."

Inability to develop meaningful social relationships

Students experiencing food insecurity often felt left out or were unable to participate in important social gatherings involving food and thus, missed a critical piece of the college experience. Situations where other students would offer to pay for them reinforced their embarrassment, leading some students to stop attending social activities. One male student described lying to his friends about why he couldn't eat with them, but worried that over time, his friends would grow suspicious of his situation: "When you aren't able to afford food, you have to lie and say, "I've already eaten" or "I'm not hungry." Then, you have to keep [lying]. There's going to be suspicion on the other side and that suspicion is going to strain the relationship that you form. If you are a little bolder [and] if this person is compassionate, you might ask [them to cover you]. That could turn into resentment. Food insecurity, it really affects everything. I try not to feel embarrassed, but it happens. It really hits home with relationships with other people."

Sadness from reflecting on food insecurity

Several students expressed sadness as a result of experiencing food insecurity. For some students, sadness was experienced in response to interacting with more affluent students on a day-to-day basis, such as their roommates or classmates, around not being able to go out to eat or spend money on food. In other cases, students experienced sadness from the realization that they didn't have enough resources to support their daily food requirements. As described by one female student, "I've heard of people [who] didn't have enough money or resources to have a meal every day. It started happening to me and I was like, 'oh, I guess I fit in that category.' It was sad. It was really depressing. I've been in denial about where I stand in that hierarchy, because I'm a person of color and first generation. It really put things into perspective when I [was losing] weight because I wasn't eating as much as I should."

Feeling hopeless or undeserving of help

Some students felt hopeless between trying to balance working for pay and studying for school, or the future risk of taking out unsubsidized loans to pay for their short-term needs. Others felt undeserving of help from others because they didn't consider their situation to be severe enough to merit external help, particularly when compared to other individuals in the community. One female student commented, "Being in Berkeley and surrounded by homeless individuals, I felt like [I] shouldn't complain about anything. I have food for the week - just not at the standard that I think a student would need. I felt like talking about my issues were not valid because there are people in worse situations in close proximity to me."

Frustration and anger at the academic institution

As a result of experiencing food insecurity, students felt angry and frustrated about their situation. Some students directed their anger towards the larger academic institution for not providing sufficient resources for students. A male student discussed the range of negative emotions he felt as a result of his situation: "When one isn't able to afford a meal, it makes you frustrated and angry - angry with the institution that you're part of. It makes you frustrated at the macrocosmic institution of society that should be offering food - healthy food, good food - and a sustainable conduit through which food can be provided to people who need it more than others. Anger and frustration are certainly there. Then what comes from that is a sense of regret, sadness. It's a feeling that one is not worth food."

Academic consequences of food insecurity—Across all interviews, participants described how food insecurity presented a significant challenge to their academic success due to the physical manifestations of food insecurity and the mental trade-off between focusing on food versus academics (Table 3).

Physical manifestations of food insecurity

Many students discussed feeling tired and lacking energy to perform well in school. One male student said, "If you don't have enough food, you don't have the energy to study. [Food insecurity] affects all aspects of your life. You just feel worse about yourself." For certain students, the decline in grades and academic consequences of food insecurity were so severe that they contemplated changing majors or dropping out of school. Another male student commented, "I didn't have the stamina so that almost made me quit science. I just felt weak most of the time. I felt like I couldn't continue with the STEM field because I didn't have the energy." While several students worked to pay for living expenses, they sometimes found their income wasn't enough to pay for food after rent, utilities, and tuition. This led to students working more hours to earn more money, resulting in fewer hours for studying.

Students also discussed feeling embarrassed that classmates could hear their stomachs growling from hunger, leading some students to intentionally skip class and others to lose focus of the course content. Several students also reported sleeping long hours, either as a response to not eating sufficient food or as a coping strategy related to hunger. For other students, food insecurity led to sleep deprivation from being preoccupied with thoughts of food. Furthermore, it perpetuated a cyclical pattern of tiredness, inability to focus in class, thoughts about food, and sleep deprivation.

