Comparative Evaluation of Interactive, Facilitated-discussion and Indirect Nutrition Education Methods for SNAP-Ed Clients

Comprehensive Summary Report presented to SNAP-Ed Land Grant Universities Program

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Introduction

This project entitled *Comparative Evaluation of Interactive, Facilitated-discussion and Indirect Nutrition Education Methods for SNAP-Ed Clients* began in April 2009 and was completed in August 2010. The purpose of this project was to compare the effects of different educational interventions on the nutrition behaviors of low-income adults. Three nutrition education methods were compared: experiential, hands-on, interactive classes; facilitated-discussion classes without the hands-on learning component; and indirect nutrition education methods such as displays, taste testing and flyers.

This project built on knowledge gained through the implementation of *Nutrition College*—an adult nutrition education program developed collaboratively between a local food bank in Chattanooga, Tennessee and The University of Tennessee Extension Tennessee Nutrition & Consumer Education Program (TNCEP). TNCEP is a SNAP-Ed program in Tennessee. A nutrition educator provided hands-on education to *Nutrition College* participants to help teach healthy eating behaviors through interactive activities such as preparing and cooking their own food. Three month follow-up after class completion found that most participants reported positive changes in their nutritional behavior (Vineyard & Olson, 2008).

The results of *Nutrition College* supported previous research regarding the effectiveness of adult hands-on learning (Devine, Farrell, & Hartman, 2005; Jones, Nobles, & Larke, 2006). However, nutrition educators often face limitations in their ability to provide interactive classes like *Nutrition College* because of limited funds, restricted class time, and classroom space that is not adequate for cooking or food preparation. Thus, nutrition educators often use alternative methods to deliver information including facilitated discussion. Previous research has found that low-income audiences respond more favorably to experiential and facilitated educational interventions than to traditional lecture or one-on-one nutrition education (Abusabha, Peacock, & Achterberg, 1999; Devine et al., 2005; Moldofsky, 2000). In addition, indirect methods often are employed with this population because these materials are easy to distribute, reach a large number of people, are relatively inexpensive, and do not require a lot of staff resources. There is limited research that compares the effectiveness of different nutrition education methods so it is not clear if one delivery method is optimal in reaching and changing nutrition behaviors in low-income adults.

To address the issues discussed above, this project examined the following research questions:

1. Are there differences in intermediate nutrition behavior based on type of teaching method (interactive, facilitated discussion, indirect education)?
2. Are there differences in intermediate nutrition behavior based on intensity of follow-up (monthly follow-up versus no monthly follow-up)?
3. How effective are indirect interventions in changing nutrition outcomes?

Interventions

Three groups of adult SNAP-Ed participants were compared based on the type of nutrition intervention received: a series of three interactive lessons (Interactive Lesson Group); a series of three facilitated discussion classes (Facilitated Lesson Group); and a single indirect education contact at a commodity foods distribution site (Indirect Group). Existing peer-reviewed nutrition education materials were used whenever possible. The Interactive and the Facilitated Groups' lessons were adapted from the USDA *Loving Your Family Feeding Their Future* curriculum—a series of four lessons designed for low-income parents with children. County Extension Family and Consumer Science (FCS) Lead Agents assisted by TNCEP Program Assistants were responsible for recruiting SNAP-Ed participants and implementing the lessons in their county. For the Indirect Education group, FCS Lead Agents and TNCEP Program Assistants provided nutrition education materials during commodity food distributions. FCS Lead Agents receive SNAP-Ed funding each year to provide a variety of nutrition education programs and materials to SNAP recipients and eligibles in their counties. Lead Agents and TNCEP Program Assistants are required to attend several trainings throughout the year on nutrition topics as well as other topics such as working with adult audiences.

The project received human subjects' approval from The University of Tennessee's IRB process before implementation. Participation in the project was voluntary and signed consent forms were obtained from all participants. Participants were allowed to refuse to participate in the data collection without penalty.

Interactive Lessons

Interactive group participants were taught the *Nutritious & Delicious: A Recipe for Healthy Families* curriculum which emphasized healthy food choices through hands-on activities. *Nutritious & Delicious* was adapted from USDA's *Loving Your Family, Feeding their Future* curriculum by the Lead TNCEP Extension Agent for Hamilton County with the assistance of two nutrition student interns from The University of Tennessee Chattanooga. All materials were reviewed and revised as needed by the TNCEP Project Coordinator, Michelle Vineyard (the PI for this grant,) and the Expanded Food and Nutrition Education Program (EFNEP) Coordinator in Tennessee, Janie Burney (a Co-PI for this grant). Both the TNCEP and EFNEP Coordinators are registered dietitians with doctoral degrees in nutrition.

The original four lessons of *Loving Your Family* were consolidated into a series of three weekly lessons. The lesson outcomes focused on increased fruit and vegetable intake, effective food resource management, increased physical activity, and improved food safety techniques. Hands-on participant food preparation was included in two of the lessons and interactive physical activity was included in the third lesson. Each participant received a copy of *The Healthy Family Guidebook* as well as a variety of handouts and nutrition reinforcement items with each session. All reinforcement items cost less than $4 each to comply with SNAP-Ed guidance (USDA, 2009).

The lessons were intentionally designed to allow sufficient time for food preparation activities. Each session length was estimated to total 1 hour and 30 minutes to allow for food preparation and cooking times. (An outline of the lesson titles and a sample interactive lesson is included in Appendix A).

Facilitated Discussion Classes

The EFNEP Coordinator adapted the USDA's *Loving Your Family, Feeding Their Future* curriculum into a series of three weekly lessons for the facilitated discussion group participants. These lessons consisted of group discussions about eating a variety of fruits and vegetables, portion control, different physical activities parents can do with their children, and healthy recipes that participants could try at home. Participants were encouraged to talk about their experiences with a focus on identifying any challenges or barriers to healthy eating and potential solutions for those challenges. Modifications to the curriculum included consolidating Session 3 and Session 4 and rephrasing some of the discussion questions in the existing lessons. Each participant received a copy of *The Healthy Family Guidebook* as well as a variety of handouts and nutrition reinforcement items with each session. All reinforcement items cost less than $4 each to comply with SNAP-Ed guidance (USDA, 2009). Each session length was estimated to total 45 minutes to 1 hour. (An outline of the lesson titles and a sample facilitated lesson with highlighted modifications is included in Appendix B).

Indirect Nutrition Education

Participants at five commodity food distribution sites and one emergency food bank were exposed to indirect nutrition education including displays, taste tests, and handouts. Lead FCS Agents and TNCEP Program Assistants delivered the nutrition education information at these sites. This information focused on increasing fruits and vegetables in the diet, practicing food safety techniques such as cooking foods and storing foods at correct temperatures, and recipes for commodity foods.

Research Design and Implementation

This project had a quasi-experimental design that compared three groups of low-income adult participants. Twenty-four counties were selected to participate based on county demographics in an effort to reflect the diversity of the state. Twenty counties out of the 24 completed the project. The four counties who did not complete the project had issues with staffing, time conflicts, or difficulties recruiting low-income adults to participate in the classes. Of the counties that completed the project, eight delivered interactive classes, six delivered facilitated discussion classes, and six provided indirect education sites for data collection.

These 20 counties were divided randomly into two groups: 10 counties where participants received monthly follow-up newsletters and 10 counties with no monthly follow-up newsletters. Monthly newsletters were sent to all participants in 4 interactive counties, 3 facilitated discussion counties, and 3 indirect counties. Newsletters reinforced nutrition messages and contained recipes and information about local county events related to wellness. The purpose of the newsletter was twofold: to maintain participant interest in adopting and maintaining healthy nutrition behaviors; and for participant tracking to help increase follow-up survey response rates. (A sample newsletter is included in Appendix C).

For the Interactive Lessons and Facilitated Lessons Groups, Lead FCS Agents and TNCEP Program Assistants recruited participants to attend the lessons. This was done by placing flyers in the community and in the facility where the classes were to be held (e.g., the Health Department or the Adult Education Center), and through word-of-mouth.

For the Indirect Education Groups, participants were recruited by the TNCEP Evaluation Specialist (a Co-PI on this grant) and the TNCEP Evaluation Assistant during the commodity food distribution. Potential participants were asked to sign a consent form and complete a survey while they were waiting for the commodity food to be distributed. Participants who completed the surveys received a nutrition reinforcement item such as a cutting board or a vegetable peeler. All reinforcement items cost less than $4 each to comply with SNAP-Ed guidance (USDA, 2009).

Participants in all three groups were surveyed at three time points: baseline, 3 month follow-up and 6 month follow-up. In addition, participants in the interactive and the facilitated groups completed a short post-intervention survey at the end of the final class. Participants in the interactive and the facilitated groups did not receive incentives for completing the baseline or post-intervention surveys.

At 3 months and 6 months post-baseline, all participants were mailed a survey and a self-addressed stamped envelope. Participants received a letter asking them to complete the survey and mail it back. Participants who did not respond to the initial letter were sent a total of two reminder surveys with self-addressed stamped envelopes. Participants did not receive incentives for returning the follow-up surveys.

Measures

All measures were written at a 6th grade reading level or below. At baseline reading assistance was provided if participants requested help.

The baseline measure was 6 pages and contained 37 questions (see Appendix D for a copy). Participants were asked to answer 10 basic demographic questions including age, gender, ethnicity, marital status, educational level, employment status, and information about participation in food assistance programs such as SNAP and WIC.

The *Food Stamp Program Food Behavior Checklist* developed by Sylva and colleagues (2006) was used to measure nutrition behaviors. This 16-item visually enhanced food behavior checklist has been validated with low-income audiences (Townsend, Kaiser, Allen, Joy, & Murphy, 2003; Murphy, Kaiser, Townsend , & Allen, 2001; Townsend & Kaiser, 2005; Townsend, Sylva, Martin, Metz, & Wooten-Swanson, 2008).

Eleven additional questions were included to capture behaviors related to resource management and physical activity as well as attitudes about healthy eating. These additional questions were selected from *Notebook of Short Questions Recommended for Evaluation Nutrition Education Programs* (An, Hersey, & Richa, 2003). Questions from this resource were rated by nutrition professionals and all questions were from valid and reliable measures that have been tested with a variety of adult audiences including low-income adults.

A short survey about nutrition behavior changes was completed by interactive and facilitated group participants at the end of the last class (see Appendix E for a copy). These questions related to nutrition behavior changes that participants were making based on information that they learned during the classes. This survey had 7 questions related to behavior outcomes that were collected for SNAP-Ed reporting purposes (USDA, 2009).

Three and six month follow-up surveys contained 19 questions on 2 pages (see Appendix F for a copy). Thirteen questions concerned nutrition and physical activity behaviors and 6 questions were demographic questions. The follow-up surveys were shortened for several reasons. First, because the surveys were being mailed, it was expected that participants would be more likely to complete and return shorter surveys with fewer questions and pages. Second, several of the questions included on the baseline survey were not behaviors that were targeted by the interventions such as removing the skin from chicken and eating fish. The interventions focused primarily on improving lifestyle quality by preparing healthier meals that included more fruits and vegetables and increasing physical activity so questions relating specifically to the targeted behaviors of the intervention were retained in the follow-up surveys. Also, the nutrition attitude questions were left blank by a high proportion of participants at baseline so these questions were not repeated at follow-up.

