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Understanding college food insecurity through the lens of the theory of planned behavior and social stigma

Brianna Mallozzi,[a] Manan Roy,[b] Alisha Farris,[c] Alisa Duong,[d] and Ayron Walker [e] *
Appalachian State University

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Abstract

Intention to use food pantries is a persistent factor in food access among college students, yet how stigma, individual beliefs, and behaviors influence usage remain understudied. This study utilized the theory of planned behavior to examine the relationship between self-perceived stigma, attitudes, normative beliefs, and perceived behavioral control, and their influences on intention to use food pantries. A mixed-methods, 51-item branched survey was administered online to a convenience sample of students (N = 173) at an Appalachian North

[a] Brianna E. Mallozzi, BS, Master's student, Department of Nutrition, Appalachian State University; mallozzibe@appstate.edu

[b] Manan Roy, PhD, Associate Professor, Health Care Management, Appalachian State University; 1179 State Farm Road; Boone, NC 28607 USA; +1-828-262-8641; roym1@appstate.edu; https://orcid.org/0000-0001-5886-3659

[c] Alisha Farris, PhD, RDN, Assistant Professor, Nutrition and Health Care Management, Appalachian State University; 1179 State Farm Road; Boone, NC 28607 USA; +1-828-262-7863; farrisar@appstate.edu; https://orcid.org/0000-0002-2682-8733

[d] Alisa T. Duong, BS, Cellular and Molecular Biology undergraduate student, Appalachian State University.
Alisa T. Duong is now a dentistry student at Virginia Commonwealth University School of Dentistry; duongat4@vcu.edu

[e] * *Corresponding author:* Ayron E. Walker, PhD, RDN, Assistant Professor, Nutrition and Health Care Management, Appalachian State University; 1179 State Farm Road; Boone, NC 28607 USA; +1-828-262-2971; walkerae2@appstate.edu; https://orcid.org/0000-0001-5670-8356

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All authors declare no conflicts of interest.

Author Contributions
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Carolina state university. Ordinal logistic regression was used to assess the relationship between pantry usage intent and perceived self-stigma, and key theory of planned behavior constructs: Attitudes, Normative Beliefs, and Perceived Behavioral Control. Results showed that higher Normative Belief and Perceived Behavioral Control scores were positively associated with intent to use food pantries. In contrast, higher Self-Stigma scores were inversely related to intent, indicating stigma to be a significant barrier. These findings suggest that increasing communication, accessibility, and normalization of pantry use could improve student food access. Overall, the study highlights how stigma and individual beliefs influence help-seeking behavior among college students, and the importance of methodical dissemination of resources and normalization of such help-seeking behaviors (through empowerment counseling support) to enhance the use of food pantries. Further research should explore similar dynamics in other university settings and evaluate the theory of planned behavior as a framework for understanding food access behaviors.

Keywords
food security, food pantry, implementation, college students, higher education, barriers, stigma

Introduction

Food insecurity, as defined by the U.S. Department of Agriculture, Economic Research Service (USDA ERS), is an economic and social condition of limited or uncertain access to adequate food (n.d.). Certain populations such as immigrants, individuals in the Southern United States, Black, Hispanic, and Asian populations, households with children, children with disabilities, households near or below the poverty line, and single-caregiver households with children, are disproportionately affected by food insecurity (Atoloye et al., 2026; Coleman-Jensen, 2020; Ullmann et al., 2022). Perhaps less visible than these populations, college students also experience challenges accessing an adequate amount of affordable, nutritious food, and show high rates of food insecurity, according to results from the USDA Adult Food Security Survey (AFSS) administered at two-year, four-year, public, and private post-secondary campuses nationwide (Mitchell et al., 2022). Collegiate food insecurity rates have been reported to range from 10–75% (Nikolaus et al., 2020). College student food insecurity is significantly associated with greater mental health concerns (anxiety, stress, depression), poor physical health (Bruening et al., 2018; Farahbakhsh et al., 2017; Hughes et al., 2011; Patton-López et al., 2014), difficulties maintaining academic requirements and/or poor performance, and issues as well with financial management, leading to increased utilization of credit cards, loans, and borrowing money from friends and family (Gaines et al., 2014; Hagedorn et al., 2019; Hege et al., 2021; McArthur et al., 2018; Nikolaus et al., 2020; Wattick et al., 2018).

