

Food Pantry Use on an Appalachian College Campus as a Result of Stigma

by

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Abstract

Food insecurity has become a pressing issue in the United States. According to the U.S. Department of Agriculture, an estimated 15 million households were categorized as food insecure in 2017 (Coleman-Jensen, Gregory, & Singh 2019). Perplexingly, in that same year, only 41.3% of these 15 million food insecure households had sought help from federally funded food resources (Coleman-Jensen, Gregory, & Singh 2019). The gap between those that are food insecure and those that seek help needs to be better understood and addressed. However, importance lies in differentiating between the factors stopping those that are food insecure from seeking help. Many have expressed that help could not be sought out because those that are food insecure are not aware that they fall into this category, while others have raised concerns that transportation to federally funded food resources is hard to find. Yet another reason could be the stigma that is associated with food insecurity and those that seek help from food pantries or resources of the sort. Indeed, other studies have identified social stigma as a lasting reason why food insecure individuals and families are not participating in programs that could help them (Fong et al., 2016; Fricke et al., 2015; Greer et al., 2016; Lens et al., 2018; Vancil 2008). It was especially significant that because those that were food insecure at a young age witness their parents not wanting to ask for help, once they reached college, they too felt they could not ask for help (Kindle et al., 2019). Sadly, food insecure individuals and families underestimate the public support for need-based use of food pantries (Kindle et al., 2019). The need to educate the general public and food insecure people to address and diminish stigma is dire because it could encourage those that are food insecure to seek and utilize available resources. Through this research, the study of stigma surrounding the use of food pantries on Appalachian State University's campus is expected to help with the start of education tactics and awareness towards the topic in order to break such stigma.

Introduction

Food insecurity is the ability to acquire food that satisfies one's nutritional needs with the caveat that the food is acquired in a "socially acceptable" manner (Anderson 1990). Thus, food insecurity occurs when one is not able to access and consume nutritional food that meets their needs. Food insecurity has become a pressing issue in the United States. In 2021, the United States Department of Agriculture reported that 10.2% of U.S. households were food insecure for some duration of the year (USDA ERS). Although many may choose to believe that the issue of food insecurity solely affects one's hunger alone, food insecurity has been associated with an increased likelihood and risk of several adverse health outcomes. For example, food insecurity is associated with cardiovascular disease and heart attacks (Liu & Eicher-Miller 2021).

Cardiovascular diseases are primarily correlated with an inadequate consumption of vegetables, fruits, nuts, seeds, and omega-3 fats (Micha et al., 2017). The low consumption of these foods is reflective of an individual's diet who is food insecure (Liu & Eicher-Miller 2021). Rather, those that are food insecure consume foods that are high in sodium and sugar in place of more nutritional foods (Hanson et al., 2014; Leung et al., 2014). Another health outcome of food insecurity can be obesity and insulin resistance which can lead to the development of diabetes (Seligman et al., 2015). The relationship between insulin resistance and food insecurity can best be measured by using the significant mediator of cortisol (Bermúdez-Millán et al., 2019).

Cortisol is a glucocorticoid that increases the risk for high blood glucose and insulin levels (Geer et al., 2014). High blood pressure along with the elevated blood glucose levels increases one's risk for type 2 diabetes and cardiovascular disease (Fonseca et al., 2009). Cortisol is also characterized as a hormone that is released as a result of stress (Leistner & Menke 2020). More specifically, when a stressor is recognized, Corticotrophin Releasing Factor (CRF) is released from the hypothalamus and transported to the pituitary gland (Evans et al., 2013). The arrival of

CRF to the pituitary gland triggers the production of adrenocorticotrophic hormone (ACTH) which is then transported to the adrenal glands (Lightman et al., 2020). The cortex of the adrenal glands is responsible for producing steroid hormones such as cortisol. Thus, when a stressor is recognized, cortisol is produced with the primary function of enabling the body to use stored glucose from the liver as energy. Further research suggests that since insulin resistance is a health outcome of food insecurity, and cortisol levels lead to insulin resistance, there is a direct correlation between stress level and cortisol with food insecurity (Gundersen & Ziliak 2015).

Alongside the physical health effects such as diabetes and cardiovascular disease associated with food insecurity (Liu & Eicher-Miller 2021), one should not shy away from recognizing the mental health effects. According to a meta-analysis study done by Pourmotabbed et al., there is a positive correlation between food insecurity and the risk of one for depression (Pourmotabbed et al., 2020). Furthermore, the authors found this relationship was assessed by the factors of “demographics, socioeconomics, lifestyle, genetic background, and therapy support”. The pathways that link food insecurity and the risk for depression were concluded to be behavioral and biological (Pourmotabbed et al., 2020). This study suggested that being food insecure, which encompasses having an insufficient amount of nutrients from food, leads to a deprioritization and resulting lack of social relationships (Pourmotabbed et al., 2020). Thus, due to the lack of social relationships, food insecure individuals experience feelings of isolation and alienation from the rest of society which in turn can lead to depression (Pourmotabbed et al., 2020). An association with overeating was also observed by those that are food insecure when food becomes accessible (Pourmotabbed et al., 2020). Due to sudden overeating, psychological problems also result due to “high-energy density and poor nutrient content” (Moradi et al., 2019; Suzuki et al., 2016). In recognizing the relationship between food insecurity and its various

effects, further research can be done regarding how to aid the issue and all it encompasses starting from an evaluation of the population.