Findings

Sample Description

The interventions for all three groups started in July 2009 and all classes and baseline data collection were completed by November 2009. Baseline data was collected from 352 participants in 20 counties across Tennessee: 122 interactive, 57 facilitated, and 173 indirect. For the interactive groups, class sizes ranged from 8 to 28 participants (M = 15.25, SD = 2.60). For the facilitated groups, class sizes ranged from 3 to 23 participants (M = 9.5, SD = 3.82). For the indirect education groups, number of participants by site ranged from 14 to 35 (M = 28.83, SD = 2.06).

For interactive and facilitated groups, participants attended classes at a variety of sites that provided services for low-income adults (Table 1). Class attendance was recorded for participants who attended the interactive and the facilitated classes. For both groups, 31.8% attended one class, 39.1% attended 2 classes, and 29.1% attended all 3 classes. There were no differences between the two groups for number of classes attended [$\chi 2$ (2) = 1.81, p = .40].

Table 1
Location of Sites for Group One and Two Classes

Class Location	# of Interactive Counties	# of Facilitated Counties	Total Counties
GED Programs	3	1	4
Preschool Centers	1	2	3
Subsidized Housing	1	1	2
Food Bank	1	0	1
Senior Center	1	0	1
Parenting Group	1	0	1
WIC Clinic	0	1	1
Women's shelter	0	1	1
Total	8	6	14

Demographics. For the total sample, the majority were women (73%). Participants ranged in age from 18 to over 60 years with the median age between 40 and 49 years. The sample was diverse with 25% African Americans, 70% white, 3% Hispanic/Latino, and 2% other racial groups. Participants varied on reported marital status with 39% being married or living with a partner, 23% single, and 29% divorced, separated, or widowed. Education levels were low with 37% not graduating from high school and 40% having received a high school diploma or GED. Few participants were working with only 11% working full-time and 7% working part-time. Appendix G contains tables comparing these findings with census data for the state of Tennessee.

Exactly 70% of participants reported receiving at least one form of food assistance. Reports of federally funded food assistance programs included SNAP benefits (61%), free school lunch (21%), and WIC (15%). In addition, 19% of participants indicated that they used a food bank or pantry. Over one third of participants (38%) reported using only 1 form of food assistance, 22% reported using 2 forms of food assistance, and 11% reported using 3 or more forms of food assistance. There were no differences between the 3 groups (interactive, facilitated, or indirect) regarding the number of food assistance programs reported [$F(2,349) = 1.06$, $p = .35$].

Differences between the three groups on demographic variables at baseline were measured with Chi-square tests and comparisons of proportions adjusted using the Bonferroni correction. There were significant differences in several variables: gender [$\chi^2(2) = 29.83$, $p < .001$], age [$\chi^2(10) = 86.19$, $p < .001$], race [$\chi^2(6) = 75.26$, $p < .001$], marital status [$\chi^2(8) = 62.01$, $p < .001$], education [$\chi^2(6) = 27.42$, $p < .001$], employment [$\chi^2(4) = 25.15$, $p < .001$], receiving SNAP benefits [$\chi^2(2) = 12.28$, $p < .01$], receiving WIC benefits [$\chi^2(2) = 22.99$, $p < .001$], and using a food bank [$\chi^2(2) = 26.16$, $p < .001$].

Compared to the facilitated and the indirect groups, the interactive group had higher proportions of men and African Americans, and lower proportions of married participants.

Compared to the interactive and the indirect groups, the facilitated group had higher proportions of participants who reported some college education and lower proportions of participants who reported receiving SNAP benefits.

The indirect group differed from the other two groups on the most variables. This group had higher proportions of participants aged 60 years and older and fewer participants aged 18-29 years. Possibly related to the increased age of this group, the indirect group also had higher proportions of widows/widowers, higher proportions of not working, and lower proportions who received WIC benefits. Unrelated to age differences, the indirect group also had higher proportions of participants who had received a high school diploma or GED and higher proportions of participants who reported using a food bank or pantry.

Appendix H has tables with comparisons of column proportions for demographic variables for the three groups.

Pearson correlations were computed for selected variables at baseline including demographic and nutrition behavior variables (Table 2). In general, relationships between variables were in the expected directions.

Table 2

Correlations of selected variables at baseline

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1. Group	--																		
2. Age	**.45****	--																	
3. Marital status	**-.21****	**-.13***	--																
4. Race	**.32****	**.12***	**-.27****	--															
5. Gender	**-.31****	**-.19****	**.17****	**-.14****	--														
6. Ethnicity	**.13***	.02	.10	-.11	.00	--													
7. Level of Education	.05	-.04	**-.16****	**.15****	**-.25****	-.03	--												
8. Employment	**.24****	**.15****	.03	.02	-.01	**.12***	**-.29****	--											
9. Food Assistance	-.02	**-.28****	.07	-.08	-.09	-.03	-.08	**.18****	--										
10. Fast food use	**-.20****	**-.19****	.07	**-.16****	.07	-.01	-.02	**-.16****	-.09	--									
11. Physical activity	**-.14****	**-.24****	**.11***	-.09	.09	.04	-.03	-.03	**.14****	.02	--								
12. Fruit servings	**.12***	**-.12***	**-.11***	-.05	-.06	.02	-.05	.03	**.14***	.07	**.16****	--							
13. Fruit variety	-.01	-.02	-.01	-.04	.07	**-.15****	-.02	-.04	.08	.02	**.16****	**.51****	--						
14. Vegetable variety	.07	.01	**-.18****	.02	**-.14***	.05	.07	.01	.07	-.06	.10	**.29****	**.35****	--					
15. Vegetable servings	**.13***	.00	**-.28****	.07	**-.18****	.06	.07	.04	**.11***	-.01	**.13***	**.55****	**.31****	**.50****	--				
16. Vegetable variety at main meal	-.05	.00	**-.21****	.05	-.07	-.02	**.13***	-.03	-.04	.03	.08	**.22****	**.33****	**.65****	**.44****	--			
17. Read food labels	**.14****	**.12***	**-.20****	**.17****	-.08	-.10	**.16****	-.01	**-.13***	-.06	.08	**.22****	**.33****	**.25****	**.28****	**.35****	--		
18. Refrigerator thermometer use	**.12***	-.06	-.01	.10	-.07	.06	.08	.06	.10	-.03	.02	**.11***	.09	**.14***	.06	.08	.10	--	
19. Food thermometer use	**.17****	-.08	-.03	.07	-.04	**.12***	.08	.01	.09	.00	.01	.06	-.05	.08	.05	.06	.05	**.66****	--

*$p < .05$; **$p < .01$

Baseline ANOVAs for differences in nutrition behaviors. Analyses of variance (ANOVAs) were conducted on three different categories of variables to determine differences between the three participant groups at baseline. These three categories were classified as nutrition behaviors, nutrition attitudes, and resource management behaviors.

Nutrition behaviors. Nutrition behaviors included questions about level of physical activity, healthy nutrition behaviors such as quantity and variety of fruits and vegetables consumed, and less healthy nutrition behaviors such as drinking sugar sweetened sodas and fast food consumption. Examples include: *Do you eat fruits or vegetables as snacks* and *How many servings of fruit do you eat each day.*

For nutrition behaviors, there were significant differences between the groups in fast food consumption [$F(2,343) = 7.01$, $p < .01$], drinking sugar-sweetened beverages such as fruit punch and sports drinks [$F(2,342) = 6.46$, $p < .01$], drinking sugar-sweetened sodas [$F(2,344) = 3.50$, $p < .05$], eating chicken with skin [$F(2,341) = 10.38$, $p < .001$], and eating 2 or more vegetables at the main meal [$F(2,342) = 3.17$, $p < .05$]. There were also differences in the amount of weekly physical activity [$F(2,345) = 3.87$, $p < .05$].

Post hoc analyses were performed using Tukey's HSD test to identify exactly where significant differences exist (Table 3). Compared to both groups, the interactive group reported drinking more sugar-sweetened drinks such as fruit drinks and sports drinks and was less likely to remove skin from chicken. Compared to the indirect group, the interactive group reported eating fast food more often, were more likely to drink sugar-sweetened sodas, and were more physically active. Compared to the indirect group, the facilitated group was more likely to report eating 2 or more vegetables at the main meal.

Table 3

Post hoc analyses of significant differences between interactive, facilitated, and indirect groups on nutrition behaviors

				95% CI	
Variable	Comparisons	Mean Difference	Std. Error	Lower Bound	Upper Bound
Eat fast food	Interactive vs. Indirect	.29*	.08	.46	.11
Physically active	Interactive vs. Indirect	.30*	.12	.02	.58
Drink fruit drinks, sports drinks	Interactive vs. Facilitated	.43*	.14	.09	.76
Drink fruit drinks, sports drinks	Interactive vs. Indirect	.32*	.11	.08	.57
Drink regular soda	Interactive vs. Indirect	.30*	.12	.02	.58
Take skin off chicken	Interactive vs. Facilitated	-.82*	.18	-1.25	-.39
Take skin off chicken	Interactive vs. Indirect	-.34*	.14	-.66	-.02
2 or more vegetables at main meal	Facilitated vs. Indirect	.36*	.14	.02	.69

*$p < .05$

Nutrition attitudes. Nutrition attitudes included questions related to attitudes about healthy eating such as feelings about affordability, taste, and importance. Examples include: *It costs more to eat healthy foods* and *Healthy foods are difficult to prepare.* Items were rated on a 4 point Likert scale where 1 equals strongly agree and 4 equals strongly disagree.

For nutrition attitudes, there were significant differences between groups related to beliefs that it costs more to eat healthy [$F(2,344) = 4.53$, $p < .05$] and too busy to eat healthy foods [$F(2,328) = 3.20$, $p < .05$)].

Post hoc analyses were performed using Tukey's HSD test to identify exactly where significant differences exist (Table 4). Compared to the indirect group, the interactive group was more likely to report that it costs more to eat healthy and that they were too busy to eat healthy foods.

There were no differences in nutrition attitudes between the facilitated and the indirect groups nor between the facilitated and the interactive groups.

Table 4
Post hoc analyses of significant differences between interactive, facilitated, and indirect groups on nutrition attitudes

				95% CI	
Variable	Comparisons	Mean Difference	Std. Error	Lower Bound	Upper Bound
Costs more to eat healthy	Interactive vs. Indirect	.34*	.12	.07	.62
Too busy to eat healthy	Interactive vs. Indirect	.30*	.12	.02	.58

*$p < .05$

Resource management. Resource management included questions related to managing food resources and planning for meals. Examples include: *Do you shop with a grocery list* and *Do you run out of food before the end of the month.*

For resource management, there were significant differences between groups related to shopping with a grocery list [$F(2,344) = 3.37$, $p < .05$], monitoring of portion sizes [$F(2,344) = 5.77$, $p < .01$], reading food labels [$F(2,343) = 3.90$, $p < .05$] and running out of food before the end of the month [$F(2,340) = 3.98$, $p < .05$].

