

Possible Barriers to Adequate Fruit and Vegetable Consumption Among Continuing College Students



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Purpose of Study

The purpose of this study was to investigate the rate of fruit and vegetable consumption, which is independence of food security status, among continuing college students; and the possible barriers that facilitate insufficient consumption.

Review of Literatures

- Fruits and vegetables are essential components of a well-rounded diet (Moore & Thompson, 2015). They supplement the body with necessary vitamins and nutrients and aid in promoting a healthy and balanced lifestyle (CDC, 2020).
- Daily consumption of a diverse range of fruits and vegetables has been linked to better heart health, lower risk of cancers, proper weight management, etc. (CDC, 2020)
- Numerous studies have shown that healthy eating habits formed in early adulthood have been shown to persist into late adulthood (Mirabatur et al., 2016).
- In 2020, CDC reported that the national daily average consumption of fruits and vegetables was below preliminary standards on the 2015-2020 Dietary Guidelines for Americans (USDHHS & USDA, 2015).
- Between 2013 and 2014, Mook et al. (2016) surveyed 514 adults with variables focused on average daily consumption of fruits and vegetables and, the potential barriers to healthy food consumption. They found that the average fruit and vegetable consumption regardless of food security status was 2.4 servings.
- Mook et al. (2016) also found that barriers such as time, cost and taste strongly influenced both food secure and food insecure participants in relation to daily fruits and vegetables intake.
- Similar trends were found among college students at a large public university. Researchers found that students without car access were 2.24 times more likely to have lower food security than those with car access (Mirabatur et al., 2016).
- Regardless of food security status, participants in each study were shown to be below the recommended daily servings of 5.5 (Mook et al., 2016).
- Factors such as car access, time and budget played a role in fruits and vegetables consumption (Mook et al., 2016).

Hypotheses

The researcher hypothesized that continuing college students who:

1. crave fast food more than fruits and vegetables would be negatively related to the frequency of fruit and vegetable consumption;
2. agree that it is timely to prepare fruits and vegetables would be negatively related to the frequency of fruit and vegetable consumption;
3. favor the taste of fast food more than fruits and vegetables would be negatively related to the frequency of fruit and vegetable consumption;
4. prefer to eat at fast-food restaurants would be negatively related to the frequency of fruit and vegetable consumption;
5. would rather purchase premade or fast food than prepare fruits and vegetables would be negatively related to the frequency of fruit and vegetable consumption;
6. are less knowledgeable about the taste of fresh fruit and vegetables would be negatively related to the frequency of fruit and vegetable consumption;
7. are less knowledgeable about the quality of fresh fruits and vegetables would be negatively related to the frequency of fruit and vegetable consumption;
8. have a meal plan would consume more fruits and vegetables.

References

- [CDC] Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, Center for Disease Control and Prevention. (2020, January 31). How to use fruits and vegetables to help manage your weight. https://www.cdc.gov/healthyweight/healthy_eating/fruits_vegetables.html
- Liao, Y., Siegel, P. Z., Zhou, H., Grimm, K., Njai, R., Kent, C., & Giles, W. (2015). Reduced disparity in vegetable consumption in 16 disadvantaged Black communities: A successful 5-year community-based participatory intervention. *Journal of Racial and Ethnic Health Disparities*, 2(2), 211–218. <https://doi.org/10.1007/s40615-014-0065-8>
- Mirabatur, E., Peterson, K. E., Rathz, C., Matlen, S., & Kasper, N. (2016). Predictors of college-student food security and fruit and vegetable intake differ by housing type. *Journal of American College Health*, 64(7), 555–564 <https://doi.org/10.1080/07448481.2016.1192543>
- Mook, K., Laraia, B. A., Oddo, V. M., & Jones-Smith, J. C. (2016). Food security status and barriers to fruit and vegetable consumption in two economically deprived communities of Oakland, California, 2013-2014. *Preventing Chronic Disease*, 13, 150402. <http://dx.doi.org/10.5888/pcd13.150402>
- Moore, L. V., & Thompson, F. E. (2015). Adults meeting fruit and vegetable intake recommendations—United States, 2013. *Morbidity and Mortality Weekly Report*. 64(26), 709-728. <https://www.cdc.gov/mmwr/pdf/wk/mm6426.pdf>
- Payne-Sturges, D. C., Tjaden, A., Caldeira, K. M., Vincent, K. B., & Arria, A. M. (2018). Student hunger on campus: Food insecurity among college students and implications for academic institutions. *American Journal of Health Promotion*, 32(2), 349–354. <https://doi.org/10.1177/0890117117719620>
- Prochaska, J. J., & Sallies, J. F. (2004). Reliability and validity of a fruit and vegetable screening measure for adolescents. *Journal of Adolescent Health*, 34(3), 163-165. <https://doi.org/10.1016/j.jadohealth.2003.07.001>
- U.S. Department of Health and Human Services [USDHHS] and U.S. Department of Agriculture [USDA]. (2015, December). *2015–2020 Dietary Guidelines for Americans* (8th ed.). <http://health.gov/dietaryguidelines/2015/guidelines>
- Yeh, M. C., Matsumori, B., Obenchain, J., Viladrich, A., Das, D., & Navder, K. (2010). Validity of a competing food choice construct regarding fruit and vegetable consumption among urban college freshmen. *Journal of Nutrition Education and Behavior*, 42(5), 321–327. <https://doi.org/10.1016/j.jneb.2009.08.004>