According to the U.S. Department of Agriculture, about 15 million households that were categorized as food insecure in 2017 (Coleman-Jensen, Gregory, & Singh 2019). Of these households, further studies have been done to highlight specific commonalities the vast majority may share. A study done by Hanson and Olsen revealed that among a rural sample population of 396 participants, 51.1% were food insecure with most families within the sample population living merely below the poverty line (Hanson & Olsen 2012). Most families that were involved in the study received assistance from the government through resources such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), free or reduced-price school lunches, and Medicaid (Hanson & Olsen 2012). Despite this, when considering a greater population, only 41.3% of 15 million food insecure households have sought help from federally funded food resources (Coleman-Jensen, Gregory, & Singh 2019). The gap between those that are food insecure and those that seek help needs to be better understood and addressed. However, importance lies in differentiating between the factors of why those that are food insecure are not seeking help. Many have expressed that help could not be sought out because those that are food insecure are not aware that they fall into this category, while others have raised concerns that transportation to federally funded food resources is hard to find (McArthur et al., 2020). For example, stigma is noted as a strong indicator against asking for help and is associated with food insecurity and those that seek help from food pantries. Previous studies suggest a negative association between stigma and seeking food assistance through programs (Kindle 2019). Furthermore, this is amplified when children experiencing food insecurity witness their parents not wanting to ask for help due to stigma. Then, once these children reach college, they too felt they could not ask for help and do not use college food pantries or resources (Kindle 2019).

Often on college campuses, a main resource provided to aid with the issue of food insecurity is a food pantry. In a study conducted by McArthur et al. that measured student perceptions of a campus food pantry through an online questionnaire, it was demonstrated that although 64.8% were aware of the food pantry, only 10.5% had ever visited it (McArthur et al., 2020). Qualitative data from this study provided a deeper understanding with participants describing stigma, shame, and embarrassment when they participate and acquire items from a college food pantry (McArthur et al., 2020). The concept of comparing one's needs to others' needs is a form of self-stigma which was also identified by El Zein and colleagues (El Zein et al., 2022). When comparison of oneself to others ensues, such as through the comparison of needs, competition is also likely to take place. This idea of comparison and competition was witnessed in the qualitative data of this study that suggested another inducing factor of self-stigma was the competitive spirit that is witnessed at a university as this "leads to a false sense of not wanting to rely on anyone and try[ing] not to be seen as weaker in the fight" (El Zein et al., 2022).

Ranging rates of food insecurity have been studied across a vast number of college campuses. At a more urban university in Alabama, the rate of food insecurity was observed to be 14.8% of the student population, whereas among several Appalachian region colleges and universities, the rate of food insecurity ranged from 22.4% to 51.8% (El Zein et al., 2022). Despite the difference in the percentage of a student population that is food insecure at a specific college or university, it is evident that food insecurity is prevalent among college students as an entity. Stigma is a major barrier in aiding the food insecurity among college students. Thus, the need to educate the general public about stigma and further provide help to those that are food insecure is dire. Through this research, the study of stigma surrounding the use of food pantries on Appalachian State University's campus is expected to help with the start of education tactics and awareness towards the topic in order to break such stigma.

Methods

This study was approved by the Appalachian State University Institutional Review Board (IRB) through study number: HS-23-164 which was exempt per 45 CFR 46 104. This study was an online, branched, Qualtrics survey (Appalachian State University Qualtrics 2020): one survey for individuals who do not use food pantries and one who self-identify as using food pantries that was sent out to the respective groups. Participants were students recruited from Appalachian State University's central campus and randomly selected from a computer-generated recruitment list (n=3000). Randomly selected students' emails were requested and provided by the Appalachian State University Institutional Research, Assessment, and Planning's (IRAP). Recruitment was done by an initial email that was sent on Wednesday, January 25, 2023 to reach the pool of students, primarily those that did not use the food pantry. Three reminder emails were sent to the same pool of students each Wednesday following the date the initial email was sent, with the last reminder email being sent on February 15, 2023. Although there are several on-campus food pantries spread throughout both Appalachian State University's central campus and the Beaver College of Health Sciences campus, three were selected for recruitment of participants for this study. Recruitment for those that used an on-campus food pantry was done through a QR code and link posted on flyers placed on Appalachian State University's central campus in the East Hall Office of Sustainability food pantry and in the Garwood Hall Physics food pantry. These same flyers were also posted in the Leon Levine Hall food pantry on Appalachian State University's Beaver College of Health Sciences campus.