Post hoc analyses were performed using Tukey's HSD test to identify exactly where significant differences exist (Table 5). Compared to both groups, the interactive group was less likely to shop with a grocery list. Compared to the indirect group, the interactive group was less likely to watch portion sizes or to read food labels. Compared to the facilitated group, the indirect group was more likely to run out of food before the end of the month.

Table 5
Post hoc analyses of significant differences between interactive, facilitated, and indirect groups on resource management

				95% CI	
Variable	Comparisons	Mean Difference	Std. Error	Lower Bound	Upper Bound
Shop with a grocery list	Interactive vs. Indirect	-.23*	.10	-.46	.00
Watch portion sizes	Interactive vs. Facilitated	-.40*	.15	-.75	-.05
Watch portion sizes	Interactive vs. Indirect	-.33*	.11	-.59	-.07
Read food labels	Interactive vs. Indirect	-.32*	.12	-.59	-.04
Run out of food	Facilitated vs. Indirect	-.35*	.15	-.69	-.01

*$p < .05$

End of class surveys

At the end of the series of three lessons for the interactive and facilitated classes, participants were asked to complete a short survey about behaviors that they had changed based on the information they received during the classes. These surveys were completed by 85 participants (54 interactive participants and 31 facilitated participants) representing 47% of total class participants.

Chi-square tests were used to determine differences between the interactive and the facilitated groups. There were 2 significant differences between the groups. Compared to facilitated participants, interactive participants were less likely to learn how to budget [χ^2 (1) = 3.71, p = .05] or use a food thermometer [χ^2 (1) = 13.39, p < .001].

Response rates

For the total sample, 44% of participants completed at least 1 follow-up (either at 3 or 6 months). Response rates varied by group with the highest response rate in the indirect group (60%), followed by interactive (30%), and facilitated discussion (28%).

Because of the high rate of attrition, differences on demographic variables and nutrition behavior were calculated between those who returned surveys and those who did not using Chi-square tests. There were differences on demographic variables: age [χ^2 (5) = 32.92, p < .001], marital status [χ^2 (4) = 21.27, p < .001], gender [χ^2 (1) = 10.49, p < .01], level of education [χ^2 (3) = 8.63, p < .05], receiving WIC benefits [χ^2 (1) = 7.57, p < .01], and receiving free school meals [χ^2 (1) = 5.46, p < .05]. There were also differences based on group assignment [χ^2(2) = 33.21, p < .001] and receiving a newsletter [χ^2 (1) = 8.53, p < .01].

There were no differences between participants who returned surveys and those who did not based on the nutrition behaviors that were measured across time points.

Follow-up Newsletters

Follow-up monthly newsletters were sent to a total of 192 participants: 71 interactive, 42 facilitated, and 79 indirect. Receiving a newsletter did *not* increase the likelihood that a participant would complete follow-up surveys. Logistic regression analyses determined that follow-up was 1.11 times higher for participants who did *not* receive a newsletter compared to those who did receive a newsletter [B(1) = .63, Wald = 8.46, p < .01].

3 month findings

At 3 month follow-up, 123 surveys were returned. Analyses of variance (ANOVAs) were conducted to compare differences between the 3 groups at 3 months. Compared to the interactive and the indirect groups, the facilitated group was more likely to read food labels when shopping [F (2) = 4.51, p < .05]. Compared to the indirect group, the facilitated group reported more servings of fruit eaten each day [F (2) = 6.15, p < .01] but was less likely to use a food thermometer when cooking [F (2) = 4.08, p < .05].

6 month findings

At 6 months, 115 surveys were returned. Analyses of variance (ANOVAs) were conducted to compare differences between the 3 groups at 6 months. Compared to the indirect group, the facilitated group was more likely to eat fast food [F (2) = 3.64, $p < .05$]. Compared to the indirect group, the interactive group was more likely to be physically active [F (2) = 5.45, $p < .01$]. There were no differences between the interactive and the facilitated group at 6 months.

Repeated Measures ANOVA

Repeated measures of analysis of variance were computed for the nutrition behavior variables to measure differences in mean scores across the 3 time points: baseline, 3 months, and 6 months. Initial models did not control for demographic differences. The Greenhouse-Geisser corrected tests are reported here. For the 3 groups, there were differences in the mean scores for 2 variables: number of times per week they ate fast food [F(1.86) = 4.88, $p < .05$] and the amount of weekly physical activity [F(1.86) = 3.63, $p < .05$]. For both variables, reported mean scores actually decreased at 3 months and then increased at 6 months. For fast food, the mean score was 1.73 (*SD* = .60) at baseline, 1.65 (*SD* = .62) at 3 months, and 1.87 (*SD* = .67) at 6 months. For physical activity, the mean score at baseline was 2.86 (*SD* = 1.00), 2.65 (*SD* = .96) at 3 months, and 2.91 (*SD* = .98) at 6 months.

Repeated measures of analysis of variance were computed that included the demographic variables that differed between groups as covariates. The Greenhouse-Geisser corrected tests are reported here. The only significant test of within-subjects effects was the interaction between group and number of servings of fruit [F(3.68) = 3.34, $p < .05$] (Table 6). As indicated in the table, the mean scores for the interactive group were fairly stable at follow-up. The mean scores for the facilitated group increased at 3 months and this increase declined slightly at 6 months. The mean scores for the indirect group decreased at 3 months with an increase at 6 months.

Table 6
Mean scores for servings of fruit eaten per day

Group Assignment	Baseline Mean (SD)	3 Month Mean (SD)	6 Month Mean (SD)
Interactive	2.54 (1.85)	2.46 (1.39)	2.54 (1.05)
Facilitated	1.67 (1.00)	2.44 (.73)	2.33 (1.41)
Indirect	1.93 (1.10)	1.37 (.98)	1.63 (.98)

Hierarchical Multiple Regression Models

Nutrition behaviors. Hierarchical multiple regression models were computed for the nutrition behavior variables to determine if group membership predicted reported nutrition behaviors at 3 and 6 months. Dummy variables were created for the interactive and the facilitated groups to compare the effect of group membership on nutrition behavior. The indirect group served as the comparison for the other two groups. Baseline response for each variable was entered in step one, the dummy variables for interactive and facilitated groups were entered in step two, and the demographic variables that varied by group (i.e., gender, age, race, marital status, level of education, and level of employment) were entered in step three. A series of regression models were tested for the variables of interest.

As expected, for all regression models baseline report of behavior was related significantly to report of behavior at 3 months.

Being in the interactive and facilitated groups was related significantly to report of servings of fruit consumed daily at 3 months (Table 7).

Table 7

Hierarchical Multiple Regression Analyses Predicting Servings of Fruit Consumed Daily at 3 Months

Predictor	ΔR^2	*b*	*SE b*	β
Step 1	.05*			
Constant		1.46	.18	
Baseline		.16	.07	.22*
Step 2	.19***			
Baseline		.19	.07	.27**
Interactive		.81	.25	.30**
Facilitated		1.04	.32	.31**
Step 3	.29*			
Control variables[a]				
Baseline		.21	.07	.29**
Interactive		.97	.28	.36**
Facilitated		1.37	.36	.41***

[a]Control variables included race, gender, education level, employment status, marital status and age
*$p < .05$; **$p < .01$; ***$p < .001$

Being in the interactive group was significantly related to 2 other behaviors at 3 months: eating more than 1 kind of vegetable each day (Table 8) and number of servings of vegetables (Table 9).

Table 8

Hierarchical Multiple Regression Analyses Predicting Eating More Than 1 Kind of Vegetable Each Day at 3 Months

Predictor	ΔR^2	*b*	*SE b*	β
Step 1	.16***			
Constant		1.60	.27	.41***
Baseline		.43	.10	
Step 2	.20			
Baseline		.43	.09	.41***
Interactive		.45	.22	.18*
Facilitated		.07	.27	.02
Step 3	.25			
Control variables[a]				
Baseline		.41	.10	.39***
Interactive		.60	.25	.25*
Facilitated		.19	.32	.06

[a]Control variables included race, gender, education level, employment status, marital status and age
*$p < .05$; **$p < .01$; ***$p < .001$

Table 9

Hierarchical Multiple Regression Analyses Predicting Number of Servings of Vegetables Eaten Daily at 3 Months

Predictor	ΔR^2	*b*	*SE b*	β
Step 1	.14***			
Constant		1.84	.22	
Baseline		.25	.06	.37***
Step 2	.18			
Baseline		.25	.06	.36**
Interactive		.49	.29	.16
Facilitated		.62	.35	.17
Step 3	.21			
Control variables[a]				
Baseline		.25	.07	.37***
Interactive		.67	.33	.22*
Facilitated		.75	.41	.20

[a]Control variables included race, gender, education level, employment status, marital status and age
*$p < .05$; **$p < .01$; ***$p < .001$

Group membership was not related significantly to report of behaviors at 6 months. As expected, baseline report of behavior and 3 month report of behavior was related to report of behavior at 6 months.

Newsletter follow-up. Linear regression models were calculated to determine if receiving a newsletter was related to nutrition behaviors at 3 and 6 months. Receiving a newsletter was coded as a dummy variable with not receiving a newsletter being the comparison group. Baseline response for each dependent variable was entered in step one, the newsletter variable was entered in step two, and the demographic variables included in the previous models were in step three.

Receiving a newsletter was not related to any of the nutrition behaviors at 3 months. Receiving a newsletter was related to 2 behaviors at 6 months: number of servings of fruit eaten daily (Table 10) and eating more than 1 kind of fruit each day (Table 11).

Table 10
Hierarchical Multiple Regression Analyses Predicting Number of Servings of Fruit Eaten Daily at 6 Months

Predictor	ΔR^2	*b*	*SE b*	β
Step 1	.47***			
Constant		.57	.22	
Baseline		.19	.09	.22*
3 Months		.55	.10	.56***
Step 2	.51*			
Baseline		.19	.09	.22*
3 Months		.51	.10	.52***
Received Newsletter		.45	.21	.20*
Step 3	.53			
Control variables[a]				
Baseline		.19	.10	.23*
3 Months		.52	.11	.54***
Received Newsletter		.48	.24	.22*

[a]Control variables included race, gender, education level, employment status, marital status and age
*$p < .05$; **$p < .01$; ***$p < .001$

Table 11
Hierarchical Multiple Regression Analyses Predicting Eating More Than 1 Kind of Fruit Each Day at 6 Months

Predictor	ΔR^2	*b*	*SE b*	β
Step 1	.42***			
Constant		.47	.25	
Baseline		.38	.10	.36***
3 Months		.42	.09	.45***
Step 2	.45*			
Baseline		.37	.10	.36***
3 Months		.41	.09	.45***
Received Newsletter		.38	.15	.22*
Step 3	.52			
Control variables[a]				
Baseline		.39	.10	.37***
3 Months		.45	.09	.49***
Received Newsletter		.41	.16	.24*

[a]Control variables included race, gender, education level, employment status, marital status and age
*$p < .05$; **$p < .01$; ***$p < .001$

Discussion

The aim of this project was to compare the effectiveness of three types of nutrition education interventions to explore three research questions reviewed below.