Some of these physical and mental impacts on health can be addressed by focusing on barriers students must navigate to access resources (Feeding America, n.d.). However, food access and programs like the Supplemental Nutrition Assistance Program for adults may not be consistently available to enrolled college students (Hagedorn-Hatfield, Hood et al., 2022; USDA Food and Nutrition Administration, n.d.). To maintain an adequate food supply and decrease hunger, students report engaging in many coping behaviors such as purchasing cheap foods instead of fruits and vegetables, attending free food events, stretching food to last longer, and relying on external sources of support such as friends, family, or institutions (Fernandez et al., 2021; Mitchell et al., 2022).

In response to the high rates of collegiate food insecurity, implementation of campus food pantries has become widespread to support students (Hagedorn-Hatfield, Richards et al., 2022). However, students in previous research have reported several barriers to utilizing their campus pantries. In one study, students noted a lack of fresh fruits and vegetables but that canned and shelf-stable items were abundant, while they desired more fresh items such as meats, dairy, and bread, and a more consistent quality of food items provided (Brito-Silva et al., 2022). In a systematic review compiling data from eight different studies, multiple points of improvement were noted that increased food pantry usage, like flexibility in accessing food pantries,

such as through an online store, employing friendly staff to help, and creating a positive environment through encouraging notes, would make the food pantry seem more a viable option for college students (Idehai et al., 2024). Other avenues campuses have implemented to assist food insecure students is meal plans or meal swipe sharing. As of 2025, 850 colleges and universities were members of a national meal plan sharing nonprofit, Swipe Out Hunger, dedicated to ending college student hunger. The program redistributes unused meals in a student's meal plan to students reporting food insecurity or students who have run out of meal swipes (Swipe Out Hunger, n.d.). Although meal plans is a method to feed students and prevent food insecurity, students still reported food insecurity while having meals left in their meal plan (van Woerden et al., 2019). These common food assistance resources, although reporting issues, nevertheless present possible ways to aid individuals experiencing college food insecurity and are typically implemented, with college campus food pantries the most common intervention (Hagedorn-Hatfield, Richards et al., 2022). However, current research identifies frequent barriers to consistent utilization, including lack of knowledge or awareness of resources, inconvenient hours of operation or location, transportation difficulties, and social stigma of using food assistance resources (El Zein et al., 2018, 2022; McArthur et al., 2020; Mitchell & Prescott, 2022).

From a sociological perspective, stigma is described as an internalized double perspective for the individual, causing the subject to believe that their stigmatizing difference is immediately noticeable by others, or that this difference is neither noticeable nor perceived (Goffman, 1963). There are multiple forms of stigma. Perceived stigma is described as one's beliefs regarding attitudes that others may hold towards stigmatized populations, specifically something that may be affecting themselves, such as mental illness (Fox et al., 2018). Self-stigma often occurs due to exposure to stigma, thus internalizing negative stereotypes (Waters et al., 2025). Public stigma is the belief that most people hold negative views towards a characteristic, suggests to the subject that everyone believes the negative views that they might have of themselves (Goodwill & Zhou, 2020).

Generally, perceived stigma, public stigma, and self-stigma can all have negative behavioral outcomes for individuals seeking help, and can influence one another. For example, in a mixed-methods study examining perceived and self-stigma among food pantry users and non-users, users had higher self-stigma and blaming behaviors attached to seeking help compared to non-users (Duong et al., 2024). Additionally, food pantry users had significantly higher reports of perceived stigma, that non-users would disapprove of their "inability" to be self-reliant or self-sufficient, compared to non-users and the public (Duong et al., 2024; Kindle et al., 2019). Moreover non-users indicated and identified public stigma or explicit labels or stereotypes including users being poor, weak, or embarrassing (Duong et al., 2024).

Notably, research suggests that public stigma can contribute to an individual's self-stigma for seeking help, including food pantries and food assistance resources (Duong et al., 2024; Latalova et al., 2014). Food pantry stigma involves internalization of negative stereotypes associated with accessing food assistance that may result in shame, embarrassment, fear and possibly underutilization of resources (DeBate et al., 2024; Duong et al., 2024; El Zein et al., 2022; Kindle et al., 2019; Taylor et al., 2024). Research suggests that individuals feel "othered," that they are seen as different or as poor, which can impact self-esteem and lead to students feeling undeserving of support (Duong et al., 2024; El Zein et al., 2022; Peterson et al., 2022; Taylor et al., 2024). College can be seen as a time to be self-sufficient and completely independent from family members, which also contributes to feelings of failure when seeking help (Goldrick-Rab, 2016). Students have also reported anxiety and depression consequent to using food assistance. This may be due to negative stereotypes in society around accessing food resources, feeling internal "shame" for accessing help, feeling that others may need the assistance more, and perceiving themselves as having a lower social status (Bruckner et al., 2021; DeBate et al., 2024; Duong et al., 2024; McArthur et al., 2020; Peterson et al., 2022). To avoid social embar-

rassment among their peers, students stay away from resources (Peterson et al., 2022).