Survey Design and Measures

These measures were a part of a larger survey. See Appendix A for description of entire survey measures. The Qualtrics survey was a branched survey with two versions that included 51 questions in each version. Both surveys began with a consent form that participants could read

and choose to either participate or not participate in the study. Both surveys then included the '10-item USDA Food Security Scale for Use with College Students' which assessed whether the participant was food insecure (Ames 2019). All participants were asked a qualitative data question: Do you believe that there is stigma surrounding food pantry users? Why or why not?. Participants self-selected their answer to the next survey question that read "Have you used a food pantry at Appalachian State University?" which categorized the participants into the two separate surveys. The survey also measured self-stigma through 10 questions concerning the use of an on-campus food pantry (Kindle 2019), along with 10 more questions more specifically concerning the self-stigma of seeking help (SSOSH) (Vogel 2006) for both food pantry users and non-users. Both sets of self-stigma questions for both surveys were answered based on a 5-point Likert scale from strongly disagree to strongly agree (Vogel 2006 and Kindle 2019). Examples of questions regarding self-stigma of food pantry use and seeking help for food pantry users were "I have stopped socializing with some people due to their reaction to me using a food pantry." (Kindle 2019) and "I feel inadequate for using the food pantry for assistance." (Vogel 2006) respectively. Whereas examples of questions regarding self-stigma of food pantry use and seeking help for non-food pantry users were "I have stopped socializing with some people because they used a food pantry." (Kindle 2019) and "I would feel inadequate if I went to a food pantry for assistance." (Vogel 2006) respectively. Demographic questions about gender, race, the year the participant is enrolled at Appalachian State University (i.e., first year college student), if the participant had a meal plan, employment status, and if the participant lived on or off campus were also asked.

Analysis

Sentiment Analysis

Sentiment Analysis enables researchers to understand the emotions and opinions of a certain group of people towards another (Medhat and Korashy 2014). A sentiment analysis was conducted on qualitative responses from a particular question from the survey (do you believe that there is stigma surrounding food pantry users? Why or why not?). Completed responses were categorized into food pantry users or non-food pantry users based on self-reported usage questions (have you ever used the on-campus food pantries?). Then the two categories were analyzed for affirming/non-affirming responses about food pantry user stigma using an Excel add-on: Azure Machine Learning. Azure Machine Learning categorizes responses into negative (non-affirmative/no stigma), neutral (uncertain), or positive (affirmative/stigma identified) sentiment. Sentiment categories were reviewed by researchers (AEW and AD) to ensure accuracy of categorization.

Keyword Search for Themes

Following sentiment analysis, keywords within the public's sentiment can be identified in order to better understand what each group believes through context they may have provided (Dalayya et. al 2023). Once data from both food pantry use categories were analyzed, the positive and negative sentiments were further analyzed for key words/themes of responses by a hand-coded search of frequencies of terminology. Researchers (AEW and AD) tallied keywords in Excel by reporting frequencies (number of times mentioned out of total sentiment category responses) of periodically reported words/themes. The final step was to define and describe the meaning of the keywords and themes to understand the positive and negative sentiment of food pantry stigma between food pantry users and non-food pantry users.

Descriptive Statistics

Descriptive statistics including means and frequencies of certain quantitative variables were conducted in SPSS and Excel to describe the data.

Food Insecurity

To understand food insecurity percentages across the sample the 10-item USDA Food Insecurity screener was used for data collection and scoring. Completed responses were scored based on affirming responses (“yes,” “often,” “sometimes,” “almost every month,” and “some months but not every month”) and non-affirming responses to create a categorical variable. Raw scores of zero-two were categorized as food secure; three-five were low food insecurity; and six-ten were categorized as very low food security. For binomial analysis and further comparison with other variables, the food security score was zero-two and food insecurity score was three-ten.

Food Pantry Use and Food Security

To understand food pantry use and food insecurity, responses were categorized into four categories by aligning response scores for food insecurity and food pantry use. Categories included: food insecurity & food pantry use (1); food security and food pantry use (2); non-food pantry use & food insecurity (3); and non-food pantry use & food security (4).

SSOSH Measures

Adapting the SSOSH measure, we sought to understand if individuals felt self-stigma towards seeking help (using food pantries) by assessing the mean score between non-food pantry users and food pantry users.

Food Pantry Self-Stigma Scale

Similarly, descriptive statistics were used to report the mean score between non-food pantry users and food pantry users.

Analysis of both the collected quantitative and qualitative data granted a better understanding of the gap regarding normative behavior of how those that use a food pantry believe others perceive them versus how those that do not use a food pantry actually perceive food pantry users.

Based on research done in previous studies with relevance to this study, a difference was expected to be observed between the beliefs of a food pantry user and non-user. More specifically, it was likely that the perception of those that used a food pantry of themselves was worse than the perception of those that do not use a food pantry of those that do. If these results were to also be true for this research, education tactics would be researched and suggested in order to increase the amount of reliance on food pantries for individuals, especially college students, that needed it. These education tactics would also assist in minimizing the ‘why try’ effect which is the belief by individuals that there will always be others that are worse off than them and as a result they do not deserve the offered resources (Corrigan 2009).

Results

Quantitative Data

There were 594 responses were recorded and analyzed. Of which, 17% (101/594) self-reported currently or historically using on-campus food pantries (1).

Table 1. Food Pantry Use

	Frequency	Percent	Variable Percent	Cumulative Percent
Food Pantry User	101	17.0	17.0	17.0
Non-Food Pantry User	493	83.0	83.0	100.0
Total	594	100.0	100.0	

Using the 10-item USDA Food insecurity screener, participants (594) were categorized into food security, low food insecurity, and very low food insecurity. The majority (50.7%) were food secure; however, 30.1% were very low food insecurity.

