

HEAD START PARENTS: PREFERRED LEARNING METHODS, NUTRITION  
INTERESTS, AND THE BARRIERS TO PARTICIPATING IN NUTRITION  
EDUCATION CLASSES

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Title

Barriers to Participating in Nutrition Education Classes, the Preferred Learning Methods,

and Nutrition Interests of Head Start Parents

By

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## ABSTRACT

Gregoire, Anne Rachel; M.S.; Department of Health, Nutrition, and Exercise Sciences; College of Human Development and Education; North Dakota State University; May 2010. Head Start Parents: Preferred Learning Methods, Nutrition Interests, and the Barriers to Participating in Nutrition Education Classes. Major Professor: Dr. Ardith Brunt.

**Background:** Obesity rates in low-income populations continue to rise. Several federal nutrition programs have been established to increase the nutrition knowledge of individuals in these populations and improve their overall health through dietary change. However, there are unique challenges individuals must overcome in order to participate in nutrition education.

**Objective:** The purpose of this research was to identify barriers to participating in nutrition education classes, the preferred learning methods, and nutrition topics of interest of Head Start parents.

**Design:** Surveys were distributed to Head Start parents in the Fargo, North Dakota area during the Head Start fall picnic. Although 67 individuals completed the survey, only 60 surveys met inclusion criteria for the current study. In order to participate in the survey, individuals were required to be 18 years of age, be able to read English, and have a child registered in the local Head Start program. Surveys were analyzed using descriptive data, frequencies, means, and t-tests. A significance level = 0.05 was used.

**Results:** Most of the participants indicated they were Caucasian/white (72.4%). The top identified barriers to attending nutrition programs were childcare, time of day classes are offered, day of week classes are offered, and arranging to come to classes is too difficult. Not knowing about the classes was also a barrier to

attending classes. Preferred learning methods included receiving recipes, practicing cooking in a class, and watching videos. Saving money at the grocery store, planning healthy meals, and maintaining a healthy weight were identified as the top valued nutrition topics. Participants who had at least some college education were more interested in computer and online programs compared to respondents who had a high school education or less. Half of the respondents indicated they would be interested in attending a class about nutrition and/or cooking. Compared with participants with no interest in attending nutrition or cooking classes, respondents who indicated an interested in attending classes reported significantly higher barriers for transportation ( $p=0.003$ ) and not knowing about when the classes were offered ( $p=0.027$ ). Differences between races were also identified. Compared to Caucasian/white, lack of transportation was significantly higher for other races ( $p=0.023$ ). Compared to Caucasian/white, learning one-on-one with an instructor was favored by other races ( $p=0.046$ ).

**Conclusions:** Reducing barriers and increasing interest in nutrition may help improve attendance and may further the effort to combat obesity rates in low-income populations. Preferred learning methods vary between groups and individuals. Creative ways to reach this population using online, computer programs, or videos may help educators focus their efforts to reach their target audiences with varying needs and preferences.

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## INTRODUCTION

Over the past several decades, obesity rates have continued to rise in the United States along with the health complications associated with obesity. As a result, obesity research and prevention have become a top priority for health professionals. Although obesity rates have increased for the general public, populations with a low-socioeconomic background tend to have higher overweight and obesity rates (Zhang & Wang, 2004). Several possible explanations for this have been noted including cost of food, lack of nutrition knowledge, availability of food, and behavioral factors (as cited in Dinour, Bergen, & Yeh, 2007, p.1957; Klohe-Lehman et al., 2006; as cited in Martin & Ferris, 2007, p. 31).

Low-income families are at a higher risk of obesity and associated health complications for several potential reasons. One of those reasons is linked with the cost of food. Kendall et al. found that a higher prevalence of food insecurity is associated with less fruit and vegetable consumption (as cited in Dinour et al., 2007, p. 1957). Foods high in fat and calories tend to be less expensive and more accessible to low-income population than lower calorie, nutrient-rich foods such as fruits and vegetables (as cited in Dammann & Smith, 2009, p. 242; as cited in Martin & Ferris, 2007, p. 31). Families may balance the cost of food by eating high-calorie items in order to consume adequate calories (as cited in Dinour et al., 2007, p. 1957). The ability to provide a balanced meal is altered by cost for low-income families (as cited in Heneman et al., 2005, p. 1793).

In addition to the cost of food other barriers for healthful eating may include lack of self control, poor social support, poor time management skills, and stressful

lifestyles (Chang, Nitzke, Guilford, Adair, & Hazard, 2008). Eikenberry & Smith (2004) found time, laziness, and restraint as top barriers for healthful eating.

Jeffery and French discuss that another possible contributor to the obesity risk is an increased frequency of eating at fast food locations (as cited in Townsend, 2006, p. 34). The frequency of fast food stops may be influenced by financial as well as time constraints.