Mental trade-off between focusing on food versus academics

Students reported that their academic performance was negatively affected by food insecurity because they spent more time thinking about food than focusing on their studies. One female student described this as a trade-off between pursuing one's basic needs and pursuing academic success. Another male student characterized this as a constant voice in his head that impaired his ability to concentrate on his classes: "When you're reading a textbook and you haven't eaten all day, hunger doesn't care. Hunger doesn't care about Napoleon Bonaparte or the built environment. Food insecurity causes a lot of academic difficulty because it reduces [your] concentration. Eventually it's the voice that's constantly

shouting at you. You can't yell at something that is able to yell at you far more than you will ever be able to yell at it."

DISCUSSION

In the current study, students discussed the psychosocial impact of food insecurity and the physical and mental manifestations of food insecurity on their academic performance. This research builds on previous quantitative studies by providing context and explanations for the observed associations with mental health and academic performance among college students.

To our knowledge, only one study has examined the issue of food insecurity among college students using a qualitative approach. In 2017, Henry led a study at the University of North Texas (UNT) that consisted of interviews with 27 food insecure students and five focus groups with food secure students. ¹⁶ Although the study at UNT was conducted with different methodology, interview questions, and sampling techniques, several themes from our study were consistent with their results, including feeling stressed about not having enough food, the inclination to avoid social gatherings, food insecurity affecting one's selfworth, embarrassment of being food insecure, not wanting to accept help or support from friends and family, and the inability to concentrate affecting their academic performance. The corroboration of these themes across two distinctly different institutions demonstrates the pervasiveness of the psychosocial effects of food insecurity in a college setting.

The association between food insecurity and emotional health has been well-established in studies of children and adults. Children in food-insecure households are more likely to demonstrate internalizing behaviors and externalizing behaviors, compared to children in food-secure households.²⁹⁻³¹ The themes in the present study are consistent with both patterns of internalizing (e.g. sadness and depression, low self-esteem, fear of disappointment, social withdrawal) and externalizing behaviors (e.g. anger, frustration). Results from one systematic narrative review discussed the potential of a bi-directional effect of food insecurity and emotional well-being, where food insecurity and depression both predict each other at subsequent time points.²⁶ In the present study, most students discussed the influence of food insecurity on their psychosocial health. However, it is possible that poor mental health could lead students to work fewer hours, thereby reducing their income and increasing the risk of food insecurity. As food insecure individuals can exhibit multiple indicators of poor emotional health, more research is needed to determine the driving factors, direction of causality, and interventions to simultaneously alleviate food insecurity and support mental health.

Food insecurity has important implications on academic performance, which has been shown repeatedly in studies of children³²⁻³⁴ and college students.^{13,14,20,27,35} In a study conducted at the University of Alberta in Edmonton, the top three academic experiences reported by food-insecure students were difficulty concentrating in class or on an exam (73%), inability to study for an exam (23%), and inability to complete an assignment (15%).

35 A survey at University of Massachusetts Boston found that students experiencing food insecurity were more likely to fail courses or refrain from registering in future courses.³⁶ In

the previous survey from the 10 University of California campuses, food insecurity was associated with a 0.3-point lower grade point average, which was partially mediated by poor mental health. ^{14, 37} As the previous University of California studies and the present study showed, the psychosocial and academic consequences of food insecurity are not mutually distinct - food insecurity can increase psychological distress and worsen mental health, which can directly and indirectly affect academic performance. In addition to the psychological mechanisms, this study further highlighted physical mechanisms by which food insecurity can affect academic performance, including a lack of energy due to not consuming enough or the right foods, the distraction of one's stomach growling in a small classroom, and sleeping to cope with hunger. Further research is needed to better understand the physical and psychological mechanisms that affect multiple dimensions of academic performance, including concentration on schoolwork, grade point average, retention, and graduation.

This study is limited by the small sample size. Students were recruited from the campus food pantry, which may exclude students who choose not to use campus food resources. However, there are few qualitative studies of food insecurity on college campuses, and these studies are needed to complement the quantitative studies of the predictors and risk factors of student food insecurity. More research, both qualitative and quantitative, is needed to further our understanding of the risk factors and consequences of food insecurity and the mechanisms by which these associations manifest among students across diverse institutions of higher education.

