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Recommended Citation

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**Effectiveness of the URI Senior Nutrition Awareness Project (SNAP)
Nutrition Education Programs with Older Rhode Islanders**

Senior Honors Project

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Abstract

SNAP is a federally-funded, free community nutrition program administered through the RI Supplemental Nutrition Assistance Program—Education (SNAP-Ed), housed in the URI Department of Nutrition and Food Sciences. SNAP targets low-income older adults throughout Rhode Island, educating about 250 individuals each month. A monthly topic of current interest is addressed using an appropriate newsletter, recipe, and interactive component that are delivered at various senior centers and other venues.

As the SNAP undergraduate program assistant since September 2009, I have had the opportunity to create nutrition education materials and to assist in the delivery of community nutrition programming to low-income older adults. Evaluation of program impact is a requisite component of this federal program. For my senior honors project, I compiled SNAP program evaluation data and statistically analyzed its significance using SPSS.

The results of this analysis of months of data indicate that SNAP programs are highly effective, in both the short term (at one month) and in the longer term (3-6 months later) as participants indicate that knowledge and positive nutrition behaviors persist, post-education. The older adults who attend the programs change a variety of lifestyle behaviors which improve overall health and wellness. This evidence illustrates the importance of community nutrition-based programs and their potential and positive significant impact on the health of vulnerable older adults.

Introduction

Older Americans are often portrayed as reluctant to change habitual health behaviors, which helps to explain why fewer health promotion initiatives exist for this age group than for other age groups (1). However, older adults are in desperate need of education for disease

prevention and improving health status. According to the National Health and Nutrition Examination Survey (NHANES) 2005-2006, 68.6 percent of adults aged 60 and older are overweight or obese and 30.5 percent are obese (defined as having a Body Mass Index of ≥ 25 and ≥ 30 , respectively) (1). Increased age and obesity are both risk factors for chronic health conditions, including cardiovascular diseases, diabetes mellitus, hypertension, various cancers, and numerous others (1). Approximately 80 percent of Americans aged 65 years or older have one or more chronic health conditions and 50 percent have two or more chronic conditions (2). Treatment of such conditions is expensive and a major contributor to escalating healthcare costs in this country; a recent estimate implicates expenses attributable to overweight and obesity at nine percent of total healthcare costs (1).

A healthy lifestyle that includes a nutritious diet and regular physical activity is known to help prevent the onset of many chronic health complications. Nutrition is also one of the major factors of successful aging, which is defined as the ability to maintain a low risk of disease, high mental and physical functioning, and active engagement of life (2). Thus, dietetics professionals are uniquely qualified to assist older adults improve health status and health-related quality of life. A sound understanding of nutrition is especially imperative for older adults because they have unique dietary needs. Both energy intake and quantity of food decrease over the aging process, but multiple micronutrients' needs increase. This means that older adults need to consume a larger amount of nutrients in a smaller quantity of food, which poses a challenging problem. Specific nutrients of concern in the aging population are fiber, calcium, vitamin D, vitamin B12, and fluids (2). Most older Americans do not meet their nutritional needs; the Healthy Eating Index found that 83 percent of older adults do not consume a good quality diet (2). Poor diet quality and a deficit of nutrition knowledge leave this population more vulnerable

to developing health ailments. Low-income older adults have even higher risks of poor diet quality, malnutrition, and chronic health complications.

The growing number of older adults, the shifting focus of healthcare on disease prevention, and the current health crisis in the United States clearly illustrate the need for nutrition education in this country (3). Yet, community food and nutrition programs are too often disregarded, taken for granted, underfunded, and under-recognized. Such programs specifically designed for older adults are limited, which is a grave concern considering that these programs could help improve nutritional status and successful aging (3). The Older Americans Act (OAA) Nutrition program is the largest federal food and nutrition program specifically designed for the elderly (3). OAA services are targeted to rural, low-income, and minority older adults and provide individuals aged 60 or older with home-delivered meals. The Supplemental Nutrition Assistance Program, formerly the Food Stamp Program, is the largest national food assistance program. Eligible participants of any age receive electronic benefit cards that allow them to purchase foods at authorized stores. Each state has the option to offer nutrition education to participants regarding healthy food choices, but a specific target audience is not identified for this (3).

In the state of Rhode Island, the SNAP-Ed Program is coordinated by the University of Rhode Island and has two offices in Providence and Kingston. The Kingston office houses the Senior Nutrition Awareness Project (SNAP), which targets low-income older adults as the primary audience and educates about 250 individuals each month. A monthly topic of current interest is addressed using an appropriate newsletter, recipe, and interactive component that are delivered at various senior centers and other venues throughout the state. As the SNAP undergraduate program assistant since September 2009, I have had the opportunity to create

nutrition education materials and to assist in the delivery of community nutrition programming to low-income older adults. Evaluation of program impact is a requisite component of this federal program. For my senior honors project, I compiled SNAP program evaluation data and statistically analyzed its significance using SPSS.