Many factors influence individuals' intentions to use food pantries as well as stigma, including access, information, knowledge, and attitudes. We examine how these factors—such as attitudes, beliefs, social norms, stereotypes, and self-stigma—relate to the intention to use food pantries among college students and build upon previous research conducted at similar universities (Duong et al., 2024; McArthur et al., 2020). To our knowledge, current research does not employ theoretical frameworks such as the theory of planned behavior (TPB) to understand what influences the decision to use food pantries. This approach could shed light on participants' attitudes, self-stigma, knowledge, beliefs, and social norms and social stereotypes, thereby guiding more targeted implementation of campus resources. The purpose of this study was to assess how constructs from the TPB (attitudes, normative beliefs, and perceived behavioral control) might affect the intention to use campus food pantries among participants, specifically among individuals experiencing food insecurity who have not used the pantries. Additionally, this study aimed to explore how self-stigma influences access to pantries in this population. This research may provide useful insights and support to campus administrations, with the goal of increasing food pantry utilization.

Methods

This study was approved by the Appalachian State University Institutional Review Board (protocol number: HS-23-164).

Theoretical Framework

The TPB was developed by Icek Ajzen (1985) to predict human behavior through intention. The theory suggests that attitude—positive and negative thoughts about behavior—toward a behavior, normative beliefs about the behavior (the social pressures or influences someone has about the behavior), and perceived control (ability [i.e., knowledge and autonomy] and knowledge of their capacity to perform the behavior) over that behavior are all predictors of intention to do the behavior.

Study Location and Recruitment

The study location is a residential state university in rural Appalachian North Carolina with an average of 21,000 students. Most of the student body identifies as female (57.5%) and around 15,000 live off campus. The Institutional Research, Assessment, and Planning Office (IRAP) reports that about 19% of the students are from underrepresented groups. Each academic year (first year to fourth year) holds about a quarter (20–26%) of the student population.

Initial email recruitment was conducted by the IRAP on Wednesday, January 25, 2023, utilizing a randomly selected, computer-generated student email list of 3,000 emails for potential recruitment, with three follow-up emails sent each Wednesday following the initial email. Along with the email recruitment, QR code flyers were posted at three on-campus food pantries. To be eligible to participate in this study, one had to be at least 18, and an enrolled student at Appalachian State University.

Study Design

The reported results in this paper are a subset of measures that were a part of a larger, mixed-methods survey (see supplementary material for a description of the entire survey measures) to provide more understanding of barriers to campus food pantry use. The Qualtrics survey was a branched survey with 51 questions in each of two versions. Each version of the survey was informed by previous food pantry stigma and food insecurity research (Kindle et al., 2019; Vogel et al., 2006). Both surveys began with an informed consent document that required participants to read and respond "yes" or "no" to participate in the study. Participants then self-selected by answering the next survey question, "Have you used a food pantry at Appalachian State University?" This question categorized the participants into two separate surveys. One version was completed by individuals who self-identified as not using the campus food pantry, and the second version was completed by participants who self-identified as food pantry users. All participants were asked a qualitative data question: "Do you believe that there is stigma surrounding food pantry users? Why or why not?"

Qualitative findings from this study have been published (Duong et al., 2024).

Study Measures, Survey Design, and Analysis of Measurements

The surveys included validated scales such as the 10-item USDA Food Security Scale for Use with Colleges Students, the 10-item food pantry self-stigma measure, an adapted 10-item version of the Self-Stigma of Seeking Help (SSOSH) tool, an 11-item assessment of the theory of planned behavior constructs, and demographic questions on gender, race, year in school, use of a meal plan, employment, and on or off campus housing (Ajzen, 2006; Ames & Barnett, 2019; Kindle et al., 2019; Vogel et al., 2006). Examples of survey questions and measurements are included in the supplementary material.