Lack of nutrition knowledge may lead to an increase in obesity rates in low-income populations (Klohe-Lehman et al., 2006). Parents participating in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), identified lack of knowledge, preparation, and experience as barriers to achieving a healthy lifestyle (Birkett, Johnson, Thompson, & Oberg, 2004). Offering nutrition classes for this population may increase nutrition knowledge and improve skills for healthful grocery shopping. Klohe-Lehman et al. (2006) found that increased nutrition knowledge led to increased weight loss among low-income mothers. Several federal programs are currently providing nutrition education to low-income populations in North Dakota including WIC, the Supplemental Nutrition Assistance Program – Education (SNAP-Ed), and the Expanded Food and Nutrition Education Program (EFNEP).

EFNEP was initiated in 1968 and is designed to provide a series of free nutrition education sessions for low-income families with young children and low-income youth. Nutrition sessions include information on food safety, saving tips at the grocery store, and healthy food choices. EFNEP services are provided in a variety of settings including home visits, group locations, and printed materials.

North Dakota's EFNEP program currently provides service for low-income families and low-income youth in six counties including Cass, Sioux, Benson, Fort Berthold, Grand Forks, and Rolette. Adults graduate from the program when they have attended at least six lessons. During the 2007-2008 year, 1,796 families participated in the North Dakota EFNEP program (Tande, 2009). Only 11% of the families enrolled in North Dakota completed six lessons required for graduation. Of the graduates, families reported a 79% improvement in nutrition practices, 56% improvement in food safety practices, and 81% improvement in food resource management (Tande, 2009). However, with only an 11% graduation rate, it is clear participants find it difficult to attend a series of lessons. North Dakota State FNP/EFNEP specialist and coordinator, Desiree Tande, explained that finding locations to deliver nutrition lessons repeatedly is a major challenge faced by nutrition educators in North Dakota (personal communication, April 7, 2009).

One challenge EFNEP educators face is finding locations to hold nutrition sessions that target low-income families with young children. Head Start is one location where a partnership with EFNEP may be very successful. The Head Start program provides funding for local agencies to provide comprehensive child development services to economically disadvantaged children and families (About the Office of Head Start, 2009). Head Start programs stress parent involvement by engaging parents in their children's learning and helping parents make progress toward their educational, literacy, and employment goals (About the Office of Head Start, 2009).

In the Fargo, North Dakota area, EFNEP has been offered at the West Fargo and Central Head Start locations. Of the 351 parents enrolled in Head Start in the Fargo area only ten parents have attended one or more of the classes throughout the year. Sessions were held at a variety of times and days, and the schedules were decided from verbal participant input, available room time, and the nutrition educator's schedule. Leola Daul, parent coordinator at Head Start, commented that they have not found a good time to hold any classes, not just nutrition, and are still trying to determine the best time (personal communication, April 7, 2009).

### **Purpose of the Study**

The purpose of this research was to identify barriers to participating in nutrition education classes, nutrition topics of interest, and the preferred learning methods of Head Start parents.

### **Objectives**

The objectives for this study were as follows:

1. To identify barriers that deter Head Start parents from attending nutrition education sessions.
2. To identify nutrition topics that Head Start parents feel are important and nutrition topics parents want to learn more about.
3. To assess learning methods preferred by Head Start parents.

### **Definitions**

Supplemental Nutrition Assistance Program – Education (SNAP-Ed): SNAP-Ed is a nutrition education program designed to help individuals and families in North

Dakota select nutritious foods that fit within a limited budget. Nutrition educators meet participants in homes, schools, and other settings. SNAP-Ed is offered through North Dakota State University Extension Service. Audiences for the SNAP-Ed program must be eligible or receive supplemental nutrition assistance program (SNAP) benefits. SNAP was formally known as the Food Stamp Program (Learn more about the programs, 2008).

Head Start: Head Start is a national program that prepares preschool-aged children for school and provides educational, health, nutritional, social, and other services for low-income families. Families must meet income guidelines at or below 100% poverty level (About the Office of Head Start, 2009). Table 1 shows the 2009 poverty level.

Table 1. 2009 Poverty Guidelines.

Persons in family	Poverty guideline
1	\$10,830
2	14,570
3	18,310
4	22,050
5	25,790
6	29,530
7	33,270
8	37,010

Poverty levels for the 48 Contiguous States and the District of Columbia. For families with more than 8 persons, add \$3,740 for each additional person (About the Office of Head Start, 2009).

Early Head Start: Early Head Start is a part of Head Start that provides programming services for infants up to the age of three and their families (About the Office of Head Start, 2009).

