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# Effects of Food Insecurity on Resilience Among Undergraduate University Students

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## Abstract

Food insecurity is a prevalent issue among college students. Stress induced by food insecurity may affect mental resilience. However, no previous reports have addressed this potential relationship. To fill this gap, an anonymous online survey targeting adults 18 years or older was distributed via social media and messaging platforms. The survey included demographic questions and the Brief Resilience Scale. A total of 997 people completed the survey, including 705 females, 246 males, and 46 others. Data was analyzed using Pearson's Correlation Coefficient in SPSS Version 25.0. The results show that food insecurity was positively correlated with consumption of pre-packaged foods ( $p < 0.01$ ). Negative correlations between food insecurity and consumption of dark, green leafy vegetables ( $p < 0.01$ ) and the ability to recover from stressful events ( $p < 0.01$ ) were also found. This suggests a potential link between food insecurity, the consumption of pre-packaged foods, and decreased mental resilience.

## Introduction

- Food insecurity is an evolving global issue that is defined as having limited access at all times to enough food for an active and healthy life (Coleman-Jensen et al., 2014), which can lead to various health outcomes including chronic diseases and dietary issues (Berkowitz et al., 2017).
- Apart from its physical and nutritional effect, there is also a connection to mental health. Individuals who suffer from food insecurity demonstrate psychological distress including anxiety and depression due to lack of affordable, culturally appropriate food along with inability to feed both self and family (Carter et al., 2011).
- It is also known that food insecurity generates uncertainty over the ability to maintain and acquire sufficient food, which also induces a stress response that is associated with that of anxiety and depression (Whitaker et al., 2006).
- Mental health is a prevalent and growing topic in the university community. More than 40% of American college students report having symptoms of depression, and 80% of students report that they feel stress daily (*Mental Health Guide - CollegeStats.org*, 2016)
- Despite their current relevance, there have been few studies investigating the relationship between the integral components of food insecurity and its effects on mental health specifically with levels of measured resiliency.
- The purpose of this study is to bridge the gap between the aspects associated with food insecurity and affect feelings of resilience among university students.

## Methods

- Study protocol was reviewed and approved by the Institutional Review Board at Binghamton University (IRB).
- An anonymous questionnaire was distributed on several online platforms in students of 18 years or older
- Data collected from August 2022 to February 2023
- The cross-sectional study involves the use of two validated scales: Brief Resilience Scale (Smith et al., 2008) and the Food Insecurity Experience Scale (*Food Insecurity Experience Scale | Voices of the Hungry | Food and Agriculture Organization of the United Nations*, n.d.)
- Data was analyzed using a two-tailed Pearson correlation coefficient in SPSS version 25.0

## Results

- A total of 997 people completed the questionnaire of which 705 were females, 246 were males, and 46 others.
- Feelings of resiliency shared a negative correlation with the consumption of fast or pre-packaged foods ( $p < 0.01$ ).
- There was a positive correlation with consumption of dark leafy vegetables and feelings of resilience. ( $p < 0.01$ ).
- The state of being food insecure shared a positive correlation with the consumption of pre-packaged food ( $p < 0.01$ ).
- The state of being food insecure had a negative correlation with the consumption of dark leafy veggies. ( $p < 0.01$ ).

## Discussion

- Higher dairy and calcium intake is associated with higher resilience scores, positive mood scores, and lower anxiety (Du et al., 2022).
- This may explain the positive correlation found between consumption of dark, leafy vegetables, a good source of calcium, and feelings of resilience which supports that those who ate nutritious foods feel more resilient in recovering from stressful events, bouncing back from difficult times, and feeling confident handling daily issues.
- Food insecurity among university students is positively associated with the frequent consumption of fast and pre-packaged food and negatively related to consumption of leafy vegetables. There is a relationship between consuming fast food and being food insecure in low to middle income countries of adolescents from the ages 12-15 (Smith et al., 2021), which supports our findings. Being on a restricted budget and resources reduces affordability of authentic, nutrient dense foods that are associated with a healthy diet (Christian et al., 2020). Because of the correlations found between resilience and fast food consumption, it can be deduced that food insecure individuals experience decreased feelings of resilience in their day-to-day lives.
- Having the ability to overcome hardships is a common and critical skill to possess as a university student, and lack thereof may negatively affect the overall mental health of individuals. This further highlights the importance of the findings from this study.

Table 1: Relationship between Fast Food Consumption and Dark Leafy Greens and Resilience

	Does not take long to recover from a stressful event	In the last month, how often have you felt confident about your ability to handle your personal problems?	Tend to bounce back quickly after hard times
Consumption of fast or pre-packaged food	-0.108**	-0.122**	-0.114**
Consumption of dark leafy veggies	0.088**	0.159**	0.133**

Relationship determined using Brief Resilience Scale \*\* indicate statistical significance  
Table 2: Relationship between Food Insecurity and Types of Food using the Food Insecurity Experience Scale

	During the last 12 months, was there a time when, because of lack of money or other resources you were unable to eat healthy and nutritious food?	During the last 12 months, was there a time when, because of lack of money or other resources you ate only a few kinds of foods?	During the last 12 months, was there a time when, because of lack of money or other resources you had to skip a meal?
Consumption of fast or pre-packaged food	0.154**	0.091**	0.102**
Consumption of dark leafy veggies	-0.147**	-0.104**	-0.093**

Relationship determined using Food Insecurity Experience Scale, \*\* indicates statistical significance

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