1-22-2014

An Evaluation of Food Insecurity & Health Behavior among Rural Community Supported Agriculture (CSA) Participants

Michael Capata

Ian Crane

Taylor Goller

Angie Li

Erin McElroy

See next page for additional authors

Authors
Michael Capata, Ian Crane, Taylor Goller, Angie Li, Erin McElroy, Noah Quinlan, Deborah Shamsian, Thomas Delaney, and Jill Jemison

An Evaluation of Food Insecurity and Health Behavior among Rural Community Supported Agriculture (CSA) Participants

Capata, Michael; Crane, Ian; Goller, Taylor; Li, Angie; McElroy, Erin; Quinlan, Noah; Shamsian, Deborah; Delaney, Thomas; Jemison, Jill
University of Vermont College of Medicine; Feenan, Paul; Knauft, Breck; Vermont Youth Conservation Corps

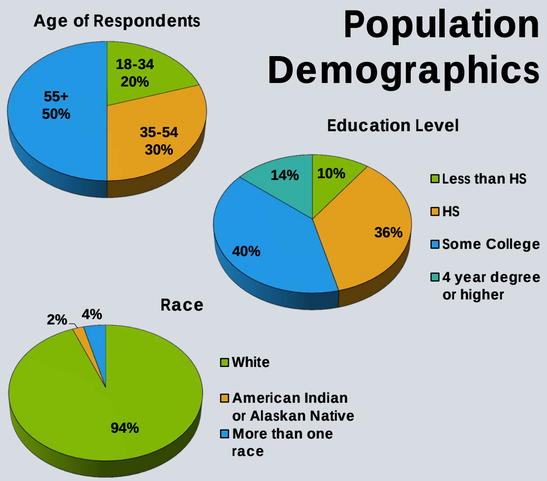
Background

It has been well established that a healthy and nutritious diet can reduce the risk of developing cardiovascular disease, the number one cause of death in the United States. However, for many individuals, access to healthy foods continues to be a major barrier to achieving a nutritious diet. While the causes of food insecurity have been researched, research on the impact of community supported agriculture (CSA) programs with regard to food insecurity and related health behaviors of participants is limited.

Methods

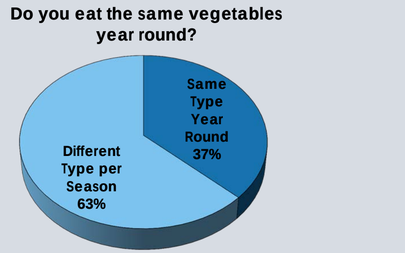
- Population: Participants of the VYCC Health Care Share Program (CSA) that were initially identified as food-insecure by their healthcare providers.
- Survey: Adapted from the National Cancer Institute's Food Attitudes and Behaviors (FAB) Survey:
  - Included 30 questions to assess demographics, food security and health behaviors
  - Distributed in a weekly CSA share to a total of 230 families
  - A total of 50 responses were received

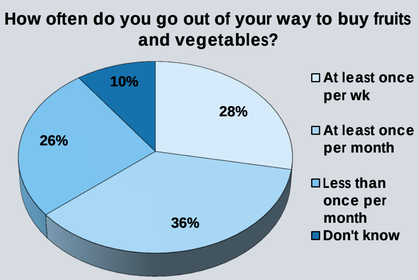
Population Demographics

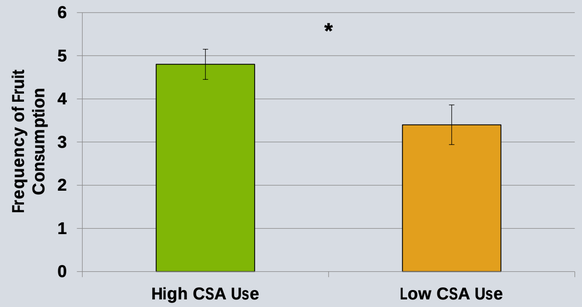


Results

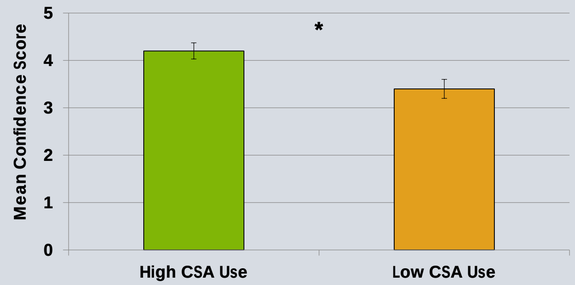
- A statistically significant increase in mean fruit consumption ($p = 0.017$) and mean healthy eating confidence scores ($p = 0.005$) was found for individuals who reported CSA use of more than once per month as compared to individuals who reported CSA use of less than once per month.
- Mean vegetable consumption and frequency of physical activity was not significantly different between individuals with high vs. low CSA use.







