

Impact of a Food Access and Education Program on Health and Behaviors

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Background

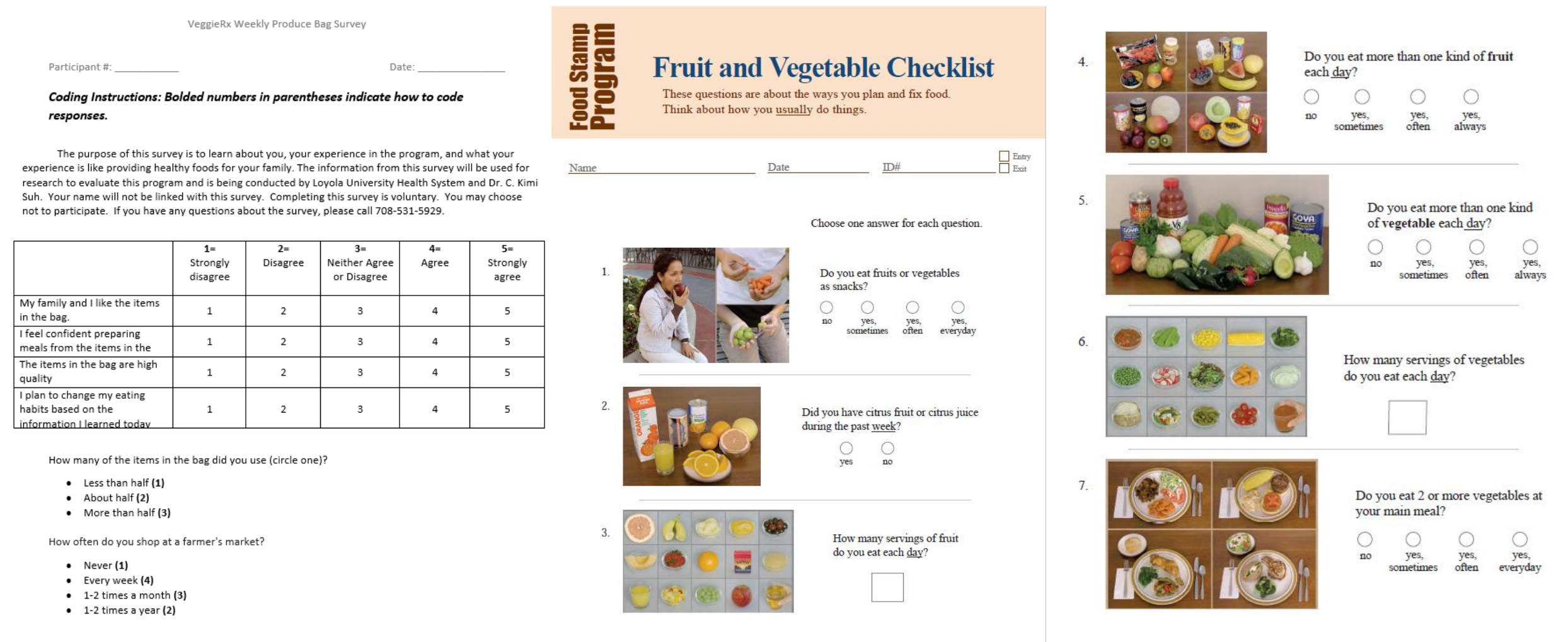
Food insecurity (FI) affects over 800 million individuals worldwide(8) and is associated with an increased risk of poor emotional well-being, as higher levels of reported FI have been associated with psychological distress(18). Over half a million individuals in Cook County are food insecure; the largest population in Illinois(7), making it difficult to meet the daily recommendation of 2 cups of fruits and 2.5 cups of vegetables(15). VeggieRX is a program that provides access to free and low-cost locally grown produce to residents of Maywood, IL and the surrounding communities in Cook County. The program integrates nutrition education, cooking demonstrations, and discussion regarding personal experiences around food and health. This study measured FI, self-reported stress, self-reported health, objective health data, and dietary behavior.