Low-income: Families at or below 185% poverty, see Table 1.

Special Supplemental Nutrition Program for Women, Infants, and Children (WIC): WIC is a federally funded program designed to offer nutrition education as well as provide supplemental food vouchers that allow low-income women, infants, and children up to the age of 5 years who are at nutrition risk to purchase nutritious foods (Women, Infants, and Children, 2009).

### **Limitations of the Study**

Results from this study will be specific to Fargo, North Dakota and may not accurately represent opinions from Head Start parents in other geographic locations. Minority ethnic groups may not be highly represented and results from this study may not depict opinions accurately of ethnic minorities. Survey participation is voluntary and individuals taking the survey may be more interested in healthy behaviors than those who chose not to participate. Participants were required to be able to read English, thus limiting results from individuals who have difficulty reading or speaking English. Surveys were only provided during the Head Start fall picnic; therefore, parents who did not attend the fall picnic did not have access to the survey. As the surveys were anonymous, researchers were unable to identify whether multiple entries were submitted for the same household.

## LITERATURE REVIEW

Obesity rates throughout the nation remain high. Behavioral Risk Factor Surveillance System (BRFSS) data for 2008 shows higher obesity rates for lower income populations: 25.2% of the population are considered obese for those with incomes above \$50,000 compared with 33.5% obesity rate for those with incomes less than \$15,000. North Dakota has a similar trend with an obesity rate of 26.6% for those with incomes above \$50,000 and 34.5% obesity rate among those with an income of \$15,000 or less (Center for Disease Control and Prevention, 2008). Lack of nutrition knowledge and cost of nutrient-rich foods may be contributing factors to the high obesity rates (as cited in Heneman et al., 2005, p. 1793; Klohe-Lehman et al., 2006).

Offering effective nutrition education for low-income families may be one step to address the increasing obesity rates in this population. Overcoming the identified barriers to attend these classes may increase participation leading to improved nutrition practices. Identifying the preferred learning methods and nutrition information desired of the low-income population will allow educators to tailor nutrition classes that increase interest in attending these classes.

### **Barriers to Attending Education**

Time may be a primary barrier that prevents people from attending nutrition sessions. WIC services found that waiting too long before being seen by WIC staff was the most common barrier to using their program (Woelfel et al., 2004). Extended waiting room time may not be a concern for education classes, but it emphasizes the barrier of time constraints for families. Being able to attend



classes at the provided time was a primary barrier for participating in a community health promotion program (Gatewood et al., 2008). Lack of time to be at scheduled programming was identified as one of the most influential reasons individuals gave for not attending the community health course (Gatewood et al., 2008).

Thirty-three percent of the surveyed women using WIC in Minneapolis, Minnesota listed time as a barrier for participating in a weight-loss program (French, Jeffery, Story, & Neumark-Sztainer, 1998a). Conflicts with scheduling and family responsibilities were the most common cited issues for not attending a weight-loss program for low-income women (French, Neumark-Sztainer, Story, & Jeffery, 1998b).

Lack of childcare or activities for children to do can also make it difficult for parents to commit to programs. WIC participants listed "nothing for children to do while waiting" as another principal barrier to using WIC services (Woelfel et al., 2004). French, et al. (1998a) identified childcare and program fees as the primary barriers in attending a weight loss program for women using WIC services. Even small fees deterred women from attending weight loss programs (French, et al., 1998a). Almost a quarter of participants marked childcare as a barrier to participating in nutrition education programs (John, Kerby, & Landers, 2004). Interestingly, when program fees and childcare barriers were addressed in programming for low-income women, no major effect on attendance was seen (French, et al., 1998b).

Adequate transportation to and from locations may be an issue for participants. EFNEP participants in rural North Carolina indicated transportation as

a barrier to accessing Extension information (Richardson, Williams, & Mustian, 2003). John et al. (2004) found transportation to be the most frequently reported barrier for Food Stamp clients. Alternatively, other research has not found a link between the two. Woelfel et al. (2004) reported that few individuals identify getting to WIC locations as a barrier. Focus groups in another study identified several categories of factors associated with the likelihood to attend nutrition education: health, educational experiences, and home environment with isolation being an overarching category between them (McFerren & Baker, 2009). From these focus groups it was concluded that isolation was the primary barrier in attending nutrition programs for EFNEP participants (McFerren & Baker, 2009).

In order to attend educational programming, families must know that they are offered. Steinhaus et al. (2009) found that 34% of Food Stamp participants were unaware of available FNP programming. Head Start in Fargo, North Dakota sends home flyers for nutrition education sessions and hangs informational posters when classes are being offered. Topics being covered are included on the posters and flyers. Head Start staff also will call parents prior to sessions as a reminder. Language barriers may contribute to being unaware of programming.

