The Effects of a Community- and Clinical-Based Fruit and Vegetable Prescription Program (FVRx®) with Expanded Nutrition Education for Low-Income Individuals

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BACKGROUND

- Food insecurity is associated with reduced diet quality and chronic disease mismanagement.
- Typically, FVRx programs provide free and fresh produce prescriptions for low-income families and local produce initiatives and nutrition education.
- The 2017 Pilot Athens FVRx Program demonstrated produce prescription programs combined with tailored nutrition education improved multiple behaviors supportive of the purchase and consumption of local fruits and vegetables.
- However, changes in food security and health outcomes were limited when compared to a control group.
- Financial and food management resources are associated with food security behaviors and outcomes.
- To improve food security outcomes the 2018 Athens FVRx Intervention expanded from one SNAP-Ed curriculum (2017) to two SNAP-Ed programs and one financial literacy program in community and clinic settings.

STUDY OBJECTIVE

To examine the effects of an FVRx program with expanded nutrition education and financial literacy education on nutrition and clinical outcomes in low-income adults.

METHODS: STUDY DESIGN

- Non-randomized controlled trial (Figure 1)
- Intervention: Six-month FVRx program
  - Produce prescription: Redemable 1/day for household member (per week) at Athens Farmers Market
  - Nutrition education program: Two University of Georgia SNAP-Ed Direct Education Curriculum
  - Financial literacy program: University of Georgia Extension Services
  - Health Screening: Clinical lab and biometric assessments by the Athens Nurses Clinic
- Study Sample and Recruitment
  - Eligibility: 18 years of age or older, 2 SNAP-eligible or food insecure, and 3 more diet-related chronic conditions (i.e. overweight and obesity, diabetes, pre-diabetes, hypertension, and hyperlipidemia)
- Intervention (FVRx) group: Purposeful sampling at one safety-net clinic, and the two community partner implementation sites
- Control group: Purposive sampling at partnering safety-net clinic sites following FVRx intervention enrollment
- Nutritional Education group: Conveneance sampling at UGA SNAP-Ed Direct nutrition education programming in Barlow and Gilder counties.

METHODS: DATA ANALYSIS

- Descriptive analyses were conducted for participant characteristics.
- To determine the differences between or within intervention and comparison groups, one-way ANOVA (continuous variables) and chi square test or Fisher’s Exact test (categorical variables) were used.
- IBM SPSS Statistics for Windows (Version 24, Armonk, NY: IBM Corp.)
- P values were set at <0.05 (indicated by *).

RESULTS

- Participant Characteristics (Table 3)
  - A final cohort of 43 participants included: FVRx (31, NE 10, and Control 16). The final analytic sample (n=36) were 35 (98.0%) female, 90.6%), food insecure (58.3%), and uninsured (69.4%).

Table 3. Participant Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Intervention (n=36)</th>
<th>Nutrition Education (n=9)</th>
<th>Control (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age in years</td>
<td>44.8 ± 2.20</td>
<td>44.8 ± 2.20</td>
<td>44.8 ± 2.20</td>
</tr>
<tr>
<td>Body Mass Index</td>
<td>30.0 ± 4.00</td>
<td>30.0 ± 4.00</td>
<td>30.0 ± 4.00</td>
</tr>
<tr>
<td>Blood Pressure</td>
<td>124.3 ± 6.1</td>
<td>124.3 ± 6.1</td>
<td>124.3 ± 6.1</td>
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- Fruit and Vegetable Intake: FVRx participants significantly increased the frequency of consuming vegetables (once a day, once a week) by 22.2%, especially 'Dark Green' vegetables.
- Food Security: The FVRx Intervention group significantly increased (30%) self-reported food security (p<0.05), however this did not remain significant against the comparison groups.
- Food Purchasing Practices, Attitudes, and Knowledge: FVRx group significantly increased the purchase, preference and consumption of local and seasonal fruits and vegetables, purchased more fresh vegetables, and purchased majority of fruits and vegetables at the Farmer’s Market (all p<0.05).
- Significant outcome findings indicated an increased ability to afford more bills last month (p<0.05).

RESULTS, CONT'D

- Clinical Assessments: FVRx group significantly improved HDL cholesterol compared to the Control group following the intervention period (3.83 ± 3.93 vs. 2.5 ± 7.05, p<0.01).
- No other significant changes in clinical or biometric outcomes between groups.

CONCLUSIONS AND DISCUSSION

- Produce prescription combined with nutrition and financial literacy education improved financial resources, nutrition knowledge and healthy food purchasing practices as key elements of food security and diet quality.
- Produce prescription and incentive programs using local food systems should consider use of nutrition education to support food insecurity and chronic outcomes.
- Although our study design and sampling limited comparability across groups, use of ad-hoc Nutrition Education group expand and strengthen future findings.
- Future research should consider intervention, study design, and sampling strategies to improve health outcomes for specific chronic disease processes.

REFERENCES


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