Methodology

Over 23 weeks from June to November 2019, participants received an approximately 7 lb bag of produce, a cooking demonstration, nutrition education, taste testing, and an opportunity to share their experiences with food and nutrition. Participants in the study completed paper surveys.

Evaluation
 - Visit 1, 5, 10, 15 & 20: **Participant survey:** 2 question FI screener based on the US Household Food Security Survey, self-reported physical health, self-reported ease of accessing healthy foods in Maywood, Perceived Stress Score 14-item (PSS-14) survey to measure stress + **Fruit and Vegetable Checklist:** assessment of dietary consumption of fruits and vegetables.
 - Visits 2 and after: **VeggieRX Weekly Produce Bag Survey:** assessment of experience around produce bags.
 - Health information, such as blood pressure and body mass index (BMI), were collected from the electronic medical record from within 1 year prior to the start and conclusion of the program.

Analysis
 Descriptive statistics, Spearman's Rank-Order Correlation, Wilcoxon Signed Ranks Test, Mann-Whitney U Test, McNemar Test and paired t-test were completed using IBM SPSS Statistic version 26.



VeggieRx Weekly Produce Bag Survey

Participant #: _____ Date: _____

Coding Instructions: Bolded numbers in parentheses indicate how to code responses.

The purpose of this survey is to learn about you, your experience in the program, and what your experience is like providing healthy foods for your family. The information from this survey will be used for research to evaluate this program and is being conducted by Loyola University Health System and Dr. C. Kimi Suh. Your name will not be linked with this survey. Completing this survey is voluntary. You may choose not to participate. If you have any questions about the survey, please call 708-531-9929.

	1= Strongly disagree	2= Disagree	3= Neither Agree or Disagree	4= Agree	5= Strongly agree
My family and I like the items in the bag.	1	2	3	4	5
I feel confident preparing meals from the items in the bag.	1	2	3	4	5
The items in the bag are high quality.	1	2	3	4	5
I plan to change my eating habits based on the information I learned today.	1	2	3	4	5

How many of the items in the bag did you use (circle one)?

- Less than half (1)
- About half (2)
- More than half (3)

How often do you shop at a farmer's market?

- Never (1)
- Every week (4)
- 1-2 times a month (3)
- 1-2 times a year (2)

Fruit and Vegetable Checklist

These questions are about the ways you plan and fix food. Think about how you usually do things.

Name: _____ Date: _____ ID#: _____ Easy Easy

Choose one answer for each question.