Food Security Measure and Analysis

The 10-item USDA Food Security screener was used to categorize participants as food secure or food insecure (Coleman-Jensen et al., 2013). Completed responses were scored based on affirming responses ("yes," "often," "sometimes," "every month," and "some months but not every month") and non- affirming responses to create a categorical variable. For example, participants were asked: "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more," "Was that often, sometimes, or never true for (you/your household) in the last 12 months?" For analysis, respondents with a score of 0–2 were categorized as food secure and those with a score of 3–10 were categorized as food insecure.

Food Pantry Use and Food Security Measure and Analysis

To study the relationship between food pantry use and food security status, responses were organized into four categories by aligning USDA food security scores and the self-reported (yes or no) food pantry use responses ("Have you used a food pantry at Appalachian State University?"). Categories included (a) food insecure and food pantry use; (b) food secure and food pantry use; (c) food insecure and food pantry nonuse; and (d) food secure and food pantry nonuse. This study will report the findings from the food insecure and food pantry nonuse participant category.

SSOSH Measure and Analysis

To comprehend the experiences of self-stigma toward seeking help (specifically, using campus food pantries), we adapted the 10-item SSOSH questionnaire (Vogel et al., 2006). For example, in the original questionnaire individuals were responding to self-stigma of seeking psychological professional help. We adjusted the items to better reflect self-stigma for seeking food assistance resources, such as "I feel inadequate for using the food pantry for assistance." Participants responded to ten 5-point Likert scale questions with strongly disagree = 1 to strongly agree = 5. Items were coded in accordance with the validated questionnaire (Vogel et al., 2006). Individual responses were summed for an overall SSOSH score (ranging 10–50) with a higher score suggesting that the subject feels more self-stigma for seeking help.

Food Pantry Self-Stigma Measure and Analysis

The Food Pantry Self-Stigma validated survey tool investigates perceived stigma and social distancing between users and non-users of food pantries (Kindle et al., 2019). Participants respond to 10-item, 5-point Likert scale questions (1 = strongly disagree and 5 = strongly agree). For example, "I work hard to keep that I use a food pantry from others" is directly from the validated tool (Kindle et al., 2019). The non-user participants' questions were adapted to reflect a possible public stigma ("I want others to work hard to keep their food pantry use from others/myself") to understand public support or distance, and involve similar terminology changes from previous work (Kindle et al., 2019). Individual responses were coded and summed for an overall score ranging 10–50, with a higher score indicating self-stigma (users) or public stigma (non-users) towards pantry use (Kindle et al., 2019).

Theory of Planned Behavior Measures and Analysis

Theory of planned behavior constructs (i.e. attitudes, normative beliefs [subjective, descriptive, injunctive], perceived behavioral control and inten-

tion to use) were measured by utilizing validated theory of planned behavior survey tools and measurements (Francis et al., 2004). Eleven items directly measured each construct using either 7-point Likert scales (1 = strongly disagree, 7 = strongly agree) or 7-point bipolar adjective scales. For example, to determine the individual's overall attitude towards the food pantry, participants responded to the question: "Using the on-campus food pantries is…" Response categories varied from unhelpful to helpful, bad to good, pleasant to unpleasant, embarrassing to soothing, unimportant to important, and burdensome to easy. Intention to use was measured using the theory of planned behavior–based 7-point Likert scale question (1 = strongly disagree, 7 = strongly agree): "I intend to use the on-campus food pantries when I want to and/or need to."

For the purpose of analysis, survey responses for attitudes, normative beliefs, and perceived behavioral control were summed for an overall score, with higher scores indicating more positive attitudes towards food pantry use (possible scores ranging 6–42), higher perceived behavioral control in confidence and choice in using food pantries (scores ranging 2–14), and greater social support and normative beliefs surrounding food pantry use (scores ranging 2–14). However, for intention to use the food pantry, based on the distribution of the original scores (scores ranging 1–7), it was decided to analyze the variable categorically. Therefore, intention to use was grouped into three categories: weak intention (scores 1–5, coded as 1), agreeable intention (scores of 6, coded as 2) and strong intention (scores of 7, coded as 3). This new definition of the dependent variable was used for further statistical analysis.