Research Question 1: *Are there differences in intermediate nutrition behavior based on type of teaching method (interactive, facilitated discussion, indirect education)?*

There are some limited findings from this project that indicate that direct nutrition education interventions in the form of classes for adults have some intermediate effects on nutrition behavior compared to indirect education. First, looking at the group reports over time, there was a strong increase in the amount of fruit reported by facilitated group members compared to the other two groups. Looking at predictions of behavior, group membership was related to increases in reports of nutrition behaviors at 3 months. Being a member of the interactive group predicted more behavior changes related to fruit and vegetables. Consistent with the repeated measures ANOVAs, facilitated group membership was related to increases in the amount of daily fruit consumed at 3 months. These findings provide initial support that these interventions can impact some behaviors for at least a few months.

Research Question 2*: Are there differences in intermediate nutrition behavior based on intensity of follow-up?*

For this project, monthly follow-up consisted of nutrition education newsletters. Receiving a newsletter was related to behavior changes in regards to fruit intake amount and variety at 6 months. This indicates

that receiving a newsletter could keep participants involved, engaged, and committed to sustaining behavior changes made during interventions.

Contrary to expectations, receiving a newsletter did not correspond with an increased likelihood that participants would complete follow-up surveys. One advantage of newsletters was that the researchers were able to track participants' change of address in a timely manner. However, this method only allowed researchers to determine that the addresses had changed or were undeliverable. In general, participants who relocated did not have their mail forwarded to new addresses so this method did not allow researchers to obtain new addresses as expected.

Research Question 3: *How effective are indirect interventions in changing nutrition outcomes?*

The results from this study indicate that indirect interventions do not result in reported nutrition behavior changes. For many of the variables studied, the indirect group showed little or no improvement. It is possible that more targeted indirect education interventions would produce more effective results. For example, focusing indirect interventions on pressing concerns of this audience such as food resource management might be more engaging and could result in behavior change. Additional research is needed in this area.

A few unexpected findings resulted from the indirect education group. First, this group was easy to recruit at the commodity distribution sites. Participants were willing to fill out surveys and at most sites there were more people who were willing to complete surveys than there were actual surveys. In addition, this group had the highest follow-up survey return rate. This was unexpected since this group only had one interaction with the researchers and follow-up surveys did not include an incentive if returned. This finding indicates that senior adults who receive commodity foods could be a rich source of information related to nutrition education and other needs for low-income, at risk older adults.

Group differences

In general, the interactive group was more diverse with higher proportions of men, African Americans, and fewer married participants. The indirect group was more likely to be seniors with higher proportions of widows/widowers, not working, and more food insecure. The facilitated group had higher proportions of college educated and less likely to report receiving SNAP benefits. These baseline group differences are important to consider when reviewing the survey results.

First, it is possible that the type of intervention appealed to different participants. Research has found that hands-on, experiential learning appeals to a people from a wide variety of backgrounds; however, it is likely that this method would be more appealing to adults with lower education levels and to adults who are less comfortable with group discussions (such as young men). People with more education might be engaged and participate in facilitated discussion groups. This is a topic that requires further research and exploration.

Differences between the groups regarding nutrition behaviors, attitudes, and food resource management also indicate important areas for nutrition education to target. The interactive group reported higher proportions of less healthy behaviors related to drinking more sugar-sweetened beverages and consuming more fats including fast food. This group had lower proportions related to food resource management being less likely to use a grocery list or to budget for groceries. Their attitudes about eating healthy were more negative with beliefs that healthy eating was expensive and

time-consuming. Many participants in this group needed information about limiting sugars and benefits of planning meals. Effective nutrition education should focus the intervention to meet identified needs.

A higher proportion of indirect participants reported running out of food before the end of the month. This group could benefit from education about stretching food resources and household dollars to ensure adequate food throughout the month. This group also had lower proportions of physical activity so information about different forms of physical activity for all ages and mobility levels could be beneficial.

Limitations

The findings from this study have several limitations. First, the groups differed significantly on demographic variables as discussed earlier. Analyses controlled for these variables, but it is possible that any differences were related to differences between group participants rather than type of intervention. Furthermore, the group sizes differed with the facilitated group having the smallest number of participants. It is possible that findings for this group would have altered if there had been more participants. There was a high rate of attrition for the two intervention groups which could have significantly impacted the results. Finally, the data was all self-reported which can affect results.

Products resulting from this Project

In order to maximize the effectiveness of this project, it was determined that the use and/or adaptation of existing education materials and survey instruments would allow for better validity, consistency and replication of the project. Therefore, *Loving Your Family, Feeding Their Future* (USDA 2007) was selected for the direct education materials. This curriculum is presented in a facilitated discussion format and was modified in terms of discussion question format and suggestions for additional handouts or nutrition reinforcement materials for participants. Also, Sessions 3 and 4 of the curriculum were combined, because educator feedback indicated the material overlapped and it was difficult to get adult participants to attend four sessions of a program.

For the interactive lessons, it was determined that longer sessions were needed to effectively teach hands-on food resource management, food preparation and food safety techniques. The series of three lessons were titled *Nutritious and Delicious: A Recipe for Healthy Families.* Each individual lesson retained the same title as the facilitated discussion lessons. After the project implementation was complete, peer review was obtained from the nutrition educators who taught the lessons. Revisions were made and the *Nutritious and Delicious* Curriculum is currently going through a second peer review and editing. Because the lessons focus on the Dietary Guidelines, it was deemed most efficient to delay final publication of the *Nutritious and Delicious* curriculum after the release of the 2010 Dietary Guidelines.

The evaluation instruments for this project are provided in the Appendices D, E, & F. Existing validated surveys were chosen so that the project can be replicated and effectively compared to other studies.

This project has been successful in terms of providing opportunities for dissemination of the information to date and should result in further peer-reviewed opportunities for informing others regarding evaluation efforts for SNAP-Ed.

Appendix I provides a budget summary for the project. Because the study was integrated into existing SNAP-Ed programs in Tennessee, the investigators were able to maximize use of the funds. Incentive

items for participants, materials for teaching the lessons, additional travel for county educators, and participation in professional conferences to present information were made possible by the funding.

Conclusions and Recommendations

Low-income adults are at high risk for acute and chronic diseases related to nutrition including heart disease, diabetes, and obesity (Truong & Sturm, 2005). Effective nutrition education is one tool to help adults learn healthier behaviors to increase quality of life. These interventions can be challenging to implement and to engage low-income adults in so it is increasingly important to target interventions that have results. This study provides preliminary results that indicate that low-income adults benefit from interactive nutrition education interventions. It is likely that more intensive interventions would produce stronger results for longer periods of time. It is encouraging to see evidence that the direct education that is provided through SNAP-Ed can result in intermediate behavior change, especially when compared with indirect education methods.

The study demonstrated to the investigators that there are many ways to reach adult audiences and having multiple approaches tailored to meet audience needs can be productive. For some audiences, an interactive format may be more likely to promote behavior change. The interactive format may appeal more to those who prefer kinesthetic learning styles. Even a small group facilitated discussion format may be intimidating to an individual who does not like to speak in front of others, yet that person may welcome the opportunity to actively participate in food preparation in small groups. As with any research project, this study leads to more questions to investigate.

Follow-up research is needed to replicate these results. Additional research regarding effective indirect education methods is needed. In this study, no effective behavior change was determined when participants were given a one-time handout of information. Because indirect education is relied on heavily in nutrition education of large populations, there is a need to further study what tools could promote positive behavior change.

The investigators feel that there are many opportunities to demonstrate effectiveness of nutrition education with SNAP-Ed clients and grants such as this one will inspire others to participate in the evaluation process. They would encourage SNAP-Ed Land Grant Universities Program to continue this grant support and to promote and ongoing dialog among nutrition educators regarding evaluation of programs presented to SNAP-Ed clients.

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Appendix A

Interactive Lesson Topic Outline

Sample Interactive Lesson

Curriculum Title: Nutritious & Delicious: a Recipe for Healthy Families

1. Session 1: Family Meals Easy, Tasty, Healthy
    a. Behavioral Objectives:
        i. Identify and use at least two timesaving or low-cost ways to prepare healthy meals each week.
        ii. Name two tasks their child(ren) can do to help make a family meal and commit to letting their child(ren) help do the task at least once a week.
        iii. Demonstrate how to properly use a food thermometer when preparing family meals.
    b. Variations from *Loving Your Family…*
        i. Included hands-on food preparation and cooking activities
        ii. Included food safety information and use of food thermometer
        iii. Included food resource management activity
2. Session 2: Vegetables & Fruits Simple Solutions
    a. Behavioral Objectives
        i. Identify and commit to try at least two vegetables and two fruits during the upcoming week with at least one vegetable being a dark green or orange one.
        ii. Identify and commit to at least one activity to encourage their children to eat a variety of fruits and vegetables each day.
        iii. Recognize what a 2 ½ cup portion of vegetables and a 2 cup portion of fruits look like.
        iv. Understand the importance of food safety techniques such as washing food before preparation.
    b. Variations from *Loving Your Family…*
        i. Included hands-on food preparation and cooking activities
        ii. Included instructions and participation in safe food handling techniques
        iii. Included instructions on the healthful benefits of variety of colors of fruits and vegetables
        iv. Included discussion on planning meals with fruits and vegetables
3. Session 3: The Habits of Healthy Families
    a. Behavioral Objectives
        i. Identify the amounts of food each member of your family needs from each food group.
        ii. Identify and commit to at least one action to get the right amount of foods from ***MyPyramid*** food groups

iii. Identify and commit to at least one action to get at least 30 minutes of moderate-intensity physical activity with their family most days of the week.

b. Variations from *Loving Your Family…*
   i. Combined Sessions 3 and 4
   ii. Included food preparation and tasting activity
   iii. Included emphasis on planning physical activity as a family

Sample Lesson Plan for Nutritious & Delicious

Note: On the next pages is a sample of the lessons plans that were used for the interactive sessions for this project. It is provided to give an example of the type of materials that were sent to the nutrition educators. This is not the final curriculum. Currently the series of 3 lessons is undergoing peer review and editing.

FAMILY MEALS

EASY, TASTY AND HEALTHY!