Table 2. Food Insecurity

	Frequency	Percent	Variable Percent	Cumulative Percent
Food Security	301	50.7	50.7	50.7
Low Food Insecurity	114	19.2	19.2	69.9
Very Low Food Insecurity	179	30.1	30.1	100.0
Total	594	100.0	100.0	

To understand food pantry, use and food insecurity, responses were categorized into food insecurity & food pantry use; food security and food pantry use; non-food pantry use & food insecurity; and non-food pantry use & food security. 47.3% reported not using food pantries and were food secure. However, almost 36% were food insecure and did not use food pantries on campus. Very low and low food insecurity were categorized into food insecurity for this analysis.

Table 3. Food Insecurity and Food Pantry Use

	Frequency	Percent	Variable Percent	Cumulative Percent
Food Insecurity and Food Pantry Use	81	13.6	13.6	13.6
Food Security and Food Pantry Use	20	3.4	3.4	17.0
Non-Food Pantry Use and Food Insecurity	212	35.7	35.7	52.7
Non-Food Pantry Use and Food Security	281	47.3	47.3	100.0
Total	594	100.0	100.0	

Questions on descriptive statistics were provided at the end of the survey. Participants were predominantly female (49%), white/non-Hispanic (66.8%), 2nd or 3rd year college students (54%), held one or more part-time jobs (44.8%), and lived off-campus (46%).

Table 4. Gender

	Frequency	Percent	Variable Percent	Cumulative Percent
Male	171	28.8	33.9	33.9
Female	291	49.0	57.6	91.5
Non-binary/third gender	36	6.1	7.1	98.6
Prefer not to say	7	1.2	1.4	100.0
Total	505	85.0	100.0	
Missing System	89	15.0		
Total	594	100.0		

Table 5. Race

	Frequency	Percent	Variable Percent
White-Hispanic	5	1.0	1.0
White-Non-Hispanic	397	66.8	66.8
African American	14	2.4	2.4
Hispanic	16	2.7	2.7
Asian	7	1.2	1.2
Other	155	25.9	25.9
Total	594	100.0	100.0

Table 6. Year Enrolled at Appalachian State

	Frequency	Percent	Variable Percent	Cumulative Percent
1 st Year College Student	125	21.0	24.8	24.8
2 nd Year College Student	138	23.2	27.3	52.1
3 rd Year College Student	135	22.7	26.7	78.8
4 th Year College Student	86	14.5	17.0	95.8
Other	21	3.5	4.2	100.0
Total	505	85.0	100.0	
Missing System	89	15.0		
Total	594	100.0		

Table 7. Employment

	Frequency	Percent	Variable Percent	Cumulative Percent
Umemployed	224	37.7	44.4	44.4
One or more Part-time Jobs	266	44.8	52.7	97.0
One Full-time Job	15	2.5	3.0	100.0
Total	505	85.0	100.0	
Missing System	89	15.0		
Total	594	100.0		

Table 8. Location of Living

	Frequency	Percent	Variable Percent	Cumulative Percent
On-Campus	229	38.6	45.3	45.3
Off-Campus	273	46.0	54.1	99.4
Other	3	.5	.6	100.0
Total	505	85.0	100.0	
Missing System	89	15.0		
Total	594	100.0		

Adapting the SSOSH measure, we sought to understand if individuals felt self-stigma towards seeking help (using food pantries). Between both groups, non-users and users, reported higher perceptions of self-stigma with levels above the mid-point of the scale. However, users, had a slightly higher self-stigma ($M=27.49$, $SD 9.44$).

Table 9. Food Pantry (FP)/ Non-Food Pantry (NFP) Users' SSOSH Measure

	N	Minimum	Maximum	Mean	Std. Deviation
FPSSOSH	85	10	50	27.49	9.444
NFPSSOSH	417	10	50	25.60	9.204

According to the food pantry self-stigma scale, users ($M=23.12$, $SD=9.06$) reported higher perceptions of stigma than non-users ($M=15.79$, $SD=3.85$).

Table 10. Self-Stigma (SS) of FP and NFP Users

	N	Minimum	Maximum	Mean	Std. Deviation
SSFP	94	10	43	23.12	9.064
SSNFP	451	10	42	15.79	3.853

Qualitative Data

Sentiment Analysis Results

Sentiment analysis categorized each survey response as positive (there is stigma surrounding food pantry use), neutral, and negative (there is no stigma surrounding food pantry use). Sentiment analysis was done separately for non-food pantry users and food pantry users as a means to compare the percentages calculated. Within the non-food pantry users, there were 461 usable responses, with 98 negative responses (21.26%), 41 neutral responses (8.89%), and 322 positive responses (69.85%). Within the food-pantry users, there were 97 usable responses, with 25 negative responses (25.77%), 6 neutral responses (6.19%), and 66 positive responses (68.04%).

Table 11. Sentiment Analysis

	Total Responses	Negative Responses	Neutral Responses	Positive Responses
Non-food Pantry Users	461	98	41	322
Non-food Pantry Users Calculated Percentages	-	98/461 21.26%	41/461 8.89%	322/461 69.85%
Food Pantry Users	97	25	6	66
Food Pantry Users Calculated Percentages	-	25/97 25.77%	6/97 6.19%	66/97 68.04%

Keyword Analysis Results

Similar to sentiment analysis, keyword analysis was completed separately for non-food pantry users and food pantry users. For both non-food pantry users and food pantry users, however, only the positive responses were identified with a 'keyword' category. Negative and neutral responses for both non-food pantry users and food pantry users mostly stated 'No' with no explanation or claimed that they had a lack of knowledge surrounding stigma.