Demographic Measures and Analysis

The demographic characteristics included in the survey were gender and race of the respondents, their meal plans, the year of college they were in, their employment status, and their location. Race was coded as White if the reported race was either Caucasian, or White not Hispanic, or White non-Hispanic. Other races including African American, Asian, Hispanic or Latino, and Mixed were coded respective to the response as well as all other reported demographic characteristics.

Statistical Analysis

Because of the ordered nature (categorical) of the dependent variable, we used an ordered logistic regression to assess the association of respondents' intention with Attitudes Score, Normative Belief Score, Perceived Behavioral Control Score, Self-Stigma Score, Self-Stigma of Seeking Help Score, their gender, race, year in college, employment status, and meal plan in college. Given the number of respondents who missed data across various predictors, the regression analysis just uses 137 observations to reflect the completed responses. All analyses were conducted using version 18 of Stata Statistical Software. Additionally, descriptive statistics including means and frequencies were reported.

Results

Table 1 shows the demographic characteristics and distribution, which are comparable to the demographics of the university described in the study location and recruitment. Most respondents were female (62.43%) while about 27% were male. Most respondents were White (84.38%) while about 7% reported mixed race. The respondents were evenly distributed among individuals within their first to fourth year of college, with the most in Year 3 (26%). Most reported not having an on-campus meal plan (59.54%), selected off-campus housing as their living situation (57.23%), and 54.91% reported working one or more part-time jobs. Table 2 presents the descriptive statistics for the dependent and independent variables. The mean of the dependent variable, intention to use food pantries, is 1.71, indicating weak to agreeable intention. For the independent variables, the mean Normative Belief Score is 11.93, the mean Perceived Behavioral Control Score is 11.43, the mean Self-Stigma Score is 17.79, and the mean Self-Stigma of Seeking Help Score is 25.89.

Table 3 presents the results from the ordinal logistic regression in terms of Odds Ratios (OR) (Cameron et al., 2014). An OR greater than one indicates a positive association between an independent variable and intention. An OR less than

Table 1. Distribution of Demographic Characteristics

Characteristics	*N*	%
Gender	**173**	**100**
Male	46	26.59
Female	108	62.43
Non-binary/Third Gender	18	10.40
Prefer not to say	1	0.58
Race	**160**	**100**
White	135	84.38
African American	7	4.38
Asian	1	0.62
Hispanic	6	3.75
Mixed	11	6.88
Year in undergraduate program	**173**	**100**
First year	38	21.97
Second year	44	25.43
Third year	45	26.01
Fourth year	37	21.39
Fifth year or more	9	5.20
Meal Plan	**173**	**100**
Yes	70	40.46
No	103	59.54
Location	**173**	**100**
On-campus	72	41.62
Off-campus	99	57.23
Other	2	1.16
Employment	**173**	**100**
Unemployed	73	42.20
One or more part-time jobs	95	54.91
One full-time job	5	2.89

one indicates a negative association between an independent variable and intention. The only three significant predictor scores are Normative Belief, Perceived Behavioral Control, and Self-Stigma of Seeking Help, with OR = 1.332 ($p < 0.05$), 2.814 ($p < 0.01$), and 0.921 ($p < 0.01$). This means that for a unit increase in Normative Belief Score, the odds of intent to use the food pantry increases by a factor of 1.33. Similarly, for every unit increase in the Perceived Behavioral Control Score, the odds of Intent increase by a factor of 2.81. On the other hand, the odds of intention to use the pantry decrease by a factor of 0.92 for every unit increase in the Self-Stigma of Seeking Help Score.

Discussion

While understanding the reported use of food pantries is necessary and important to gauge reach and maintenance of the resource, factors influencing intention to use are understudied (Idehai et al., 2024). Therefore, our study is unique, as it analyzed the subset of individuals from the original study that were categorized as food insecure by the USDA adult food insecurity screener and that self-identified as never utilizing a campus food pantry (Duong et al., 2024). From the original study, which surveyed food pantry users and non-users, 35.7% of the overall participants were food insecure and did not utilize the on-campus food pantries (Duong et al., 2024). Our findings align with previous research that identified that 20–38% of food insecure college students do not utilize food pantries, and that usage is decreasing (El Zein et al., 2022; McArthur et al., 2020). Furthermore, our study enhances understanding of intention to use

Table 2. Descriptive Statistics of Dependent and Independent Variables

Variable	*N*	Mean (S.D.)	Minimum	Maximum
Dependent variable				
Intention	191	1.71 (0.83)	1	3
Independent variables				
Attitudes Score	177	29.86 (5.28)	7	42
Normative Belief Score	191	11.93 (2.18)	2	14
Perceived Behavioral Control Score	192	11.43 (2.37)	4	14
Food Pantry Self-Stigma Score	192	17.79 (3.43)	10	33
Self-Stigma of Seeking Help Score (SSOSH)	177	25.89 (9.30)	10	50

on-campus food pantries by utilizing the theory of planned behavior and previously validated self-stigma measures on food pantry use and seeking help. This provides specific insights into an at-risk population and the impacts of stigma, normative beliefs, and perceived behavioral control on intention to use an implemented resource like food pantries.