Methodology

An evaluation was created for each monthly topic from September 2010 to April 2011 and distributed at each senior center following the program. The evaluations consisted of two behavior change questions about the preceding month's topic, inquiring if changes were made and if so, what specific behaviors were altered. The third and final question asked if participants planned to make changes based on the program presented that day. The only exception to this format was the evaluation for the month of April, which posed a six-month follow-up question, three-month follow-up question, one-month follow-up with specific behavior changes, and one final question about making future changes.

Over the course of eight months, a total of 982 evaluations were collected. Each question was coded as a variable and each response was numerically coded according to the following system: 0 or 2 = No, 1 = Yes, 3 = Maybe, 4 = Did Not Attend. For questions that were unintentionally skipped, the code 98 was used. For questions that were intentionally skipped, such as specific behavior changes for a participant who did not make any changes, the code 99 was used. All of this data was entered into Microsoft Excel and then input to SPSS statistical analysis program. Frequency tests were run on each set of monthly data as a whole and again when the data was split by senior center.

Results

In September 2010, a total of 91 evaluations were collected. The topic was *Brain Food* and the newsletter provided information on a few foods that specially benefit brain functioning. On the evaluation, participants were asked if they would try to increase their consumption of “brain foods” and responded by checking yes, no, or maybe. Participants were then asked what specific foods they would try to increase in their diets: blueberries, salmon, almonds, and/or red apples. Of the 91 participants, 86 (94.5%) stated they would try to add more brain foods to their diet, four (4.4%) checked maybe, and one (1.1%) checked no. Seventy-five participants (82.4%) reported they would try to add more blueberries to their diets, 49 (53.8%) reported they would try to increase their intake of salmon, 57 (62.6%) stated they would try to eat more almonds, and 80 (87.9%) reported they would try to eat more red apples.

When we returned in October for the one-month follow-up, some participants reported they did not attend the previous month’s program and skipped the follow-up question. However, 109 individuals responded to the question, “Over the past month, did you add more ‘brain foods’ to your daily diet?” even though only 91 participants were present in September. Eighty-six participants (78.9%) reported adding more brain foods, 19 (17.4%) stated they might have added more brain foods to their diets, and four (3.7%) stated they did not increase their consumption of any brain foods. Seventy-one individuals (63.9%) reported adding blueberries, 41 participants (36.9%) added salmon, 41 participants (36.9%) added almonds, and 82 (74.5%) added more apples to their diets.

In October 2010, a total of 128 evaluations were collected. The topic was *Dining Out Healthier* and the newsletter discussed several tips to make restaurant meals more healthy. On the evaluation, participants were asked if they would try to making healthier choices when they

ate out. One hundred and fifteen individuals (89.8%) checked yes, 12 (9.4%) checked maybe, and one (0.8%) checked no. When we returned in November for the follow-up, 136 participants responded to the question, “Over the past month, did you make healthier choices when you dined out?” Of that total, 122 (89.7%) reported they did make healthier choices, nine (6.6%) checked maybe, and five (3.7%) checked no. Sixty-five individuals (47.8%) reported splitting a meal, 79 (58.1%) ordered dressing on the side, 103 (75.7%) limited table salt, 58 (42.6%) shared a dessert, and 107 (78.7%) chose vegetables, salad, or baked potato as a side dish.

In November 2010, we collected a total of 139 evaluations. The topic was *A Dollar Goes a Long Way* and the program focused on ways to reduce expenses before and while grocery shopping. On the evaluation, participants were asked if they would try to plan ahead and look for the best deals when they went food shopping. One hundred and thirty-two (95.0%) responded yes, four (2.9%) responded maybe, and three (2.2%) responded no. For the one-month follow-up in December, participants were asked if they did plan ahead and look for the best deals, and if so, what methods they used. Out of the 101 individuals who responded, 83 (82.2%) checked yes, 12 (11.9%) checked maybe, and six (5.9%) checked no. Seventy (69.3%) reported cutting coupons, 81 (80.2%) made a grocery list, 69 (68.3%) checked expiration dates on packages, 66 (65.3%) purchased store brand items, 62 (61.4%) bought canned or frozen foods, and 62 (61.4%) avoided shopping hungry.

In December 2010, a total of 115 evaluations were collected. The topic was *Healthy Holiday Goodies* and the program suggested ways to eat healthy at holiday parties. On the evaluation, participants were asked if they would try to make healthier choices when attending holiday parties. One hundred individuals (87.0%) checked yes, 11 (9.6%) checked maybe, and four (3.5%) checked no. For the one month follow-up in January, the evaluation asked if the

participants made healthier choices at holiday parties, and if so, what methods they used. One hundred and seven individuals responded to this question and 79 (73.8%) checked yes, 12 (11.2%) checked maybe, and 16 (15.0%) checked no. Fifty-seven (53.3%) reported avoiding going to the party hungry, 43 (40.2%) brought or made a healthy dish, 60 (56.1%) used their nutrition knowledge to make healthy choices, 50 (46.7%) filled half of their plates with vegetables, and 68 (63.0%) drank water more often.