Positive NFP Keyword Analysis

Within the positive non-food pantry users' responses, the stigma mentioned was either empathized meaning that the respondent believed that if they were in the situation of a food pantry user, they would feel the stigma they were describing, or direct meaning that the respondent believed there was that stigma applied to food pantry users. The positive non-food pantry users' responses that stated there is stigma surrounding food pantry users were placed into the following 'keyword' categories and a percentage was calculated for each 'keyword' category

out of the total positive non-food pantry users' responses (322). Among non-food pantry users who believed there was stigma, many believed so because of a *power hierarchy* in which food pantries are associated with classism and if you use them you are lesser in society (20.81%), *finance* in which going to a food pantry meant you were poor (23.29%), *laziness* as going to a food pantry meant you were taking advantage of the system (7.76%), *judgment* (8.70%), *embarrassment* (13.98%), *other people are worse off than them* (7.45%), *others don't understand due to a lack of knowledge* (4.66%), *pride* in wanting to prove they can solve their own challenges (4.04%), and the *accessibility* to healthy options as food pantries have mainly unhealthy foods (1.86%).

Table 12. Keyword Analysis for Positive Non-Food Pantry Users

'Keyword'	Number of Responses	Percentage Calculated
Power Hierarchy	67	20.81%
Finance	75	23.29%
Laziness	25	7.76%
Judgement	28	8.70%
Embarrassment	45	13.98%
People are worse off	24	7.45%
Others not understanding	15	4.66%
Pride	13	4.04%
Accessibility to Healthy Options	6	1.86%

Within the positive food pantry users' responses, the stigma mentioned was either self-stigma meaning that the respondent imposed it on themselves, or stigma from others. The positive food pantry users' responses that stated there is stigma were placed into the following 'keyword' categories and a percentage was calculated for each 'keyword' category out of the total positive food pantry users' responses (66). Among food pantry users who believed there was stigma, many believed so because of a *power hierarchy* (12.12%), *finance* (27.27%), *laziness* (10.61%), *judgement* (7.58%), *embarrassment* (21.21%), *other people are worse off than them*

(16.67%), *appearance* in that food pantry users were associate with certain physical features (7.58%), and *self-blame* where they felt the situation was their fault (3.03%).

Table 13. Keyword Analysis for Positive Food Pantry Users

'Keyword'	Number of Responses	Percentage Calculated
Power Hierarchy	8	12.12%
Finance	18	27.27%
Laziness	7	10.61%
Judgement	5	7.58%
Embarrassment	14	21.21%
People are worse off	11	16.67%
Appearance	5	7.58%
Self-blame	2	3.03%

Discussion

The results of this study reported 19.2% of participants were low food insecurity, and 30.1% were very low food insecurity, with only 17% reported that they had used or are using an on-campus food pantry. Due to this gap, the concern shifts to those that are food insecure, but are not using resources such as food pantries. A study done at the University of Florida found that while 32% were classified as food insecure, only 15.6% of respondents had ever used the food pantry (El Zein et. al 2018). The same study suggested that the reason most college students were not seeking help from resources that are available to them was due to social stigma, inconvenient hours, and an insufficient amount of information on the regulations of the food pantry (El Zein et. al 2018). Similarly, the qualitative results from our study suggested that a large majority of both non-food pantry users and food pantry users noted stigmas as a key barrier. Although this begins to explain why many of this study's participants are food insecure but do not use a food pantry, the reason behind why there is stigma is underreported. Therefore, the results of this study will aid in better understanding the future direction for food pantries on university campuses.

For the descriptive statistics of both the self-stigma of seeking help measure and those provided by the Food Pantry Stigma Scale, food pantry users reported greater means than non-food pantry users. This meant that food pantry users had a higher self-stigma of seeking help than non-food pantry users. With a higher self-stigma, food pantry users are likely harder on themselves in creating a harsher depiction of what others think of them than what is true, which leads to them believing that they can internally solve their own challenges. In a study comparing stigma between food pantry users and non-users based on the Food Pantry Stigma Scale, it was found that the perception of stigma of food pantry users was significantly higher than the portion of the public that does not use food pantries (Kindle et. al 2019). The authors explained this by suggesting that food pantry users believed there would be social disapproval if they used a food pantry as they were deemed as not self-reliant or self-sufficient (Kindle et al. 2019). Based on qualitative data obtained from our keyword analysis of food pantry users, 3.03% reported that the stigma was a result of self-blame. Through recognizing that stigma does not solely stem from others, but can also result from internal thoughts, an attempt to change the perception of self-stigma of food pantry users could focus on gaining support from the public. This support would help food pantry users to realize that despite the situation they are in, the general community shares no judgement, but rather encourages the use of food pantries due to their rightful need. A study done at a university in the southeastern U.S. suggested that this support could be shared through spreading awareness through positive marketing messages that de-stigmatized food pantry use (El Zein et. al 2022). Aside from self-blame, another major source of self-stigma felt by food pantry users (23.29%) was finance. Stigma that results from finance is experienced because users believe that others view them as poor for using a food pantry. Food pantry users also experience stigma because they think others deem them as lazy (10.61%) or weaker in a power hierarchy (12.12%) because they are unable to provide for themselves and instead rely on

a resource. In order to begin to break this stigma felt by food pantry users, resources that are offered need to be more normalized. Normalization could occur through awareness of these resources, but it could also result from more food pantry locations being offered as resources (El Zein et. al 2022). When these resources are more normalized, more people who need these resources will not feel alienated when they resort to them.

