Assessing optimal nutrition education dosage and long-term behavior change retention in SNAP-Ed participants

Executive Summary for the Extension Directors/ Administrators @ Land-Grant University System through Land-Grant SNAP-Ed Office Assessment

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Improving SNAP-Ed Study: Executive Summary

INTRODUCTION

The education component of the Supplemental Nutrition Assistance Program (SNAP-Ed) across the U.S. does not have a standardized or recommended program design. The number of lessons and the overall program delivery varies from one state to the next and even within individual states. States implement their nutrition education interventions based on their own criteria, especially with regard to the number of lessons to be administered. An extensive literature review has shown that there is a very limited amount of information published on the dosage of nutrition education lessons needed to achieve behavior change as well as the long term retention of the changed behaviors. Due to this lack of knowledge, research-based evidence is needed in order to support the recommendation of promoting program series over one-lesson classes. The objectives of this study were two-fold: (1) to determine whether variation in nutrition education dosage results in differences in behavior change related to fruit and vegetable consumption among SNAP-Ed participants using different dosages of nutrition education (one, three, or six lessons) and (2) to determine if behaviors related to fruits and vegetables consumption among SNAP-Ed participants are retained six months after the intervention (six lessons).

MATERIALS AND METHODS

The study was conducted using a one-group retrospective pre-test/post-test design. All participants received the nutrition education intervention. A convenience sample of low-income parents were recruited from a variety of agencies and establishments that serve the food assistance benefits population (e.g. WIC offices, food pantries, churches, SNAP offices, etc.) in five counties throughout Ohio. Adults age 18-59 with at least one child between the ages of 0-17 living in the household, who were SNAP eligible (combined family income of <185% of federal poverty level), and who had not previously taken a nutrition education class on fruits and vegetables in the past six months were eligible for the study. Of the 84 participants who were recruited, 66 (79%) completed the study. Criteria for completing the study included missing not more than one lesson and not missing any data collection days. In addition, a subset of completers were invited via telephone to participate in a six-month follow-up to determine the extent to which behaviors relating to fruit and vegetables consumption were still being practiced. Thirty-four completers (52%) returned questionnaires. The Institutional Review Board of The Ohio State University approved the study protocol.

Instruments

Participants were asked to complete a 10-item demographic questionnaire that asked information about age, gender, food assistance program use, race, ethnicity, number of people living in the household according to age group, and food insecurity. Self-reported behaviors relating to the consumption of fruits and vegetables at baseline, after one lesson, after three lessons, and after six lessons were measured using two questionnaires: the Ohio Fruits and Vegetables Retrospective Survey (six items) and the Townsend Food Behavior Checklist – Fruit and Vegetable Subscale (seven items).

Participants for the six-month follow-up completed a packet containing the Ohio Fruits and Vegetables Retrospective Survey, the Townsend Food Behavior Checklist – Fruit and Vegetable subscale, and a set of written instructions for completing and returning the surveys.

RESULTS

Demographics

Participants were primarily white (96%), non-Latino (97%) women (99%). Eight-five percent of the participants reported use of SNAP benefits. The subset of participants completing the six-month follow-up shared similar demographic characteristics as the sample completing the intervention and was thus considered to be representative of the larger sample.

Self-Reported Behaviors

The results for the four indicators ("Eat fruits and vegetables of different *colors* each day," "Eat at least one kind of *vegetable* each day," "Eat at least one kind of *fruit* each day," and "Eat fruits and vegetables as *snacks*"), show a higher degree of self-reported behaviors after each lesson when compared to baseline ($p<0.001$).

For the indicators "Eat fruits and vegetables of different *colors* each day" and "Eat more than one kind of *fruit* each day," the mean self-reported behavior scores were significantly higher after 1 lesson compared to baseline ($p<0.005$); after 3 lessons compared to baseline ($p<0.001$); after 6 lessons compared to baseline ($p<0.001$); after 3 lessons compared to after 1 lesson ($p<0.05$); and after 6 lessons compared to after 1 lesson ($p<0.001$). The difference in self-reported behavior was not significant for these two indicators after 6 lessons compared to after 3 lessons ($p>0.05$).

For the indicator "Eat more than one kind of *vegetable* each day," the mean self-reported behavior scores were significantly higher after 1 lesson compared to baseline ($p=0.026$); after 3 lessons compared to baseline ($p=0.002$); after 6 lessons compared to baseline ($p<0.001$); after 6 lessons compared to after 1 lesson ($p<0.001$); and after 6 lessons compared to after 3 lessons ($p=0.013$). The difference in self-reported behavior was not significantly different after 3 lessons compared to after 1 lesson ($p=0.253$).

For the indicator "Eat fruits and vegetables as *snacks*," the mean self-reported behavior scores were significantly higher after 1 lesson compared to baseline ($p<0.001$); after 3 lessons compared to baseline ($p<0.001$); after 6 lessons compared to baseline ($p<0.001$); and after 6 lessons compared to after 1 lesson ($p<0.001$). The difference in self-reported behavior was not significant after 3 lessons compared to after 1 lesson ($p=0.170$) or after 6 lessons compared to after 3 lessons ($p=0.202$).

The six-month follow-up results for all four indicators showed that the behavior scores reported at the end of the intervention (6 lessons) and at the six-month follow-up were significantly higher than baseline ($p < 0.001$) (Table 3 and Figure 2). Behavior scores reported at the end of the intervention (6 lessons) and the six-month follow-up were not statistically different ($p \geq 0.05$).

Net Behavior Change

Net behavior change (mean differences) between baseline and each post-test time interval (after 1 lesson, after 3 lessons, and after 6 lessons) were significantly different for all four indicators ($p<0.001$).

For the indicator "Eat more than one kind of *vegetable* each day," the results showed significantly higher net behavior change after 6 lessons compared to after 3 lessons ($p=0.006$) as well as compared to after 1 lesson ($p<0.001$). There was not a significant difference in net behavior change after 3 lessons compared to after 1 lesson ($p=0.127$).

For the indicator "Eat fruits and vegetables as *snacks*," the only net behavior change was seen after 6 lessons compared to after 1 lesson ($p<0.001$).

DISCUSSION

The results of this study suggest a dose response after a nutrition education intervention with up to 6 lessons in fruit and vegetable consumption in SNAP-Ed participants. With respect to baseline, all indicators showed improvement in behavior after one lesson and again after three lessons and six lessons. Additional behavior change was seen for some indicators between 1 and 3 lessons. Furthermore, all of the indicators showed significant differences in behavior change between 1 and 6 lessons, with the "vegetable" indicator showing significant behavior change between 3 and 6 lessons. Net behavior change relative to baseline for all indicators showed an increasing trend and was significantly different across number of lessons. These results suggest that behavior change is affected when SNAP-Ed participants attend more than one lesson on fruits and vegetables, and that after six lessons, a higher degree of self-reported behavior change is achieved relative to that after one lesson or even after three lessons.

The results of the six month follow-up portion of the study illustrate that participants were able to successfully maintain the behaviors six months after the intervention. All of the indicators showed consistent results (no differences) at the end of the sixth lesson and six months post-intervention. This study did not determine if participants would maintain behaviors if they completed less than 6 lessons.