In January 2011, a total of 133 evaluations were collected. The topic was *The New My Pyramid* and the program focused on the food groups, amounts needed, what counts as a serving, and the importance of variety. On the evaluation, participants were asked if they would try to eat a variety of foods from all the food groups. One hundred and eighteen (89.4%) responded yes, ten (7.6%) responded maybe, and four individuals (3.0%) responded no. At the one month follow-up in February, the evaluation asked if the participants ate a variety of foods and if so, which food groups they ate from. This was the first month participants were given the option to select “I did not attend” for the follow-up question. Out of 65 responses, 55 (84.6%) checked yes, six (9.2%) checked maybe, and four (6.1%) checked no. Forty-five (70.3%) reported eating from the grain group, 48 (75.0%) reported eating from the vegetable group, 50 (78.1%) reported eating from the fruit group, 43 (67.2%) reported eating from the dairy group, and 40 (62.5%) reported eating from the protein group.

In February 2011, only 80 evaluations were collected in total. This low count was due in part to inclement weather that resulted in the cancellation of a few programs. The topic for February was *Breakfast Matters* and the program emphasized the importance of a complete breakfast. On the evaluation, participants were asked if they would try to have a complete breakfast everyday. Sixty-eight (86.1%) individuals responded yes, ten (12.7%) responded

maybe, one (1.3%) responded no, and one person missed the question. On the one month post-evaluation, 130 participants responded to the question, “Over the past month, did you have a complete breakfast (at least three food groups) everyday?” Seventeen individuals reported they did not attend the previous month’s program. Of the remaining 113, 98 (86.7%) responded yes, nine (7.9%) responded maybe, and six (5.3%) responded no. When asked to circle the number of days in a week that they consumed breakfast, 51 (44.3%) responded seven days, 18 (15.7%) responded six days, 17 (14.8%) responded five days, and the remaining participants responded with four days or less.

In March, a total of 130 evaluations were collected. The featured topic was *Digest Your Best!* And the program offered simple suggestions to promote healthy digestion. On the evaluation, participants were asked if they would try to increase their intake of fiber, water, and/or amount of physical activity. Three individuals skipped the question, but of the remaining 127, 113 (89.0%) responded yes, 13 (10.2%) responded maybe, and one (0.8%) responded no. On the one month post-evaluation, participants were asked if they increased their intake of fiber, water, and or amount of physical activity. Of 160 respondents, 134 (83.7%) checked yes, 16 (10%) checked maybe, and ten (6.2%) checked no. Of those who answered yes or maybe, 91 participants (61.1%) reported increasing their fiber intake, 124 (83.2%) increased their fluid intake, and 87 (52.7%) increased their amount of physical activity.

In April, the final month of data collection, a total of 165 evaluations were gathered. The topic was *Farmers’ Markets* and provided information on the benefits of farmers’ markets and the optimal season to purchase various fruits and vegetables. On the evaluation, participants were asked if they planned on attending local farmers’ markets in the upcoming seasons. One individual skipped the question, but out of the remaining 164 responses, 130 (79.3%) participants

checked yes, 25 (15.2%) checked maybe, and nine (5.5%) checked no. Some individuals who checked no wrote that did not have transportation to the farmers' markets, but would go if possible. At this time, one month follow-up data is in the process of being collected for this question.

The April evaluation was unique because it not only included the one month follow-up and pre-test questions, but it also featured a six month and three month follow-up questions. The six month question referred back to the October program on *Dining Out Healthy*. Participants were asked if they had made healthier choices when dining out over the past six months. Three individuals skipped the question, but of the remaining 162 participants, 127 (78.4%) responded yes, 21 (13.0%) responded maybe, and 14 (8.6%) responded no. The three month question corresponded to the January program on *The New My Pyramid*. Participants were asked if they ate a variety of foods from different food groups over the past three months. One hundred and forty-five individuals (87.9%) responded yes, 11 (6.7%) responded maybe, and nine (5.5%) responded no.

Discussion

Looking at the results, the data shows that the programs are effective in both the short term (at one month) and in the longer term (3-6 months later) as participants indicate that knowledge and positive nutrition behaviors persist, post-education. The programs utilize methods that incorporate all learning styles: the newsletter for visual learners, the oral presentation for auditory learners, and the interactive component for kinesthetic learners. This allows all participants to learn in the way that is easiest for them, enhances retention of the subject matter, and may be a factor of the program's success. Preparing a healthy and tasteful recipe that corresponds to the subject illustrates that the suggested lifestyle behaviors are

realistic, feasible, and may even be enjoyable. This may also encourage participants to follow some of the suggestions to lead healthier lifestyles.