Although non-food pantry users cannot directly experience stigma the way food pantry users do, perceived stigma enables them to begin to understand what food pantry users experience. From the keyword analysis performed on positive non-food pantry users, the main reasons mentioned for perceived stigma were ‘finance’ (23.29%), ‘power hierarchy’ (20.81%), and ‘embarrassment’ (13.98%). These same keywords were also identified among food-pantry users. Associated with these keywords were characteristics of being poor, weak, or embarrassed, but their reasoning was dependent on whether non-food pantry users believed food pantry users should feel that way, or that they would feel that way if they were in the situation. Whereas the belief by non-food pantry users that food pantry users should feel a certain way is more external, the belief that non-food pantry users would feel a certain way if presented with the same situation is more internal. A study performed with individuals with common mental disorders measured stigma categorized through ‘embarrassment’ and ‘discrimination’ (Alonso et. al 2009). In this study, ‘embarrassment’ was deemed as internal and ‘discrimination’ was deemed as external. Despite these separate reasonings, what the study came to find was that in order for there to be stigma, both an internal and external motive must be present (Alonso et. al 2009). Similarly for our study, if non-food pantry users could not directly experience self-stigma, the stigma that non-food pantry users were describing could stem from 2 possibilities that could be connected. The first possibility is that non-food pantry users believed that food pantry users are or should feel that way about themselves. This reaffirms that there is stigma surrounding food pantry users as

non-food pantry users believe that those that use food pantries are poor, weak within the power hierarchy, or should feel embarrassed. In an article published by the National Library of Medicine in 2010, the authors mentioned that a vast majority of the general population associates food insecurity with poverty when there are a plethora of other reasons a person could be food insecure (Greenberg et. al 2010). Such reasons that were included in the article were “absence of a healthy lifestyle”, “inaccessibility to adequate food”, and “illiteracy” which prevented those that are food insecure from researching resources (Greenberg et. al 2010). In better understanding the possibilities as to why another person may be food insecure, the second possibility to a non-food pantry user’s belief that there is stigma could result from putting themselves in the shoes of a food pantry user. In this way, the non-food pantry users are demonstrating empathy toward food pantry users in recognizing that although they do not directly experience this stigma, if they were in the others’ position they acknowledge that they could. If this alternative possibility is true, then this empathy and the further recognition that there is stigma surrounding food pantry users should be expressed by non-users towards users so as to help users feel understood. This understanding begins to bridge the gap of differences between food pantry users and non-users.

In continuing to bridge the gap that stigma has evidently contributed to, the shared belief between non-food pantry users and food pantry users of ‘finance’ being a cause of stigma needs to be further analyzed. The keyword ‘finance’ referred to the fact that there was stigma because those that use a food pantry felt that they were poorer than others, or that others viewed them as such. A study that analyzed different measures of poverty relative to food insecure households found that there was a very low statistically significant association between poverty and food insecurity (Wight et. al 2014). Rather, finances had to do more with an income to needs ratio that yielded a larger gap between income and needs of the household for households deemed food insecure (Wight et. al 2014). Although the ratio helps to break the financial stigma associated

with food pantry users that have larger households, this does not directly pertain to college students who are food insecure and supplying solely for themselves. Thus, more attention should be focused on the demographic of survey participants that have one or more part time jobs. Of the participants, 44.8% claimed that they fell into this category. Despite further analysis needing to be done to determine the percentage of this category that are also food pantry users, a mending factor that can be analyzed regardless is time. As a college student, much time is designated to classes as is. However, for students that are food insecure, they may also have to financially support themselves which may look like having 1 or more jobs. A study involving young adults attending an Appalachian University assessed their schedules' relative to food insecurity and their academics (Hagedorn and Olfert 2018). The study found that those that were identified as food insecure had to manage schedules with a full-time job, or one or more part time jobs that in turn affected them graduating on time, their class attendance, and overall academic success compared to food secure students (Hagedorn and Olfert 2018). As a means to further break the stigma surrounding food pantry users, especially for those that are college students, on-campus food pantries need to assess the times that they are open so as to become more accessible to those that have conflicting schedules.

Limitations

Limitations of this study included sampling bias. Although the sampling technique used aimed to include a diverse set of participants, with voluntary participation, a greater number of participants could have resulted from an area where there was better implementation. Thus, this could have skewed the statistics of this study towards a certain demographic which suggests that the reported results may not be generalizable. Another limitation was recruitment of food-pantry users as it was expected that there would be fewer users than non-users that completed the

survey. Furthermore, since participants were kept anonymous, it was difficult to fully comprehend what some participants meant without asking follow-up, explanatory questions.