LESSON #1

SESSION OVERVIEW:

This session will help busy mothers and family caregivers plan, shop, and prepare healthy, low-cost meals for their families. Participants will discuss ways to deal with the challenges of making healthy, low-cost meals and snacks and will learn how to involve their children in meal preparation. An educator will facilitate discussion about solutions to challenges identified by the participants using the ***What are We Going to Eat Game*** and assist participants in identifying the recommended amounts of foods for healthy eating based on MyPyramid. Participants will work in groups to plan and prepare a quick and easy low-cost meal, selected from the ***"Skillet & No Cook Recipes Booklet"*** and the ***Pantry of "Make and Serve in a Hurry" Food Items***. This lesson can be adapted easily by the educator to meet a groups needs based on the choice of recipe to prepare and which meal to focus on—breakfast, lunch, snack, or dinner. Ideas on how to make the meal low-cost will be shared. Food safety will be discussed during meal preparation and will include a demonstration on how to use a food thermometer. Participants will brainstorm ideas on how their children can help with the meal. Finally, each participant will be encouraged to

select two timesaving or low-cost ideas to plan, shop, or cook healthy meals that they will use in the upcoming week, and one way they will let their child(ren) help with the family meals.

TARGET AUDIENCE: Mothers and family caregivers with children between the ages of 2 and 18

CLASS TIME: One hour and 30 minutes

KEY MESSAGES:

- Timesaving tips can help parents make easy, tasty, healthy and food safe family meals, with less stress and cost.
- Children can help parents prepare or make family meals.
- **MyPyramid** is a useful tool for meal planning.

BEHAVIORAL OBJECTIVES:

As a result of participating in this session, participants will be able to:

- Identify the amounts of foods according to **MyPyramid** that are recommended for a 2000 calorie diet.
- Identify and use at least two timesaving or low-cost ways to prepare healthy meals each week.
- Name two tasks their child(ren) can do to help make a family meal and commit to letting their child(ren) help do the task at least once a week.
- Demonstrate how to properly use a food thermometer when preparing family meals.

OUTCOME INDICATORS:

- Eat more fruits*
- Eat more vegetables*
- Eat more whole grains*
- Eat more fat-free or low-fat dairy products*
- Use a food thermometer

**Note: the food intake related outcome indicators will vary depending on which recipes are chosen by the group for discussion and/or preparation.*

MATERIALS NEEDED:

- For each participant, one of each of the following items:
  - Nametags
  - Highlighters
  - Pencils
  - Pocket Folders
  - Recipe booklet: **"Nutritious & Delicious" A Recipe for Healthy Families**
  - Take-away items for adult participants:
    - ***Shopping List Note Pad***
    - ***Instant Read Food Thermometer***
    - ***Safe Food for Tennessee Magnet***
  - Handouts for participants:
    - ***Family Meals – Easy, Tasty, and Healthy!***
    - ***The Healthy Family Guidebook***
    - ***Use a Food Thermometer***

- ***Meal Planning. . . Eat Well, Save Money***
- ***Directions for the What are We Going to Eat Game***
- ***Tennessee Shapes Up: MyPyramid (SP654)***

- A soft texture ball(ex. beach, yarn, or sponge ball) to toss for the ***Icebreaker*** opening activity
- 4 Hot Pads for Prizes: to be used if group votes on best tasting recipe
- Markers for writing names on nametags
- ***What Are We Going to Eat*** game (Source: *Money For Food*, Wisconsin Nutrition Education Program)
- ***Pantry of "Make and Serve in a Hurry" Food Items***: includes foods for meal planning food demonstration.
  - ***Identify one or two recipes from which participants will choose to prepare and include in a meal plan***
  - Have all ingredients for the selected recipes (see Recipe Booklet)
  - Include additional non-perishable items that demonstrate what foods to have on hand for quick meals.
  - Include extra seasonings to add for flavor variety, such as: hot sauce, garlic powder, pepper (See handout sheet, ***Family Meals – Easy, Tasty, and Healthy!***)
- Kitchen items for non-cook recipe:
  - Preparation utensils: mixing/serving bowls, can opener, serving utensils, cutting board(s), chopping knives, measuring cup/spoons, colander with bowl to drain canned goods, vegetable peeler
- Kitchen items for cooked recipe (skillet meal):
  - Electric skillet (extension cords if needed)
  - Cooking utensils such as: mixing /serving bowls, slotted/solid stirring spoons, spatulas, can opener, serving utensils, cutting board(s), chopping knives, measuring cup/spoons, colander with bowl to drain canned goods, and vegetable peeler. Silicone utensils are recommended for skillet cooking.
- Plastic zip bags, foil, wax paper, plastic wrap and paper towels.
- Disposable bowls/plates, eating utensils for sampling, and napkins
- Hand sanitizer, disinfectant wipes, aprons, and reusable vinyl table cloth
- ***MyPyramid*** poster
- Tape (to hang poster; hang poster at eye level so everyone can see it)

GETTING READY

- Review the information on the handout ***Family Meals – Easy, Tasty, and Healthy!*** and the directions for playing the ***What Are We Going to Eat Game*** (see lesson for icebreaker and game directions).
- Prior to your first lesson, insert all of the handout materials into a pocket folder allowing one folder per person.
- Determine which of the recipes you will allow participants to choose from for the session. Gather the ingredients for the recipe and additional foods for the ***Pantry of "Make and Serve in a Hurry" Food Items*** meal activity. Remember that the idea is to simulate creating a meal from items that are already on hand.
- Be sure to have all cooking devices/utensils that are needed.
- Have appropriate bags or containers on hand to transport the food items at the correct food temperature.
- If there are any meats that need to be prepared, precook before the lesson and freeze it until the day of the lesson.
- For additional background information, review ***Inside the Pyramid*** on the USDA website, **www.mypyramid.gov**. The section on ***Tips to help you eat*** provides additional information to use in your discussion as time permits.

TEACHING THE LESSON[1]

WELCOME (5 minutes):

Welcome participants and ask them to write their own nametag (first names only). Give each a copy of ***The Healthy Family Guidebook***, a folder with the handouts for the lesson, a highlighter, and a pencil. Discuss "housekeeping items" such as the location of restrooms and water fountains.

ICEBREAKER (5 minutes):

Ball Toss: Open the icebreaker by first stating your name and what your favorite meal is to make as a family. Then toss the ball to another person in the group and have them state their name and favorite meal to make as a family. Allow all to participate in this activity if they choose.

> Ex. "My name is Angela and my favorite meal to make as a family is tuna noodle casserole with frozen vegetables mixed into the casserole."

BEGIN (5 minutes):

Ask, "What are the names and ages of your children?" Give participants time to share.

DISCUSSION GROUP ACTIVITIES (25 minutes):

Tell the participants the group will be talking about:

- Planning ahead to make meals easier, tastier, healthier, faster, and less expensive
- Shopping and buying low-cost foods to make and serve in a hurry
- Using timesaving tips when cooking meals
- Involving their children in making meals
- Proper food safety techniques for preparing meals

Briefly introduce them to ***The Healthy Family Guidebook*** with the following talking points:

- This ***Guidebook*** was written from a busy mom's point of view and is yours to keep and use.
- It describes ***MyPyramid*** as a tool for developing a healthy eating plan for families
- Calorie needs each day can be different for each person because all have different activity levels and are different body sizes.
- The ***Guidebook*** uses 2000 calories as a planning tool for amounts recommended from each food book, because many adult women need about that number of calories each day.
- Look at page 7 to see the amounts of each food group from MyPyramid are suggested for 2000 calories each day
- The ***Guidebook*** describes ***7 Habits*** for healthy family meals.
    - Vary your veggies, page 8
    - Focus on fruits, page 13
    - Get your calcium rich foods, page 15
    - Make half your grains whole, page 18
    - Go lean with protein, page 21
    - Watch your fats, sugar, and salt (sodium), page 25
    - Balance what you eat with physical activity, page 26
- There are menu ideas, recipes, and ideas on how to make each of the habits part of your life.

Show the participant the handout: ***Tennessee Shapes Up: MyPyramid (SP654)***

- Point out MyPyramid on the cover and the MyPyramid.gov website.
- Ask participants: "What is the difference between sedentary, moderate, and active levels of physical activity" (answer on inside page of the handout)

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[1] Based on *From Telling to Teaching: A Dialogue Approach to Adult Learning* by Joye A. Norris, EdD University of Tennessee TNCEP

- Have each participant estimate their own calorie needs using the *"Estimate Your Calorie Needs"* chart in the handout.
- Have each participant look at the chart on the "*Daily amount of Food from Each Group"* on the back of the handout.
- Ask the participants: "How do the amounts you need differ from the amounts listed for the ***Guidebook*** suggestions" (reinforce that each person has different needs, but for teaching purposes the most common amount of calories is used)

WHAT ARE WE GOING TO EAT? **Game** (see the attached instructions)

Have participants divide into small groups (3-4 participants per group). Then pass out game pieces and explain the rules and the purpose of the game. Walk around the groups to help with any questions.

Ask participants to briefly comment on the key points that they learned from the game and to share ideas about how to save money, time, and still make healthy meals.

HANDS-ON COOKING ACTIVITY (30-45 minutes):

- Have all participants wash or sanitize their hands. As they are doing this, remind them of the recommended way to wash hands.
- To emphasize that ***MyPyramid*** can be a guide for meal planning, arrange the ***Pantry of "Make and Serve in a Hurry" Food Items*** according to the ***MyPyramid*** food groups so participants can plan a meal. Have participants identify which food groups are represented.

  Talking Points:
  - Keep the right kinds of foods on hand to make it easy to get the amounts and kinds of foods your family needs for good health.
  - Look at the ***MyPyramid*** poster to find the right foods from each of the food groups.
  - Note that healthy choices are those that are low in solid fats and added sugars
- If there are more than four participants in the session, divide them into two or more cooking groups. Limit each cooking group size to four or less participants. Give out copies of the recipes to be used and review them with the groups
- Ask each cooking group to discuss and plan which ingredients they will need for a provided recipe and what modifications they might make based on the ingredients on hand.
- Distribute ***Safe Food for Tennessee*** magnets, food thermometers, and refer to the handout ***Use a Food Thermometer*** that is in their pocket folder.
- Have the cooking groups divide tasks and work together to create their planned meal (i.e., have someone open cans while another measures seasonings).
- Talking points during meal preparation will depend on which recipe was prepared and which meal it is designed to be used at, but can include some of the following ideas:
  - Using fresh herbs and seasonings in place of salt is a good way to lower sodium intake.
  - Breakfast is important to help children learn and adults work their best
  - Many different foods can meet the recommended amounts for MyPyramid so everyone can include their favorite foods
  - Ask participants for ways to lower the cost of the recipe prepared
  - Ask for ideas to get family members to taste new foods.

- While the participants are preparing their meal:
  - Ask: "What are the recommended safe cooking temperatures for cooking meats so that you do not become sick (foodborne illness)?
    Answer:
    - 145° F Medium Rare: Beef, lamb & veal steaks & roasts (Medium is 160°)
    - 160° F Ground beef, pork, veal & lamb; pork chops, ribs & roasts; egg dishes
    - 165° F Chicken & turkey; ground turkey & chicken; stuffing & casseroles; leftovers

- Ask: “How can you be sure what temperature the food reaches so that it will be safe to eat?
  - Answer: The only way to make sure that foods are safe to eat is to check the temperature using a food thermometer when you cook.
- Demonstrate the proper use of a food thermometer with the food participants will be preparing. Provide an opportunity for participants to practice.