In a systematic review, researchers summarized barriers to food pantry use and highlighted findings similar to our current study (Idehai et al., 2024). For example, research conducted at a rural Appalachian university emphasized that food insecure students did not use the food pantry because of feeling embarrassed to do so and perceived insufficient need (McArthur et al., 2020). Additional studies described awareness of resources, food pantry staff and social support, and positive and accurate messaging as facilitators for food pantry use (Brito-Silva et al., 2022; El Zein et al., 2022; Esaryk et al., 2021). In our study, as perceived behavioral control scores increase, the probability that the respondent is in the highest category of intention (strong intention) to use on-campus food pantries increased. Perceived behavioral control reflects not only knowledge of available resources but also confidence in their ability to access those resources, their perceptions of ease of use, and their beliefs about whether structural and social conditions support or hinder use. Thus, increasing intention to use food pantries may require more than disseminating information alone; it also requires reducing logistical, psychological, and social barriers that affect students' sense of control over utilizing these services.

For instance, a recent study found that usage most significantly increased when food pantry information was shared by food pantry staff, as staff are more likely to provide accurate and comprehensive information to students, which can increase knowledge and confidence among students (Esaryk et al., 2021). Additionally, some staff are also student workers, which may help to reduce social barriers and stigma, and possibly increase acceptance (Esaryk et al., 2021). This suggests that informed individuals who are similar to food pantry users are important in effectively sharing information about food pantries, and possibly can assist in increasing perceived behavioral control and intention to use. Similarly, faculty can play a critical role in normalizing the use of food assistance resources by prominently displaying information about campus food pantries on Learning Management Systems (LMS) and including resource infor-

Table 3. Ordinal Regression Results

Predictors/ Thresholds	Odds ratio	Robust Standard Error	*p* value	95% Confidence Interval (Lower and Upper Bounds)	
Attitudes Score	0.92	0.05	0.17	0.82	1.03
Normative Belief Score	1.33	0.16	0.02	1.05	1.70
Perceived Behavioral Control Score	2.81	0.66	0.00	1.77	4.46
Self-Stigma Score	1.02	0.06	0.75	0.90	1.15
Self-Stigma of Seeking Help Score	0.92	0.02	0.00	0.88	0.97
Gender	1.32	0.50	0.45	0.64	2.76
Employment	0.64	0.24	0.23	0.31	1.32
Race	0.97	0.17	0.85	0.68	1.38
Year in School	1.33	0.29	0.18	0.87	2.03
Meal Plan	0.98	0.85	0.98	0.18	5.36
Campus Living	0.33	0.25	0.15	0.07	1.47
Thresholds					
/cut1	10.06	3.87		2.47	17.65
/cut2	12.17	4.00		4.32	20.01

mation in course syllabi. Research indicates that integrating basic needs support into classroom materials can increase students' awareness and reduce stigma associated with help-seeking behavior (Crutchfield & Maguire, 2018). Furthermore, incorporating food pantry tours and discussions during student orientation has been found to foster a welcoming and approving social environment and to encourage early use of resources (Goldrick-Rab et al., 2018). Our findings suggest that when participants had high social support and approval from people who were important to them or who were like them (this describes a high normative belief score), the probability of intention to use food pantries increased, which aligns with previous studies (Crutchfield & Maguire, 2018; Esaryk et al., 2021; Goldrick-Rab et al., 2018). These findings support the importance of continued social support for the utilization of campus resources. This aligns with suggestions from existing research on normalization of using pantries through changing location or the means by which individuals access pantry resources, and through dissemination of information and providing more available resources at pantries (Duong et al., 2024; Esaryk et al., 2021; Idehai et al., 2024).