Conclusion

Through this research, the study of stigma surrounding the use of food pantries on Appalachian State University's campus was studied. The study revealed that there was a gap between those that were food insecure and those that used the food pantry which suggested that stigma is a factor. More importantly, this stigma can be distinguished as self-stigma which can begin to be broken through empathy expressed by the general public. Specifically, for college students, this study also found that because stigma can be associated with finance, a greater emphasis needs to be placed on the busy schedule of a food insecure college student and what can be done to help balance that schedule. Further approaches such as education tactics and awareness towards reducing stigma are needed. Education tactics were assessed for management and funding in a study done by Hagedorn-Hatfield et. al (Hagedorn-Hatfield et. al 2022). While most students across the campuses involved in this study were aware of programs such as food pantries and mobile food sharing applications that were offered as resources, there was diverse management and funding mechanisms that oversaw each program (Hagedorn-Hatfield et. al 2022). This study concluded that in order for education tactics to be more efficient and for more individuals to access these resources, a coordinated approach must be established through grounded leadership across campuses in order to make the general public more aware of the importance of food insecurity (Hagedorn-Hatfield et. al 2022). Similar approaches have also been discussed in another study that suggests that while university policy-makers and administrators may need to step in in order to create official initiatives to aid the food insecurity of college students, much can be done on a smaller scale as well (El Zein et. al 2018). Student clubs and organizations have the capability to encourage the use of food pantries whether that be through

word of mouth or posters around campus that further advertise these resources. By taking these next steps to break stigma surrounding food pantry users, the gap is being bridged by allowing those that need resources such as food pantries to feel more comfortable doing so.

Appendices

A. Qualtrics Survey Link

(https://appstate.az1.qualtrics.com/jfe/preview/previewId/4f0b1cea-c4b9-4652-bfd9-2a3c774e694c/SV_807864HbDElUhSe?Q_CHL=preview&Q_SurveyVersionID=current)

References

- Ajzen, I. (2006) Constructing a Theory of Planned Behaviour Questionnaire: Conceptual and Methodological Consideration.
<http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf>
- Anderson, SA (1990) Core indicators of nutritional state for difficult-to-sample populations. *J Nutr* 120, 1559–1600.
- Ames, A. J., & Barnett, T. M. (2019). Psychometric Validation of the 10-Item USDA Food Security Scale for Use with College Students. *Journal of applied measurement*, 20(3), 228–242.
- Appalachian State University*. Qualtrics. (2020, July 21). Retrieved February 13, 2023, from <https://www.qualtrics.com/academic-solutions/walker-college-of-business/>
- Bermúdez-Millán, A., Wagner, J. A., Feinn, R. S., Segura-Pérez, S., Damio, G., Chhabra, J., & Pérez-Escamilla, R. (2019). Inflammation and Stress Biomarkers Mediate the Association between Household Food Insecurity and Insulin Resistance among Latinos with Type 2 Diabetes. *The Journal of nutrition*, 149(6), 982–988.
- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian A. Gregory, and Anita Singh. 2019. Household Food Security in the United States in 2018, ERR-270, U.S. Department of Agriculture, Economic Research Service.
- Corrigan, P. W., Larson, J. E., & Rüsck, N. (2009). Self-stigma and the "why try" effect: impact

on life goals and evidence-based practices. *World psychiatry : official journal of the World Psychiatric Association (WPA)*, 8(2), 75–81.

Dalayya, S., Elsaid, S. T. F. A., Ng, K. H., Song, T. L., & Lim, J. B. Y. (2023). Sentiment Analysis to Understand the Perception and Requirements of a Plant-Based Food App for Cancer Patients. *Human Behavior and Emerging Technologies*, 2023.

El Zein, A., Vilaro, M. J., Shelnutt, K. P., Walsh-Childers, K., & Mathews, A. E. (2022). Obstacles to university food pantry use and student-suggested solutions: A qualitative study. *PloS one*, 17(5), e0267341.

El Zein A, Mathews AE, House L, Shelnutt KP. Why Are Hungry College Students Not Seeking Help? Predictors of and Barriers to Using an On-Campus Food Pantry. *Nutrients*. 2018; 10(9):1163.

Evans, B. E., Greaves-Lord, K., Euser, A. S., Tulen, J. H. M., Franken, I. H. A., & Huizink, A. C. (2013). Determinants of physiological and perceived physiological stress reactivity in children and adolescents. *PLoS ONE*, 8(4).

Fong, E. H., Catagnus, R. M., Brodhead, M. T., Quigley, S., & Field, S. (2016). Developing the Cultural Awareness Skills of Behavior Analysts. *Behavior analysis in practice*, 9(1), 84–94.

Fonseca, V. A., Smith, H., Kuhadiya, N., Leger, S. M., Yau, C. L., Reynolds, K., ... & John-Kalarickal, J. (2009). Impact of a natural disaster on diabetes: exacerbation of disparities and long-term consequences. *Diabetes care*, 32(9), 1632-1638.

Food Security and nutrition assistance. USDA ERS - Food Security and Nutrition Assistance.

(n.d.). Retrieved February 13, 2023, from <https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance>

Fricke, H. E., Hughes, A. G., Schober, D. J., Pinard, C. A., Bertmann, F. M. W., Smith, T. M., &

Yaroch, A. L. (2015). An examination of organizational and statewide needs to increase Supplemental Nutrition Assistance Program (SNAP) participation. *Journal of Hunger & Environmental Nutrition*, 10, 271-283.

Geer, E. B., Islam, J., & Buettner, C. (2014). Mechanisms of glucocorticoid-induced insulin resistance: focus on adipose tissue function and lipid metabolism. *Endocrinology and metabolism clinics of North America*, 43(1), 75–102.

Greenberg, M., Greenberg, G., & Mazza, L. (2010). Food pantries, poverty, and social justice. *American journal of public health*, 100(11), 2021–2022.

