

Food Security Status and Fruit/Vegetable Intake in College Students

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INTRODUCTION

Food Insecurity is a pressing issue among college students worldwide, impacting academic performance and health outcomes¹. Understanding its influence on dietary patterns, particularly regarding fruit and vegetable intake is crucial for addressing the well-being of this population. Previous research² has shown associations between food insecurity and fruit and vegetable intake; however, current research is limited among college students.

The objective of this study is to investigate the relationship between food insecurity and fruit and vegetable consumption compared to individuals that are food secure. The hypothesis is that participants with food insecurity will have lower fruit and vegetable intake compared to food secure participants.

METHODS

The research gathered from this study is an extension of an ongoing project called Factors Influencing Body Composition in College Students.

Participants: A total of 26 participants were included in this study, all of whom were returning participants from previous years (2020-2022) at UW-Stout, making them sophomores through seniors. Participants were recruited voluntarily via email invitations sent in September of 2023.

Procedure: Data collection occurred from September to November of 2023 at a UW-Stout laboratory in Heritage Hall. Participants provided written consent approved by the UW-Stout IRB. Each participant received a compensation of \$25, with 4th-year returners receiving \$50 upon completion.

Instruments: Data were collected using the Dietary History Questionnaire (DHQ)³ and the U.S. Adult Food Security Survey Module (AFSSM)⁴ administered through email. The DHQ assessed participant's dietary intake, and the AFSSM determined food security status.

Analysis: Data were analyzed using a Fisher's Exact Test of Independence. Participants were categorized to either food insecure or food secure based on responses to the AFSSM⁴ questionnaire. Fruit and vegetable intake were assessed according to the 2020-2025 US Dietary Guidelines⁵ at a 2,000-calorie level, making sufficient vegetable intake >2.5 cups/d and sufficient fruit intake >2 cups/d. Utilizing the DHQ³, participants consuming less than the recommended amount were categorized as insufficient fruit (IF) or vegetable (IV) intake, while those meeting recommendations were classified as having sufficient fruit (SF) or vegetable (SF) intake. Statistical significance was set at $p < 0.05$.

RESULTS

Table 1. Distribution of demographic characteristics of the college students who completed all surveys in the fall of 2023 (n=36).

Characteristic	N	%
Sex		
Male	17	47
Female	17	47
Other	2	5.5
Employment Status		
Not Working	15	42
Part-Time	20	55
Full-Time	1	2.5
Meal Plan		
Yes	25	69
No	11	31
Vegetable Intake		
Sufficient	1	2
Insufficient	35	98
Fruit Intake		
Sufficient	5	14
Insufficient	31	86

Table 2. Fruit Sufficiency in Food Insecure vs. Food Secure College Students.

Fruit Sufficiency Based on Food Security	n	%
Food Secure + Sufficient Fruit	3	8.3
Food Secure + Insufficient Fruit	28	77.8
Food Insecure + Sufficient Fruit	2	5.6
Food Insecure + Insufficient Fruit	3	8.3

Table 3. Vegetable Sufficiency in Food Insecure vs. Food Secure College Students.

Vegetable Sufficiency Based on Food Security	n	%
Food Secure + Sufficient Vegetable	1	2.8
Food Secure + Insufficient Vegetable	30	83.3
Food Insecure + Sufficient Fruit Vegetable	0	0
Food Insecure + Insufficient Fruit Vegetable	5	13.9

DISCUSSION

The results of this study indicate that food security status did not significantly impact the sufficiency of fruit and vegetable intake in this demographic. Moreover, most participants, regardless of food security status, did not meet the recommended intake for fruits (86%) or vegetables (98%), challenging the hypothesis that food secure individuals demonstrate higher intake compared to their food insecure counterparts. Confounding variables such as time constraints and lack of education on the importance of fruit and vegetable intake, may have influenced dietary habits in this population. Transitioning to college brings significant lifestyle changes, potentially affecting dietary priorities and behaviors.

- Strengths: Longitudinal design, validated instruments for data collection, voluntary participation with compensation, and adaptability in statistical analysis.
- Limitations: Small sample size, low representation of food insecure participants, potential selection bias, and reliance on self-reported data

CONCLUSIONS & RECOMMENDATIONS

This study aimed to investigate the relationship between food insecurity and fruit and vegetable consumption among college students, with findings that challenge the assumption that food insecurity correlates with lower intake of fruits and vegetables in this demographic. Both food secure and food insecure populations exhibited insufficient fruit and vegetable intake, highlighting broader issues beyond food security alone.

To promote healthier dietary habits among college students, increased nutrition education is essential. Providing students with resources to make informed decisions regarding time management and dietary choices to adopt healthier lifestyles.

While this study provides valuable insights into the dietary habits of college students, further research with larger and more diverse populations is warranted. Future studies should also explore interventions that promote fruit/vegetable intake and address confounding factors impacting dietary behaviors in college students.

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