Along with the benefits of increasing perceived behavioral control and changing normative beliefs, addressing stigma seems to be of the utmost importance. From our findings, as self-stigma for seeking help increased, the odds of intention to use food pantries decreased. This is consistent with the literature, as the systematic review concluded that stigma was the most frequently mentioned barrier to using and accessing a food pantry (Idehai et al., 2024). Research shows that public stigma (societal perceptions and attitudes about behavior or person) can contribute to the experience of self-stigma and impact the willingness to seek help (Latalova et al., 2014). Many factors in self-stigma that food pantry users identify overlap with non-users' reasons as well, confirming that self-stigma and public stigma have a relationship (Duong et al., 2024). Likewise, Brito-Silva et al. (2022) describe food pantry nonusers' feelings of not deserving or needing the pantry, which can be framed within the "why try" phenomenon (Corrigan et al., 2009), food pantry nonuser feelings of not deserving or needing the pantry, which is frequently reported in the literature (Brito-Silva et al., 2022; Corrigan & Matthews, 2003; Duong et al., 2024; El Zein et al., 2018, 2022; McArthur et al., 2020; Vogel et al., 2006).

A major concern is the impact that self-stigma has on consistently accessing resources. Fortunately, empowerment as a positive tool has been used in counseling and therapy in combating the possible negative effects of self-stigma and seeking help, including increased self-esteem, self-efficacy, social support, satisfaction, and quality of life (Corrigan et al., 2009; Latalova et al., 2014; Nelson et al., 2001). While empowerment has many definitions, it basically describes power (perceived and actual), locating and providing support, and acknowledging valued resources and how to access them. To put it simply, it is a strategy that can be taught to support opportunities for and conditions that promote choice and control. Empowerment can be a mediator between self-stigma and behavioral change (Corrigan et al., 2009; Latalova et al., 2014; Nelson et al., 2001). However, this has yet to be applied in nutrition and food systems work; specifically as a strategy for reducing self-stigma among food pantry nonusers. Additional research could investigate how implementing free empowerment counseling at a food pantry could encourage continued participation, and how offering empowerment counseling to current and incoming students increases usage of resources.

Limitations

While this study contributes to the field, it is not without limitations. This study was only conducted among a randomized cross-sectional sample of participants from a rural Appalachian university. Therefore, while important, it cannot be generalized to all university student experiences. Additionally, in this study we are only estimating associations and not causality. When assessing the data, our number of survey respondents dwindled to 137 responses we could use due to participants not completing the surveys and being dropped from the analysis sample. This reduced sample size may have limited statistical power and the ability to detect smaller associations. Furthermore, participation in the study was voluntary, introducing poten-

tial for self-selection bias. Students with greater interest in food insecurity issues or with personal experiences related to food access may have been more likely to participate, potentially influencing the observed associations. Although recruitment was anonymous, students may not have participated due to the fear of social stigma or a perceived lack of need. Finally, all measures were based on self-reported data, which are subject to recall bias and social desirability bias. Participants may have underreported or overreported food insecurity experiences or intentions to use campus food pantries. Despite these limitations, the study provides valuable insight into factors associated with intentions to use campus food pantries and highlights important considerations for future research.

Conclusions and Key Recommendations for Research

Our study provides specific insights into an at-risk population and the impacts of stigma, normative beliefs, and perceived behavioral control on intention to use food pantries at a rural, Appalachian campus. Our findings suggest possible implementation improvements to university resources, such as increasing locations and availability of campus food pantries, improving information dissemination about the food pantries, and providing more resources to empower food pantry users and non-users. For example, empowerment counseling could be a beneficial addition to food pantries to encourage recurring usage. Inclusion of food pantry information in course materials, such as syllabi, and discussion regarding resources available through the university can also increase the normalization of accessing help.

Some areas for continued research include examining the communication regarding food pantry services and assessing if this influences food pantry use; for example, exploring who provided information to users that ultimately led them to seeking and accessing resources and why. This would provide more information about possible information champions. More studies should be conducted to compare university food pantries to examine implementation and student experience to better generalize practical implications. The effect of empowerment counseling as an addition to the food pantry could also be examined to determine if it would influence stigma and intention to use food pantry resources and help-seeking behaviors. Although we theorized that all these pieces would have an impact on the stigmatization of accessing help, these are large areas of research that require attention and which could be studied utilizing a multi-university design and Implementation Science theories, models, and frameworks to compare factors in using campus resources as well as the stigmatization of accessing resources.

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