Greer, A. E., Cross-Denny, B., McCabe, M., & Castrogivanni, B. (2016). Giving economically disadvantaged minority food pantry patrons' a voice: Implications for equitable access to sufficient, nutritious food. *Family and Community Health*, 39, 199-206.

Gundersen, C., & Ziliak, J. P. (2015). Food insecurity and health outcomes. *Health affairs*, 34(11), 1830-1839.

Hagedorn RL, Olfert MD. Food Insecurity and Behavioral Characteristics for Academic Success in Young Adults Attending an Appalachian University. *Nutrients*. 2018; 10(3):361.

- Hagedorn-Hatfield, R. L., Richards, R., Qamar, Z., Hood, L. B., Landry, M. J., Savoie-Roskos, M. R., Vogelzang, J. L., Machado, S. S., OoNorasak, K., Cuite, C. L., Heying, E., Patton-López, M. M., & Snelling, A. M. (2022). Campus-based programmes to address food insecurity vary in leadership, funding and evaluation strategies. *Nutrition bulletin*, 47(3), 322–332.
- Hanson KL, Connor LM. Food insecurity and dietary quality in US adults and children: a systematic review. *Am J Clin Nutr*. 2014;100(2):684–692.
- Hanson, K. L., & Olson, C. M. (2012). Chronic health conditions and depressive symptoms strongly predict persistent food insecurity among rural low-income families. *Journal of health care for the poor and underserved*, 23(3), 1174–1188.
- Jordi Alonso, Andrea Buron, Sonia Rojas-Farreras, Ron de Graaf, Josep M^a Haro, Giovanni de Girolamo, Ronny Bruffaerts, Viviane Kovess, Herbert Matschinger, Gemma Vilagut, Perceived stigma among individuals with common mental disorders, *Journal of Affective Disorders*, Volume 118, Issues 1–3, 2009, Pages 180-186.
- Kindle, Peter A.; Foust-Newton, McKayla; Reis, Marissa; and Gell, Margaret (2019). Food Pantries and Stigma: Users' Concerns and Public Support. *Contemporary Rural Social Work Journal*, Vol. 11 : No. 1 , Article 2.
- Leistner, C., & Menke, A. (2020). Hypothalamic–pituitary–adrenal axis and stress. *Handbook of Clinical Neurology*, 175, 55-64.
- Lens, V., Nugent, M., & Wimer, C. (2018). Asking for help: A qualitative study of barriers to

help seeking in the private sector. *Journal of the Society for Social Work and Research*, 9, 107-130.

Leung CW, Epel ES, Ritchie LD, Crawford PB, Laraia BA. Food insecurity is inversely associated with diet quality of lower-income adults. *J Acad Nutr Diet*. 2014;114(12):1943–53.

Lightman, S. L., Birnie, M. T., & Conway-Campbell, B. L. (2020). Dynamics of ACTH and Cortisol Secretion and Implications for Disease. *Endocrine reviews*, 41(3)

Liu, Y., & Eicher-Miller, H. A. (2021). Food insecurity and cardiovascular disease risk. *Current Atherosclerosis Reports*, 23, 1-12.

McArthur, L. H., Fasczewski, K. S., Farris, A. R., & Petrone, M. (2020). Use and Perceptions of a Campus Food Pantry Among Food Insecure College Students An Exploratory Study from Appalachia. *Journal of Appalachian health*, 2(2), 7–23.

Medhat, W., Hassan, A., & Korashy, H. (2014). Sentiment analysis algorithms and applications: A survey. *Ain Shams engineering journal*, 5(4), 1093-1113.

Micha R, Peñalvo JL, Cudhea F, Imamura F, Rehm CD, Mozaffarian D. Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the US. *JAMA*. 2017;317(9):912–924.

Moradi, S, Mirzababaei, A, Dadfarma, A et al. (2019) Food insecurity and adult weight abnormality risk: a systematic review and meta-analysis. *Eur J Nutr* 58, 45–61.

Pourmotabbed, A., Moradi, S., Babaei, A., Ghavami, A., Mohammadi, H., Jalili, C., Symonds,

M. E., & Miraghajani, M. (2020). Food insecurity and mental health: a systematic review and meta-analysis. *Public health nutrition*, 23(10), 1778–1790.

Seligman HK, Lyles C, Marshall MB, Prendergast K, Smith MC, Headings A, Bradshaw G, Rosenmoss S, Waxman E. A pilot food bank intervention featuring diabetes-appropriate food improved glycemic control among clients in three states. *Health Aff.* 2015;34:1956–63.

Suzuki, A, Sakurazawa, H, Fujita, Tet al. (2016) Overeating at dinner time among Japanese workers: is overeating related to stress response and late dinner times? *Appetite* 101, 8–14.

Vancil, A. D. (2008). Thanks, but no thanks: A study of potential food stamp recipients and why they decline the benefits.

Vogel, D. L., Wade, N. G., & Haake, S. (2006). Measuring the self-stigma associated with seeking psychological help. *Journal of Counseling Psychology*, 53(3), 325–337.

Wight, V., Kaushal, N., Waldfogel, J., & Garfinkel, I. (2014). Understanding the Link between Poverty and Food Insecurity among Children: Does the Definition of Poverty Matter?. *Journal of children & poverty*, 20(1), 1–20.