- After the meal is prepared and the group is sampling, ask: “How can your children help make a meal?” Let the group brainstorm some ideas.
- If your group prepared only one meal, ask each group member to rate the meal with the following choices:
  - I would not make this at home
  - I may make this at home
  - I definitely will make this at home

  Ask the members to share why they chose their answer. Ask them to discuss ways that the meal could be changed or improved using their own favorite ingredients.
- If your group prepared several different recipes, after each meal has been sampled by all, ask the participants to vote on the best tasting skillet meal. (Depending on the group this can be done by secret ballot or by hand vote.)
  - Ask them to share why they liked their first choice.
  - Award each group member of the “winning” meal a hot pad or similar incentive item.
  - Ask them to discuss ways that the meal could be changed or improved using their own favorite ingredients.

SUM UP (5 minutes)**:**

- Review the tips on the ***Family Meals – Easy, Tasty, and Healthy!*** Handout.
- Refer to pages 29-30 in the ***Guidebook*** for ideas on making low-cost, easy meals.
- Show the group the two week menu plans on pages 32-35 of the Guidebook
- Remind participants to bring their folders and the ***Guidebook*** to the next class

HOME ACTIVITY (5 minutes)**:**

- Give each participant a highlighter and ask them to highlight on the ***Family Meals*** handout or in the ***Guidebook*** (pages 29-30) two timesaving or low-cost tips they will try during the upcoming week.
- Ask each participant to highlight on the handout one task they will let their child(ren) do to help make a meal during the week. Tell them that they can write their own ideas if none of the ***Guidebook*** ideas fit their needs

Material adapted from: Loving Your Family Feeding Their Future, Nutrition Education Through the Food Stamp Program developed by the Food and Nutrition Service, U.S. Department of Agriculture (USDA). Original curricula available on-line at http://www.nal.usda.gov/fsn/Loving

This Family and Consumer Sciences is funded under an agreement with the Tennessee Department of Human Services and USDA Supplemental Nutrition Assistance Program.

Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture and county governments cooperating. UT Extension provides equal opportunities in programs and employment.

Appendix B

Facilitated Discussion Topic Outline

Sample Facilitated Discussion Lesson

1. Session 1: Family Meals Easy, Tasty, Healthy
    a. Behavioral Objectives:
        i. Identify and use at least two timesaving or low-cost ways to prepare healthy family meals each week
        ii. Name two tasks their child(ren) can do to help make a family meal and commit to letting their child(ren) help do a task at least once a week
2. Session 2: Vegetables & Fruits Simple Solutions
    a. Behavioral Objectives
        i. Identify and commit to try at least two vegetables and two fruits during the upcoming week with at least one vegetable being a dark green or orange one.
        ii. Identify and commit to at least one activity to encourage their children to eat a variety of fruits and vegetables each day.
        iii. Recognize what a 2 ½ cup portion of vegetables and a 2 cup portion of fruits look like.
3. Session 3: The Habits of Healthy Families
    a. Behavioral Objectives
        i. Identify the amounts of food most adults and children need from each food group.
        ii. Identify and commit to at least one action to get the right amount of foods from ***MyPyramid*** food groups.
        iii. Identify and commit to at least one action to get at least 30 minutes of moderate-intensity physical activity most days of the week.
    b. Variations from *Loving Your Family…*
        i. Combined Sessions 3 and 4

Sample Lesson Plan for Facilitated Discussion Group

Note: On the next pages is a sample of the lessons plans that were used for the facilitated discussions for this project. It is provided to give an example of the type of materials that were sent to the nutrition educators. The adaptations made to the *Loving Your Family* Curriculum involved rephrasing of some of the discussion questions. These modifications are highlighted in this lesson plan.

FACILITATED DISCUSSION SESSION

FAMILY MEALS
EASY, TASTY, HEALTHY!

LESSON #1

SESSION OVERVIEW

This session is intended to help busy mothers and family caregivers plan, shop, and prepare healthy, low-cost meals for their families and learn ways to let their children help. Participants will share difficulties and challenges of making healthy, low-cost meals and snacks for their families. An educator will facilitate a discussion about solutions to the problems identified by the group by sharing ideas from participants as they play the ***Make a Meal*** game. Each participant will share how they would make a meal using two "make and serve in a hurry" foods that they have selected from items on display. The planned meals could be a snack, lunch, breakfast, or dinner. Participants will discuss and share ideas on how to make the planned meals low-cost. Next, participants will brainstorm some ideas on how their children could help make the meal. Finally, each participant will be challenged to select two timesaving or low-cost ideas to plan, shop, or cook healthy meals that they will use in the upcoming week and one way they will let their child(ren) help with the family meals.

TARGET AUDIENCE: Mothers and family caregivers with children between the ages of 2 and 18

CLASS TIME: 1 hour

KEY MESSAGES:

- Timesaving tips can help parents make easy, tasty, and healthy family meals, with less stress and cost
- Children can help parents prepare family meals

BEHAVIORAL OBJECTIVES:

As a result of participating in this session, participants will be able to:

- Identify and use at least two timesaving or low-cost ways to prepare healthy family meals each week
- Name two tasks their child(ren) can do to help make a family meal and commit to letting their child(ren) help do a task at least once a week

MATERIALS NEEDED FOR SESSION:

- Nametags/markers
- Highlighters (one per participant)
- Pencils (one per participant)
- Samples of "make and serve in a hurry" foods (have an assortment of canned and dry food items such as beans, corn, tomatoes, tuna fish, whole wheat noodles, brown rice, soup, canned chili, canned fruit packed in water or low syrup)
- ***MyPyramid*** poster—Hang poster at eye level so everyone can see it

- Tape to hang poster
- Flipchart with markers
- Handouts for participants:
    - ***Family Meals—Easy, Tasty, and Healthy!***
    - ***The Healthy Family Guidebook***
    - ***Use a Food Thermometer***
    - ***Recipe Booklet***
- Take-away items for participants:
    - Instant read thermometer
    - Temperature magnet
    - Hot pad (3 to give away to participants who respond to discussion items)

GETTING READY

- Review the information on the handout ***Family Meals-Easy, Tasty, and Healthy!*** and directions for playing the ***Make a Meal*** game.
- Get the food items together for the ***Make a Meal*** game. Remember that the idea is to simulate creating a meal from items that are already on hand.
- Review the consent and evaluation forms in case participants have any questions.
- For additional background information, review ***Inside the Pyramid*** on the USDA website, www.mypyramid.gov. The section on ***Tips to help you eat*** for each of the food groups provides additional information to use in your discussion as time permits.

TEACHING THE LESSON

WELCOME TO *FAMILY MEALS – EASY, TASTY, AND HEALTHY!* (5 minutes)

Welcome participants and ask them to make their own nametag (first names only). Make sure each has a copy of the ***Family Meals*** handout, the ***Guidebook*,** a highlighter and a pencil. Add other points of interest, as needed, such as the location of restrooms and water fountains.

INTRODUCTION/ICEBREAKER:

- What are the names and ages of your children? Give participants time to share.

EVALUATION: (10 minutes)

Hand out the consent and evaluation forms to all participants. Explain to the group that these classes are part of a UT project to look at different teaching methods. Ask them to read and complete the consent form and then complete the evaluation form. Collect consent and evaluation forms from all participants before starting the class.

DISCUSSION GROUP ACTIVITIES (10 minutes)

Tell the group you will be talking about:

- Planning ahead to make meals easier, tastier, healthier, faster, and less expensive
- Shopping and buying low-cost foods to make and serve in a hurry
- Using timesaving tips when cooking meals
- Involving their children in making meals

Paraphrase the following from the Introduction section of the ***Guidebook***.
"Mom, what are you making for supper? I did not like to hear that question. I often did not have an answer. Like most moms, I wanted my family to eat healthier foods. I knew I had to take action. With help from the SNAP nutrition educator, I learned that my family needed to eat more fruits, vegetables, and whole grains. It still seemed hard to do. I needed a plan to change what we ate and how we ate. On top of that, my family is so busy. Work and school take up most of our time. Does this sound like you?"

Pause and let the participants think about the question, then ask:

- "How do you decide what to make at dinner?"
- "What does a 'quick meal' mean to you?"
- "What does a 'healthy meal' mean to you?"
- "How can you have a quick and healthy meal?"

Allow participants to share their responses for each question before moving to the next one. To encourage participation give out the hot pads. Discuss the following tips:

- Healthy meals can be quick--add vegetables to a low-cost food like pasta, rice or beans.
- Cook when you have more time--on the weekend, make a double recipe of a casserole and freeze it for the next week.
- Do some tasks ahead--wash and trim vegetables or make fruit salad a few hours before or the day before your meal.
- Cook in a fast way--microwave, broil, or stir-fry when you can.
- Make no-cook meals or snacks--Salads with low-cost foods like canned tuna, chicken, or beans, cold sandwiches, raw vegetables or fruit with low-fat yogurt or dip. *Kids like finger foods!*
- Stretch food dollars--make a shopping list, check store sales, buy generic/store brands.

GROUP ACTIVITY: MAKE A MEAL GAME (20 minutes)

- Form pairs or small teams (3-4 participants).
- Have each pair or team pick two different foods from the "make and serve in a hurry" foods that are displayed on the table.
- After everyone has picked their foods, ask for volunteers to tell how they would use their foods to make a snack or meal (breakfast, lunch, or dinner). They can add other foods to complete the meal.
- Ask participants how they would make the meal low-cost.
- Give everyone an opportunity to make a meal or snack. Write the menus on a flipchart.

DISCUSS: How can your children help make a meal? Let the group brainstorm some ideas. Write the ideas on the flipchart.

SUM UP: (10 minutes)

- Review the tips on the ***Family Meals - Easy, Tasty, and Healthy!*** handout.
- Give each participant the recipe booklet and point out ideas for easy, low-cost meals using many of the ingredients they could choose from.
- Refer to pages 29-30 in the ***Guidebook*** for more ideas on making low-cost, easy meals.

- Point to pictures of foods on the ***MyPyramid*** poster for ideas on healthy choices from each of the food groups. Mention that more information and easy menus are available in their ***Guidebook*** (pages 10-24).
- Give each participant the Use a Food Thermometer handout, a food thermometer, and the temperature magnet. Briefly review the importance of cooking food to a safe temperature.

HOME ACTIVITY (5 minutes):

- Give each participant a highlighter and ask them to highlight on the ***Family Meals*** handout or in the ***Guidebook*** (pages 29-30) two timesaving or low-cost tips they will try during the upcoming week.
- Ask each participant to highlight on the handout one task they will let their child do to help make a meal during the week. Space is also available on the handout to write their own ideas.