1. Do you eat fruits or vegetables as snacks?
 no yes, sometimes yes, often yes, everyday

2. Did you have citrus fruit or citrus juice during the past week?
 yes no

3. How many servings of fruit do you eat each day?

4. Do you eat more than one kind of fruit each day?
 no yes, sometimes yes, often yes, always

5. Do you eat more than one kind of vegetable each day?
 no yes, sometimes yes, often yes, always

6. How many servings of vegetables do you eat each day?

7. Do you eat 2 or more vegetables at your main meal?
 no yes, sometimes yes, often yes, everyday

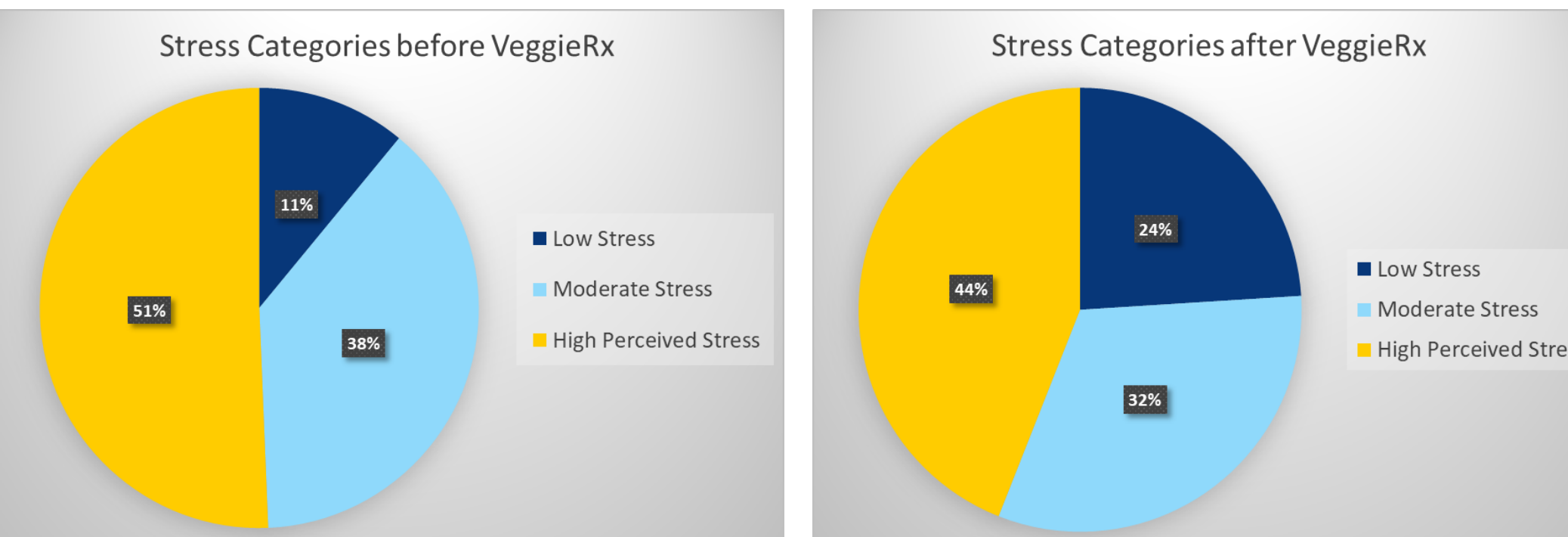
Results

83 participants were eligible for analyses in the study (R:18-83, M:54.5, SD:14.5). Most of the participants were female (86.7%). Ethnicity of the participants: African American (64.3%), Hispanic/Latinx (19%), White (11.9%), Asian (1%) and American Indian (1%).

Prevalence of FI was 86.7% and almost all participants reported at least one or more barriers to eating fresh fruits and/or vegetables (98.8%). SNAP enrollment was 60.7%. Higher perceived stress was significantly, positively correlated with: lower food access ($p=0.255$; $p=0.034$), lower self-reported health ($p=0.526$; $p>0.001$), and increased challenges to eating fresh fruits and vegetables ($p=0.240$; $p=0.041$). After participation in VeggieRx, prevalence of FI decreased to 75%, food access significantly increased ($Z = -2.15$, $p = 0.032$), number of barriers to eating fresh produce significantly decreased ($Z= -3.26$; $p=.001$), and self-reported health improved. Participants that had one or no challenges to eating fresh fruits and vegetables had lower BMI ($p=0.027$), lower diastolic blood pressure ($p=0.039$) and lost weight ($p=0.024$) compared to those who faced two or more challenges.

Participants were also partitioned into a low frequency (5-9 attendances, $n=14$) and high frequency (10 and greater attendances, $n=13$). Participants in the high frequency group reported greater willingness to make dietary changes ($p=0.037$, high mean rank 20.83, low mean rank

13.9, $U=68$), used more items in the bag ($p=0.028$, high mean rank 21.13, low mean rank 13.73, $U=64.5$) and approached significance for greater confidence in preparing meals from the items in the bag ($p=0.055$, high mean rank 20.5, low mean rank 14.1, $U=72$).



Conclusion

FI has been shown to increase the risk of poor emotional health and vice versa(2). The unique structure of VeggieRx, which allows it to facilitate community engagement likely contributes to improved health outcomes, lower stress, reduced barriers to eating fresh produce, and positive dietary behavioral changes. These results show that nutrition and education programs like VeggieRX can have a positive impact on the community and therefore benefit food insecure populations. Future analyses on the impact of COVID-19 on food insecurity and the social benefits of VeggieRX can be explored.

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