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Methodology

1) Subjects

The subjects of this study were 27 continuing college students, with:

- a. 46.4 % were in their 2nd year, 25.0% in their 3rd year, 17.9% in their 4th year, and 7.1% reported their years as other;
- b. 32.1% were males and 64.3% were females;
- c. 67.9% lived on campus and 29.6 lived off campus;
- d. 85.7% were employed or had reputable income, 7.7% did not;
- e. 75% had kitchen access, 25% did not;
- f. 28.6% had a meal plan, 64.3% did not.

2) Measuring Instruments

- a. The subjects completed a 22-item survey focused on the frequency of fruit and vegetable consumption and possible barriers that facilitated insufficient consumption. Students were asked to rate on a scale of 1-5 of how often they consume fruits and vegetables, with 1 = Very Often and 5 = Not Often.
- b. The subjects were also asked to rate possible barriers, such as taste preference, from a scale of 1-5, where 1= Strongly Agree and 5 = Strongly Disagree. Items were derived from other Fruit and Vegetable Screening Measure, Reach 2010 Risk Factor Survey and, Fruit and Vegetable Consumption Among College Freshman Measure. (Prochaska & Sallis, 2004; Liao et al., 2015; Yeh et al., 2010).

3) Procedures

- a. Subjects were recruited at populated areas on campus, with the most foot traffic such residential halls, the library etc. The subjects completed an informed consent form, which detailed all necessary instructions regarding voluntary participation. They then completed a 15-minute paper survey consisting of 22-items. All data were collected and stored in a password protected electronic storage.

4) Statistical Analyses

- a. Pearson correlation coefficients were analyzed by SPSS 24, the criterion variables were craving preference, restaurant preference, timeliness, convenience, taste knowledge, and quality knowledge. The predictive variable was the frequency of fruits and vegetables consumed in a typical week.
- b. Independent group *t*-test was also analyzed; the dependent variable was the frequency of fruits and vegetables consumed in a typical week, and the independent variable was the meal plan subscription.
- c. Means and standard deviation for class year, gender, area of residency, transportation access, income or job status, kitchen access and, meal plan subscription status were calculated. Frequencies and percentages of fruit consumption a typical day and vegetable consumption in a typical day were calculated.

Results

- Significant negative correlation was found between continuing students who crave fast foods more than fruits and vegetables and, frequency of fruits and vegetables consumed in a typical week ($r = -.600, p = .002$).
- Non-significant correlations were found between restaurant preference ($r = .274, p = .108$), timeliness ($r = .205, p = .180$), taste preference ($r = -.307, p = .083$), convenience ($r = .058, p = .399$), taste knowledge ($r = .099, p = .330$), quality knowledge ($r = -.023$ and $p = .155$) and, frequency of fruits and vegetables consumed in a typical week.
- Non-significant mean difference was found between students with a meal plan subscription and students without a meal plan subscription in frequency of fruits and vegetables consumed in a typical week ($t = -.699, df = 20, p = .492$).
- The average servings of fruit consumed in a typical day was $M = 1.444 \pm 0.891$. The average servings of vegetables consumed in a typical day was $M = 1.555 \pm 1.012$.

Discussion

- Continuing students who craved fast foods more than fruits and vegetables, consumed fruits and vegetables less frequently.
- No relationship was found between continuing students who:
 - agree that it is timely to prepare fruits and vegetables;
 - favor the taste fast food more than fruits and vegetables;
 - prefer to eat at fast food restaurants;
 - would rather purchase premade or fast-food;
 - are less knowledgeable about the taste of fresh fruit and vegetables;
 - are less knowledgeable about the quality of fresh fruits and vegetables and, the frequency of fruit and vegetable consumed.
- Continuing students with and without a meal plan subscription had similar rates of fresh fruits and vegetable consumption.

Conclusion and Future Research Recommendations

- Food security status was not measured in this study; however, consistent with the finding from Mook et. al (2016), the average consumption of fruits and vegetables was below the recommended daily servings of 5.5. College students who craved fast food consumed fruit and vegetables less frequently; however, similar results were not found for individuals who preferred the taste of fast food. Future research should investigate those differences as well as develop strategies to improve fruit and vegetable intake.
- Future researchers should also consider the relationship between gender and frequency of fruit and vegetable consumption. Previous research has found that in general, men consume fewer amounts of fruits and vegetables (Payne-Sturges et al., 2018).