However, a small yet stubborn percentage of participants seem to be unwilling to make any dietary changes from month to month. As a free community program, the participants' motivations for attending the presentations are unknown. Under ideal circumstances, the seniors would attend programs due to interest in nutrition and to learn how to adopt healthier lifestyles. With a low-income elderly population, receiving a free food sample and incentive gift for attending the program may be the driving factors for some of the participants' attendance. Understanding the participants' reasoning for attending the programs is an essential aspect of motivating behavior change. Polling participants about their motivations may strengthen the program and assist the nutrition educators in providing the most relevant information.

The anonymity of the evaluations is a hindrance to measuring the successfulness of the program, even though it encourages honesty from the respondents. It is impossible to identify if the same participants are uninterested in making lifestyle changes from month to month and if the individuals who report they will attempt to make changes are those who actually do modify their nutrition behaviors one month later. This is further complicated when participants report behavior changes based on lessons they did not attend. For several months of evaluations, the number of participants who reported making changes after one month was greater than the number of individuals who attended the initial program. Although asking for names on evaluations could easily be implemented, participant compliance may decrease, fewer evaluations may be completed, and questions may not be answered truthfully if the evaluations are not anonymous.

When the data was sorted according to senior center, it became clear that SNAP is more effective at some locations than others. The Woonsocket, Pilgrim, and East Providence Senior Centers had the highest percentages of yes responses, indicating they were more willing to make changes following the programs and successfully sustained these modifications over time. These centers invite our program to present as a series of lectures on healthy aging. The nurse runs a weekly health workshop and features SNAP once a month for the nutrition lesson. The participants of this program are dedicated to attending weekly and clearly have a strong interest in educating themselves and improving their health. In addition, these programs are set in quiet, private rooms of the centers that are free of distractions and extraneous noise. The three centers that had the lowest percentages of yes responses were Federal Hill House, Feinstein, and Johnston Senior Centers. The settings do not offer a weekly general health workshop, just a nutrition presentation once per month. Additionally, these centers do not provide an ideal setting for learning to take place. At Federal Hill House, which had the lowest yes response rate, the room is divided by a thin accordion wall and shared with another group. Our program is certainly more effective as a part of an integrative health approach and in the appropriate setting.

There are several limitations to these findings. First, all of the evaluations are self-reported, which can decrease the accuracy of the results. Participants may be too embarrassed to answer questions honestly and may just select the answer they think is desired. It is also well-known that self-report questionnaires are subject to the participant's feelings at the time of completion, which limits the accuracy of responses. Second, all of the match sites serve a predominantly low-income population and the literacy level of the participants is unknown. They may have a limited reading ability and check answers at random or without comprehending the questions. Third, the evaluations are subject to misinterpretation. For example, on the

March evaluation a question asked if participants ate a complete breakfast (at least three food groups) everyday, to which 86.7 percent of participants responded yes. However, the follow-up question asked participants to circle how many days per week they consumed breakfast and only 44.3 percent answered seven days. Also, some participants may have reported drinking “plenty of fluids” on the April evaluation when in reality, they might not have consumed the recommended eight cups per day. Last, the number of respondents who report their changes at the one month follow-up is greater than the number of participants who attended the program. Thus, we cannot be certain if changes are made due to our program or external factors.

Overall, the programs are effective for the target audience and encourage participants to make healthy nutrition-related lifestyle modifications. SNAP would be more effective if all programs were presented in ideal settings, but this is beyond the capabilities of some of the match partners. Understanding the motivation of the participants and their specific health goals could also assist in making the program more successful and beneficial to the individuals who attend regularly. The results of the programs could be measured more accurately if evaluations were not anonymous, but this would compromise the truthfulness of responses. The results definitively illustrate that the SNAP program does inspire nutrition and physical activity behavior changes that can help improve the general health status of the participants.

Conclusion

The findings of this project clearly demonstrate the profound effect of the SNAP program and suggest the vital importance of all free community nutrition education programs for underserved populations. For many participants, these programs are the sole source of reliable nutrition information from a Registered Dietitian and SNAP-Ed is the only such program in most states. Unfortunately, community nutrition programs are often underfunded and under-

recognized, and are therefore limited in the number of individuals they can benefit. The growing aging population, the rise of chronic disease, and the focus on disease prevention rather than treatment all suggest an increased need for free community nutrition programs. However, in times of economic crises, such programs are among the first to lose funding. Proper budgeting for such programs has the potential to improve the health status of many citizens and reduce the nation's healthcare expenditures. Programs such as SNAP must continue to demonstrate their successes in an effort to prove their essentiality and receive the proper funding that is deserved.

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