Adapted from: Loving Your Family Feeding Their Future, Nutrition Education Through the Food Stamp Program developed by the Food and Nutrition Service, U.S. Department of Agriculture (USDA). Original curricula available on-line at http://www.nal.usda.gov/fsn/Loving

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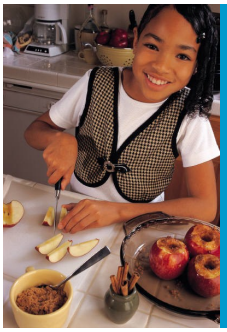
Appendix C

Sample Newsletter

Volume 4; 2010

UT Extension



The Energizer

Get Energized for Nutrition and Physical Activity In a SNAP

Cooking Up Tradition

Years ago, it was family tradition to spend hours in the kitchen, preparing treasured family recipes, while at the same time teaching children how to cook. Today, frozen dinners and fast-food meals have replaced that important family time. This has made it difficult for children to learn basic cooking skills.

Back to the Kitchen

Slow down the dinner process and invite your kids in the kitchen. Make cooking time, family time.

Meals prepared as a family have several advantages over eating "on the run" foods. Meals cooked at home are better for you and your children. By cooking family meals, you know what each food is made of and that the food was cooked properly. Home cooked meals are less expensive than convenience foods or restaurant meals. Family meal time gives you the opportunity to talk as a family and practice cooking skills. Cooking meals at home gives you a chance to share some of your family heritage by passing on special recipes or cooking styles that have been handed down from generation to generation.

The Cooking Adventure

Cooking is perfect for children. It offers them a chance to be proud of their work and to share something they made with others. They are able to measure, put together, chop and stir many foods. These tasks help kids develop their hand-eye coordination and other skills. Kids are able to use all their senses to prepare the meal and then see how all of the ingredients change into tasty foods. Plus, children will often try new foods they helped prepare. So, if you have a picky eater at home, make cooking an adventure and they may try all sorts of new foods.

Cooking Activities for Kids

Cooking is fun at any age. It is important to keep cooking tasks safe for every age of helper you may have at home. Here are some age appropriate activities that you can use with your children:

Activities for children 3-6 years old:

- Washing fruits and veggies
- Cleaning the tables and counters
- Rolling out dough
- Making shapes with cookie cutters

Activities for children 6-10 years old:

- Reading recipes
- Writing the shopping list when told the ingredients
- Using measuring cups for dry and liquid ingredients
- Stirring ingredients in a bowl
- Using a dull knife to spread jelly
- Prepping fruits and veggies without a knife (i.e. snapping beans, husking corn, etc.)

Activities for 10-13 year olds:

- Following steps and preparing simple recipes with little adult intervention
- Using a microwave, oven and stove
- Using a hand grater
- Using a knife with supervision
- Operating an electric hand mixer

Activities for teens:

- Planning a balanced meal, party menu or special event
- Reading a recipe and creating a shopping list
- Operating a food processor and blender
- Making multiple ingredient recipes without supervision

When you begin to teach your child to cook, it is important to teach them to be safe and clean. As your child's skills improve, introduce new safety and cleanliness concepts. You can never review the basics of safety and cleanliness enough with your children!

TNCEP Commodity Foods Recipe

Pasta Primavera

- 1 (16 ounce) package frozen vegetable medley, thawed
- 3 cups cooked **pasta** (elbow macaroni, rotini, shells or ziti)
- 3 tablespoons olive oil
- 1 package ranch salad dressing mix

County Contact Information

Instructions

- Wash hands and clean food preparation area.
- In medium saucepan, mix cooked pasta, olive oil, ranch dressing mix, and vegetable medley.
- Cook on medium heat, stirring constantly.
- Serve warm

Makes six (3/4 cup) servings.

Recipe Tip: Pasta usually doubles in size after it cooks so if you need 3 cups, measure 1 1/2 cups dry pasta to cook! Also, try using whole wheat pasta to add more nutrients to your meal!

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SNAP provides nutrition assistance to people with low income. It can help you buy nutritious foods for a better diet. To find out more, contact your local DHS office.

TNCEP Tennessee Nutrition & Consumer Education Program
Tennessee Department of Human Services
Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development.
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This material was funded by USDA's SNAP ED Program.

Appendix D

Baseline Survey

County

NUTRITION EDUCATION SURVEY

Please choose the best answer for each question. All answers are confidential.

Name: _____

Do you shop with a grocery list?

☐ No ☐ Yes, sometimes ☐ Yes, often ☐ Yes, everyday

How many times a <u>week</u> do you usually eat food from a fast-food restaurant?

☐ None ☐ 1-2 times ☐ 3-4 times ☐ 5 or more times

How many times a <u>week</u> are you physically active (like walking, biking, dancing, running/jogging, playing with your kids, etc?)

☐ None ☐ 1-2 times ☐ 3-4 times ☐ 5 or more times

Do you watch the portion sizes of your foods?

☐ No ☐ Yes, sometimes ☐ Yes, often ☐ Yes, everyday

Circle the best answer for you	**Strongly agree**	**Somewhat agree**	**Somewhat disagree**	**Strongly disagree**
It costs more to eat healthy foods.	1	2	3	4
I'm too busy to take the time to eat healthy foods.	1	2	3	4
Healthy foods don't taste good.	1	2	3	4
Healthy foods are difficult to prepare.	1	2	3	4
Eating a variety of foods each day gives me all the vitamins and minerals I need.	1	2	3	4
It is important for me to eat 5 or more servings of fruit and vegetables each day.	1	2	3	4
It is important for me to be physically active.	1	2	3	4

Food Stamp Program

Food Behavior Checklist

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

Name _____ Date _____ ID# _____ ☐ Entry ☐ Exit

Choose one answer for each question.

1.

Do you eat fruits or vegetables as snacks?

○ no ○ yes, sometimes ○ yes, often ○ yes, everyday

2.

Do you drink fruit drinks, sport drinks or punch?

○ no ○ yes, sometimes ○ yes, often ○ yes, everyday

3.

Do you drink regular soda?

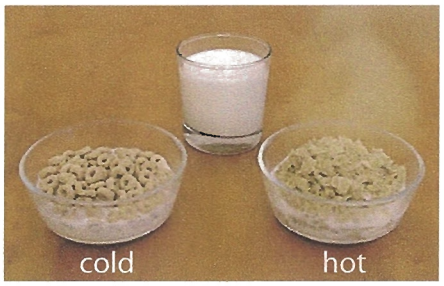
○ no ○ yes, sometimes ○ yes, often ○ yes, everyday

4.

Do you drink milk?

○ no ○ yes, sometimes ○ yes, often ○ yes, everyday

5.



Did you drink milk or use milk on cereal during the past week?

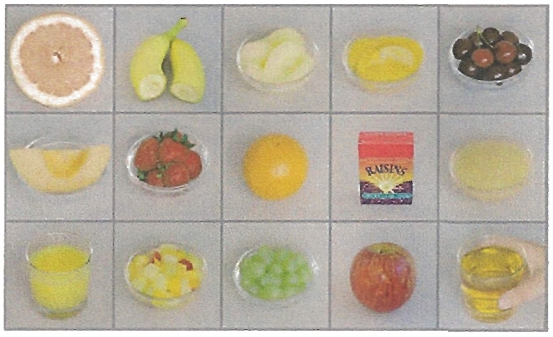
○ yes ○ no

6.

Did you have citrus fruit or citrus juice during the past week?

○ yes ○ no

7.



How many servings of fruit do you eat each day?

☐

8.

Do you eat more than one kind of **fruit** each day?

○ no ○ yes, sometimes ○ yes, often ○ yes, always

9.

Do you eat more than one kind of **vegetable** each day?

○ no ○ yes, sometimes ○ yes, often ○ yes, always

10.

How many servings of vegetables do you eat each day?

☐

11.

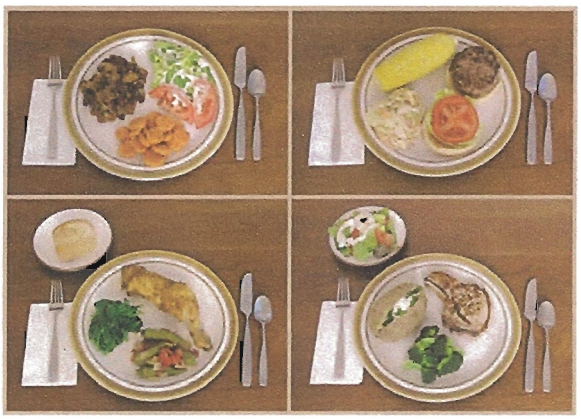
Do you take the skin off chicken?

○ no ○ yes, sometimes ○ yes, often ○ yes, always

12.

Did you have fish during the past week?

○ yes ○ no

13. 

Do you eat 2 or more vegetables at your main meal?

○ no ○ yes, sometimes ○ yes, often ○ yes, everyday

14.

Nutrition Facts	
Serving Size 5 Crackers (15g)	
Servings Per Container About 30	
Amount Per Serving	
Calories 60 Calories from Fat 15	
	% Daily Value*
Total Fat 1.5g	2%
Saturated Fat .5g	2%
Trans Fat .5g	
Polyunsaturated Fat 0g	
Monounsaturated Fat .5g	
Cholesterol 0mg	0%
Sodium 170mg	7%
Potassium 15mg	0%
Total Carbohydrate 11g	4%
Dietary Fiber 0g	0%
Sugars 0g	
Protein 1g	

Do you use this label when food shopping?

○ no ○ yes, sometimes ○ yes, often ○ yes, always

15.

Do you run out of food before the end of the month?

○ no ○ yes, sometimes ○ yes, often ○ yes, always

16. How would you rate your eating habits?

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

poor fair good excellent

- Use the accompanying instruction guide when administering this tool.
- Research and development for this illustrated diet quality checklist were a joint effort of University of California (UC) Cooperative Extension, the California Nutrition Network, UC Davis Design Program and UC Davis Nutrition Department. Authors: Kathryn Sylva, Marilyn Townsend, Anna Martin, Diane Metz.
- The research for this diet quality instrument is available.

Townsend MS, Kaiser LL, Allen LH, Joy AB, Murphy SP. Selecting items for a food behavior checklist for a limited resource audience. Journal of Nutrition Education and Behavior. 2003;35:69-82

Murphy SP, Kaiser LL, Townsend MS, Allen LH. Evaluation of Validity of Items in a Food Behavior Checklist. Journal of the American Dietetic Association. 2001;101:751-756, 761.

Townsend MS, Sylva KG, Martin A, Metz D, Wooten-Swanson P, Follett J, Keim N, Sugerman S. Visually Enhanced Evaluation for Low-income Clients. J Nutr Educ Behav. 2005; 37 (1):S49.

- Funded by the USDA Food Stamp Program via the California Nutrition Network, UC Cooperative Extension and UC Davis

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http://www.ca5aday.com

Do you use a refrigerator thermometer?