CONCLUSION

College students face important psychosocial, developmental, and economic challenges that can be exacerbated with food insecurity. Given the impact of food insecurity on physical, mental, and academic well-being, it is critical that institutional/systematic solutions are created not only to alleviate food insecurity, but to also promote holistic well-being in the higher education setting.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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RESEARCH SNAPSHOT:

RESEARCH QUESTION:

How does food insecurity affect the psychosocial health and academic performance of college students?

KEY FINDINGS:

In-depth interviews with college students revealed seven themes related to the psychosocial impact of food insecurity, including elements of stress, fear of disappointing family, resentment of other students, social isolation, hopelessness, and frustration. Food insecurity also affected students' academic performance through physical manifestations of hunger and the mental tradeoff between focusing on food versus academics.

Table 1:

Sociodemographic and health characteristics of 25 students recruited from the University of California, Berkeley

Characteristics	Number	%
Sex		
Male	9	36
Female	16	64
Race/Ethnicity		
White	2	8
Asian	12	48
Latino	11	44
Age (mean years)	22.9	
Receiving financial aid ^a		
Yes	22	88
No	3	12
Campus meal plan ^a		
Yes	4	16
No	21	84
CalFresh participation a,b		
Yes	3	12
No	22	88
Self-Reported Health		
Excellent	1	4
Very Good	3	12
Good	10	40
Fair	11	44
Food Security ^C		
Food Secure	2	8
Marginally Food Secure	1	4
Low Food Secure	7	28
Very Low Food Secure	15	60

^aDuring the 2016-17 academic school year

 $[^]b\mathrm{CalFresh}$ is the statewide name for the Supplemental Nutrition Assistance Program (SNAP)

 $^{^{\}it C}\!$ Assessed using the USDA 10-item Adult Food Security Survey Module

Table 2:

Emerging themes and sample quotes relating to the psychosocial effects of food insecurity discussed by students recruited from the University of California, Berkeley