High CSA use = individuals who reported use of a CSA > 1x per month
Low CSA use = individuals who reported use of a CSA < 1x per month
Fruit consumption: 1= 1-2 times last month, 2 = 1-2 times per week, 3 = 3-4 times last week, 4 = 5-6 times per week, 5 = once per day, 6 = 2 times per day , 7 = 3 times per day, 8 = 4 times per day, 9 = 5 or more times per day



Mean healthy eating confidence scores were calculated using responses to 7 questions which assessed a respondents' confidence for making healthy eating choices. Questions were scored from 1-5 (a score of 1 meaning not at all confidence and a score of 5 meaning very confident).

References

1.MacMillan Uribe, Alexandra, Donna Winham, and Christopher Wharton. *Community supported agriculture membership in Arizona. An exploratory study*. Elsevier 59 (2012): 31-436.

2.Vanhorn, L., M. Mccoin, P. Krisetherton, F. Burke, J. Carson, C. Champagne, W. Karmally, and G. Sikand. "The Evidence for Dietary Prevention and Treatment of Cardiovascular Disease." Journal of the American Dietetic Association 108 (2008): 287-331.

3.Jenkins, David, and Cyril Kendall. "Diet and Cholesterol Reduction." Annals of Internal Medicine 142 (2005): 793-95.

4.Gardner, C., A. Coulston, and L. Chatterjee. "The Effect of a Plant-Based Diet on Plasma Lipids in Hypercholesterolemic Adults." ACC Current Journal Review 14 (2005): 12-13.

5.Jenkins, D. J. A. "Effects of a Dietary Portfolio of Cholesterol-Lowering Foods vs Lovastatin on Serum Lipids and C-Reactive Protein." JAMA: The Journal of the American Medical Association 290 (2003): 502-10.

6.Lloyd-Jones, D. M., Y. Hong, D. Labarthe, D. Mozaffarian, L. J. Appel, L. Van Horn, K. Greenlund, S. Daniels, G. Nichol, G. F. Tomaselli, D. K. Arnett, G. C. Fonarow, P. M. Ho, M. S. Lauer, F. A. Masoudi, R. M. Robertson, V. Roger, L. H. Schwamm, P. Sorlie, C. W. Yancy, and W. D. Rosamond. "Defining and Setting National Goals for Cardiovascular Health Promotion and Disease Reduction: The American Heart Association's Strategic Impact Goal Through 2020 and Beyond." Circulation 121 (2010): 586-613.

7.Van Duyn, M. "Overview of the Health Benefits of Fruit and Vegetable Consumption for the Dietetics Professional Selected Literature." Journal of the American Dietetic Association 100 (2000): 1511-521.

8.Kropf, M., D. Holben, J. Holcombjr, and H. Anderson. "Food Security Status and Produce Intake and Behaviors of Special Supplemental Nutrition Program for Women, Infants, and Children and Farmers' Market Nutrition Program Participants." Journal of the American Dietetic Association 107 (2007): 1903-908.

9.Mcaleese, J., and L. Rankin. "Garden-Based Nutrition Education Affects Fruit and Vegetable Consumption in Sixth-Grade Adolescents." Journal of the American Dietetic Association 107 (2007): 662-65.

10.Blanck, Heidi M., Linda Nebeling, Amy Yaroch, and Olivia Thompson. "Improving Fruit and Vegetable Consumption: Use of Farm-to-Consumer Venues Among US Adults." Preventing Chronic Disease A49 8 (2011).

Discussion

- According to Healthy Vermonters 2020, only 38% of Vermont's population reported eating 2 or more servings of fruit per day and only 30% reported eating 3 or more servings of vegetables per day. These results highlight the importance of implementing programs that promote healthy eating in our state.
- A statistically significant increase in mean fruit consumption and mean healthy eating confidence scores among frequent CSA users suggests a positive and frequency-dependent impact of CSA use on both food security and healthy eating behaviors.
- For food insecure individuals, CSA share programs may therefore improve health outcomes by serving as a tool for improving access to nutritious foods and encouraging healthy eating behaviors.

Future Directions

Recommendations for future analysis to guide improvement of the Health Care Share Program:

- Distribute surveys at both the onset and conclusion of the CSA share delivery
- Distribute surveys to a control population of similar demographics who also identify as food insecure, but who are not receiving weekly CSA shares
- Assess the subgroup of CSA share recipients who attended the optional cooking classes provided by the VYCC
- Engage healthcare providers to link frequency of CSA participation with health outcomes (e.g. BMI, blood pressure)

Acknowledgements

Thank you to Paul Feenan, Olivia Bulger, Breck Knauft, and the entire staff of the Vermont Youth Conservation Corps; Thomas Delaney PhD for help with statistical analysis; and Jill Jemison for her guidance and leadership throughout this entire process.