☐ No ☐ Yes ☐ Don't have one

Do you use a thermometer when cooking?

☐ No ☐ Yes ☐ Don't have one

How many <u>adults</u> including yourself live in your household: _____

How many <u>children</u> under 18 live in your household: _____

What is your age?

☐ 18-21
☐ 22-29
☐ 30-39
☐ 40-49
☐ 50-59
☐ 60 or over

What is your marital status?

☐ Married
☐ Living with partner
☐ Widowed
☐ Divorced or separated
☐ Single, never been married

What is your gender?

☐ Female ☐ Male

What is your race?

☐ Black or African American
☐ White
☐ Asian
☐ American Indian or Native Alaskan
☐ Native Hawaiian or Other Pacific Islander

Are you Hispanic/Latino?

☐ Yes ☐ No

What is the highest level of school you have completed?

- ☐ Less than high school
- ☐ High school diploma or GED
- ☐ Some college
- ☐ College degree or higher

Are you currently working?

- ☐ Full-time (35 or more hours per week)
- ☐ Part-time (34 or fewer hours per week)
- ☐ Not employed

Mark all that apply:

- ☐ My family gets SNAP or Food Stamps.
- ☐ My family gets WIC.
- ☐ My family gets free meals at school or day care.
- ☐ My family uses a food bank or pantry.
- ☐ None of these things

Street address: _____

City: _____

Zip code: _____

Main phone #: _____

Alternate phone #: _____

Thanks for your help!

This material was funded by USDA's Supplemental Nutrition Assistance Program. The Supplemental Nutrition Assistance Program provides nutrition assistance to people with low income. It can help you buy nutritious foods for a better diet. To find out more, contact the Department of Human Services toll-free at 1-866-311-4287. Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture, and county governments cooperating. UT Extension provides equal opportunities in programs and employment.

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Appendix E

End of Lessons Survey

Name: _____ Date: _____

UT Extension

"Nutritious & Delicious" A Recipe for Healthy Families

After attending the "Nutritious & Delicious" classes:	**Yes**	**No**
I plan to manage family resources to ensure adequate provision of food.		
I now cook foods to a safe temperature.		
I know plan **more** healthy meals.		
My family now eats **more** fruit and vegetables.		
I know balance my calorie intake from foods and beverages with calories expended to maintain a healthy weight.		
I have increased my physical activity.		

Comments: What did you like most about these classes?

_____

_____

_____

_____

Thanks for your help!

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TENNESSEE NUTRITION & CONSUMER EDUCATION PROGRAM

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Appendix F

Follow-Up Survey

NUTRITION SURVEY

Please choose the best answer for each question. All answers are confidential.

Name: _____

How many times a week do you usually eat food from a fast-food restaurant?

☐ None ☐ 1-2 times ☐ 3-4 times ☐ 5 or more times

How many times a week are you physically active (like walking, biking, dancing, jogging, playing with your kids, etc?)

☐ None ☐ 1-2 times ☐ 3-4 times ☐ 5 or more times

How do you rate your eating habits?

1	2	3	4	5	6	7	8	9	10
Poor			**Fair**			**Good**			**Excellent**

PLEASE CIRCLE THE ANSWER THAT DESCRIBES YOU.

	Do you eat fruit for snacks?	**NO**	**SOMETIMES**	**OFTEN**	**EVERY DAY**
	Do you eat more than 1 kind of fruit each day?	**NO**	**SOMETIMES**	**OFTEN**	**EVERY DAY**
	Do you eat vegetables for snacks?	**NO**	**SOMETIMES**	**OFTEN**	**EVERY DAY**
	Do you eat more than 1 kind of vegetable each day?	**NO**	**SOMETIMES**	**OFTEN**	**EVERY DAY**
	Do you eat 2 or more vegetables at your main meal?	**NO**	**SOMETIMES**	**OFTEN**	**EVERY DAY**
	Do you use this label when food shopping?	**NO**	**SOMETIMES**	**OFTEN**	**EVERY DAY**

How many servings of vegetables do you eat each day?

☐

How many servings of fruit do you eat each day?

☐

Do you use a refrigerator thermometer?

☐ No ☐ Yes ☐ Don't have one

Do you use a thermometer when cooking?

☐ No ☐ Yes ☐ Don't have one

How many <u>adults</u> including yourself live in your household: _____

How many <u>children</u> under 18 live in your household: _____

What is the highest level of school you have completed?

☐ Less than high school

☐ High school diploma or GED

☐ Some college

☐ College degree or higher

What is your marital status?

☐ Married

☐ Living with partner

☐ Widowed

☐ Divorced or separated

☐ Single, never been married

Mark all that apply:

☐ My family gets SNAP or Food Stamps.

☐ My family gets WIC.

☐ My family gets free meals at school or day care.

☐ My family uses a food bank or pantry.

☐ None of these things

Are you currently working?

☐ Full-time (35 or more hours per week)

☐ Part-time (34 or fewer hours per week)

☐ Not employed

Thanks for your help!

This material was funded by USDA's Supplemental Nutrition Assistance Program. The Supplemental Nutrition Assistance Program provides nutrition assistance to people with low income. It can help you buy nutritious foods for a better diet. To find out more, contact the Department of Human Services toll-free at 1-866-311-4287. Programs in agriculture and natural resources, 4-H youth development, family and consumer sciences, and resource development. University of Tennessee Institute of Agriculture, U.S. Department of Agriculture, and county governments cooperating. UT Extension provides equal opportunities in programs and employment.

Appendix G

Demographic Tables

Table 1: Total Sample Demographics at baseline

Age	Frequency	Percent	Percent in TN*
18-21 years	29	8.2%	
22-29 years	37	10.5%	
30-39 years	68	19.3%	
40-49 years	56	15.9%	
50-59 years	43	12.2%	
60 or over	83	23.6%	16.5%
Did not answer	36	10.2%	

*http://censtats.census.gov/data/TN/04047.pdf (median age in years is 35.9)

Table 2: Marital status at baseline

Marital status	Frequency	Percent	Percent in TN*
Married	112	31.8%	51.6%
Living with partner	26	7.4%	N/A
Widowed	49	13.9%	6.7%
Divorced or separated	75	21.3%	14.7%
Single, never married	80	22.7%	27.2%
Did not answer	10	2.8%	N/A

*Includes all adults over age 15

Table 3: Race

Race	Frequency	Percent	Percent in TN
Black or African American	87	24.7%	17.1%
White	247	70.2%	80.8%
Asian	3	.9%	1.6%
American Indian or Native Alaskan	3	.9%	.9%
Did not answer	12	3.4%	

Table 4: Ethnicity

Ethnicity	Frequency	Percent	Percent in TN
Hispanic/Latino	12	3.4%	3.7%
Not Hispanic/Latino	312	88.6%	96.3%
Did not answer	28	8.0%	

Table 5: Gender

Gender	Frequency	Percent
Female	257	73.0%
Male	57	16.2%
Did not answer	38	10.8%

Table 6: Highest level of education at baseline

Highest level of education	Frequency	Percent	Percent in TN*
Less than high school	131	37.2%	17.0%
High school diploma or GED	140	39.8%	32.5%
Some college	54	15.3%	21.6%
College degree or higher	14	4.0%	28.9%
Did not answer	13	3.7%	

*Includes adults over age 25

Table 7: Employment status at baseline

Employment status	Frequency	Percent	Percent in TN*
Working full-time	38	10.8%	59.5% employed
Working part-time	24	6.8%	
Not employed	282	80.1%	4.4% unemployed 35.7% not in work force
Did not answer	8	2.3%	

*includes adults over age 16

http://www.census.gov/prod/2008pubs/ledow04tn.pdf

Table 8: Food assistance programs at baseline

Food assistance programs	Frequency	Percent
Receives SNAP	213	60.5%
Receives WIC	52	14.9%
Free meals at school or day care	74	21.0%
Uses a food bank or pantry	67	19.0%

Appendix H

Demographic Variables at Baseline by Group

Table 1: Age by Group

Age	Interactive	Facilitated	Indirect
18-21 years	15	11	3
22-29 years	18	12	7
30-39 years	27	13	28
40-49 years	15	13	28
50-59 years	4	5	34
60 or over	13	2	68

χ^2 (10) = 86.19, $p < .001$

Table 2: Marital status by group

Marital status	Interactive	Facilitated	Indirect
Married	24	29	59
Living with partner	14	4	8
Widowed	10	2	37
Divorced or separated	23	8	44
Single, never married	49	13	18

χ^2 (8) = 62.01, $p < .001$

Table 3: Race by group

Race	Interactive	Facilitated	Indirect
Black or African American	60	7	20
White	52	46	149
Asian	2	1	0
American Indian or Native Alaskan	1	2	0

χ^2 (6) =75.26, $p < .001$ (some violations—look at nonparametric test)

Table 4: Ethnicity by group

Ethnicity	Interactive	Facilitated	Indirect
Hispanic/Latino	8	2	2
Not Hispanic/Latino	109	53	150

χ^2 (2) =5.65, $p = .06$ (some violations—look at nonparametric test)

Table 5: Gender by group

Gender	Interactive	Facilitated	Indirect
Female	59	47	151
Male	33	10	14

χ^2 (2) =29.83, $p < .001$

Table 6: Education level by group

Highest level of education	Interactive	Facilitated	Indirect
Less than high school	57	17	57
High school diploma or GED	38	17	85
Some college	15	16	23
College degree or higher	5	6	3

χ^2 (6) =27.42, $p < .001$ (some violations—look at nonparametric test)

Table 7: Employment status by group

Employment status	Interactive	Facilitated	Indirect
Working full-time	22	10	6
Working part-time	9	7	8
Not employed	88	38	156

χ^2 (4) =25.15, $p < .001$ (some violations—look at nonparametric test)

Table 8: Food Assistance Programs by Group

Food assistance programs	Interactive	Facilitated	Indirect
Receives SNAP*	78	23	112
Receives WIC**	26	16	10
Free meals at school or day care***	31	14	29
Uses a food bank or pantry$^{\mu}$	108	54	120

*χ^2 (2) =12.28, $p < .01$; **χ^2 (2) =22.99, $p < .001$; ***χ^2 (2) =3.64, $p = .16$; $^{\mu}\chi^2$ (2) =25.16, $p < .001$

Appendix I

Project Budget Summary

Budget Category	Dollar Amount
Supplies—included teaching supplies, curriculum teaching aids, nutrition reinforcement items, perishables and consumables	$8,772.05
Media Processing—included printing, publication costs for brochures, surveys, and handouts	461.57
Communication—included telephone, long distance charges, shipping, handling, postage	2,352.66
Travel—included instate travel for project implementation and evaluation, out-of-state travel for professional meetings to present information	21,967.45
Contractual—included registration fees for professional meetings	2,363.00
****TOTAL Spent**	$35,916.73
Grant Amount Awarded	$36,000.00
****Remaining Amount**	$83.27

**Final numbers pending.