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Theme	Sample Quote
Stress of food insecurity interfering with daily life	"When you're so stressed about food all the time, that takes a lot of mental power. You need room for creativity, you need room to do certain things. But, if all that 's in your head is cluttered, everything becomes blurry, you're not focusing on the bigger picture, you're only focused on what 's happening next." "It was just stressful knowing that there's no food back home. Mostly it affected my studies because instead of being well-fed and working, I would do my work, be hungry, and think about food. I [would] finish my work, finally eat, and then it's a repeating cycle."
Fear of disappointing family	"I was scared to let my parents know what was going on. I don't want them to worry too much because they're pretty old now. If they know about [I didn't have enough money for food], they would work even harder. I don't want them to do that. They have a lot of hope in me because they were new to this country and I'm the only one going to college. I don't want them to feel like a failure because I can't eat here."
Jealousy or resentment of students in more stable food and financial situations	"I have quite a few friends who just don't understand. They say, 'You can do it, you can rise out of this.' Well, [they] don't understand. I'm doing all that I can. That's the difference in my friends some people acknowledge that it's larger than the individual, and fsomel people don't." "School is stressful. I get that. But, I have to worry about living and [they] don't. It was a lot harder for me to empathize with people who din't have that kind of issue." "If I were to meet someone who is a step up on the socioeconomic ladder, there is a subtle resentment [that exists] when one comes from a lower socioeconomic status. That's probably the most terrible thing about [food insecurity], that it prevents one from developing positive and open relationships with people [across] different socioeconomic statuses."
Inability to develop meaningful social relationships	"When you aren't able to afford food, you have to lie and say, "T've already eaten" or "T'm not hungry." Then, you have to keep [lying]. There's going to be suspicion on the other side and that suspicion is going to strain the relationship that you form. If you are a little bolder fand] if this person is compassionate, you might ask [them to cover you]. That could turn into resentment. Food insecurity, it really affects everything. I try not to feel embarrassed, but it happens. It really hits home with relationships with other people." "Food is a very social thing. That's how people connect. When you go out to a restaurant, that's how you maintain your friendships and stay connected with people. To not be labe to do that, I felt very left out and it was depressing. It was always embarrassing to be like, "no, I can't afford it. 'People would offer to pay, but me being the way I am, I'm all." "I couldn't eat out as much so I would just make up excuses. If my friends and I were to study, they would bring lunch and I wouldn't, want to just sit there and watch them eat. That would be awkward. It definitely made me more isolated from my friends."
Sadness from reflecting on food insecurity	"[My roommate] would say, "Why do you always not hang out with me?" She called me cheap for not wanting to spend money. That made me feel really sad. It's not because I don't want to —I actually can't. At times, it would lead to pent up sadness. Life frickin sucks. [When] I experience direct contact with people who just don't understand, who are not aware of their situation, this makes me realize how much privilege they have. Sometimes you just can't help but wish 'why, why couldn't that be me.' "I've heard of people [who] didn't have enough money or resources to have a meal every day. It started happening to me and I was like, 'oh, I guess I fit in that category. 'It was sad. It was really depressing. I've been in denial about where I stand in that hierarchy, because I'm a person of color and first generation. It really put things into perspective when I [was losing] weight because I wasn't eating as much as I should."
Feeling hopeless or undeserving of help	"There are a lot of students who already maximized [their] loans" and can't get work study because [they] don't qualify. I can't afford outside jobs because they want 30 hours a week, but I'm also a student not actually looking for work. It just gets really difficult and makes you feel hopeless." "I always felt I didn't deserve the help. It's probably because of the way I was raised. I felt like I was taking resources from other people who needed it more than I did. In the summer, I got really hungry, because I lost my job. There was one week I just sat in my room and ate nothing but peanut butter." "Being in Berkeley and surrounded by homeless individuals, I felt like [I] shouldn't complain about anything. I have food for the week - just not at the standard that I think a Cal student would need. I felt like talking about my issues were not valid because there are people in worse situations in close proximity to me."
Frustration and anger at the larger institution for not providing enough support	"The way I tend to look at is I feel like I'm doing everything right. Trying to get my education, trying to support my family, trying to be a good citizen, trying to make a positive impact on society. It just feels like you can't get a win when you just want to eat something healthy today and you don't have that option. It makes me angry." "When one isn't able to afford a mea, it makes you frustrated and angry - angry with the institution that you're part of. It makes you frustrated at the macrocosmic institution of society that should be offering food - healthy food, good food - and a sustainable conduit through which food can be provided to people who need it more than others. Anger and frustration are certainly there. Then what comes from that is a sense of regret, sadness. It's a feeling that one is not worth food."

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Table 3:

Emerging themes and sample quotes relating to the academic consequences of food insecurity discussed by students recruited from the University of California, Berkeley

Theme	Sample Quote
Physical manifestations of food insecurity impact academic performance	"If you don't have enough food, you don't have the energy to study. [Food insecurity] affects all aspects of your life. You just feel worse about yourself." "After skipping breakfast and lunch for a few days every week [for a] year. I was definitely more tired than usual. I didn't have the stamina so that almost made me quit science. Just felt weak most of the time. I felt like I couldn't continue with the STEM field because I didn't have the energy. "If you've in a small discussion section, you feel like everyone around you [harring] your stomach growl. You're focused on trying not to be heard. You can't focus. You think, "I don't ver know what's going on. Is the hour over? Can I just leave already?"" "I would sleep through [class]. Irealized that if you're hungry, sometimes the hunger will go away temporarily. I'd catch up later. So far, that hasn't worked these past two semesters."
Mental trade-off between thinking about food versus studying	"It's two parts of my life. One is the basic needs, like eating and wearing clothes. Another is pursuing academic success and jobs. If I put more of my time and energy on pursuing food, it will keep me from focusing on the education." "When you're so stressed about food all the time, that takes a lot of mental power. [You] need room for creativity or to do certain things, but if all that's in your head is cluttered, everything becomes blurry. You're not focusing on the bigger picture, you're only focused on what's happening next." "When you're reading a textbook and you haven't eaten all day, hunger doesn't care. Hunger doesn't care about Napoleon Bonaparte or the built environment. Food insecurity causes a lot of academic difficulty because it reduces fyour! concentration. Eventually, it's the voice that's constantly shouting at you. You can't yell at something that is able to yell at you lar more than you will even se able to yell at it."