Motivation to start or continue a nutrition program can depend on several factors including trust in the educator and perceived value of the information presented. Trusting the educator is a motivator for continuing nutrition education programs (Devine, Brunson, Jastran, & Bisogni, 2006). Low-income women in a weight-loss program valued a leader who had personal experience being overweight (French et al., 1998b). Avoiding nutrition programming that resembles

school like activities is important for EFNEP participants (McFerren & Baker, 2009).

Lack of interest in program information deters individuals from attending. WIC participants identified boring and recurring nutrition information as another barrier to using services (Woelfel et al., 2004). Food Stamp clients identified an interest in knowing about the topics prior to attending nutrition education (John et al., 2004). Other individuals may not have an interest in attending any nutrition programming, regardless of the topic. A quarter of respondents in one survey indicated no interest in attending nutrition education (John et al., 2004).

### **Interests and Learning Methods**

Limited research is published about nutrition topics that are of interest in low-income populations. Analyzing the requests of the audience gives an educator a starting place for designing and implementing a program that would best meet the participant's needs. Contento (2007) states the importance of assessing whether the information is valued by the audience or the educator. Educators may assume a topic is valuable even when the intended audience has no vested interest in that topic.

Increased nutrition knowledge has been found to help increase weight loss among low-income mothers (Klohe-Lehman et al., 2006). Focus groups and personal interviews revealed that many of the low-income participants had limited cooking skills and appeared to have little understanding of healthy eating (Strolla, Gans, & Risica, 2005). Professionals working with these low-income audiences note that participants have misconceptions of appropriate portion sizes and

participants have a difficult time understanding food labels (Strolla et al., 2005). WIC parents also identified lack of knowledge as well as training and experience as barriers to healthful eating (Birkett et al., 2004).

Topics of the greatest interest for food pantry users in Washington state were finding ways to stretch food dollars and making inexpensive foods taste good (Hoisington, Armstrong Shultz, & Butkus, 2002). Food Stamp households with children in Nevada also were very interested in education on managing food dollars (Benedict, Snow, & Fernandez, 2008). Focus groups with low-income mothers revealed a need for basic nutrition knowledge in children's serving sizes and understanding food labels (Reed, 1996). Other low-income audiences were interested in eating to control diabetes, blood pressure, and cholesterol as well as getting children to eat healthier foods (Strolla et al., 2005). Topics regarding weight management were desired by this population as well (Strolla et al., 2005). Nutritional supplements and vegetarian dishes were identified as nutrition interests for low-income audiences (Strolla et al., 2005). Head Start parents were highly interested in learning how to deal with picky eaters and getting healthy cooking ideas and recipes (Nicholson, Ontai, & Peterson, 2008). Additional research would provide a clearer, updated picture of the desired nutrition education topics desired by low-income participants.

Texas EFNEP participants saw improvements in shopping skills and food behavior changes after six educational sessions (Weber Cullen et al., 2009). After six sessions participants Texas EFNEP participants fruit and vegetable intake was increased by 78%, 65% paid attention to portion size, 68% ate lower-fat foods, and

54% consumed less sugary foods (Weber Cullen et al., 2009). Reading food labels was reported by 66% of participants, 63% used grocery lists, and 55% were planning meals (Weber Cullen et al., 2009).

Addressing the needs of the audience is essential for continued participation. WIC participants who thought nutrition education was boring or not useful were more likely to stop using WIC services (Woelfel et al., 2004). Because of this, it is necessary to consider different learning methods and identify specific educational interests of the audience. Contento (2007) remarked that it is important to involve diverse learning activities in nutrition education sessions. Incorporating new ideas into nutrition sessions will allow the educator to meet the learning needs of more participants.

Finding new and innovative ways to deliver programming will help the educator convey information that is interesting to the participants. Incorporating different educational methods is one way nutrition educators can make information more appealing to the audience. Educators need to incorporate different activities to meet the learning needs of the participants thus allowing all to benefit from the class. Food Stamp households with children preferred lessons that included activities, mailings, sessions with demonstrations, and various written materials (Benedict et al., 2008).

Several ways to implement learning experiences include: lecture, brainstorming, demonstrations (cooking demonstrations), debates, and discussions (Contento, 2007). Steinhaus et al. (2009) found cookbooks or recipes to be the number one requested learning method for Food Stamp participants.

EFNEP participants were interested in improving food preparation skills (McFerren & Baker, 2009). Head Start parents involved in focus groups identified their top learning format to be videos (Nicholson et al., 2008). Steinhaus et al. (2009) also reported watching videos to be a preferred learning method as well as written materials or brochures.

Educators should consider a variety of teaching formats including large group, small group, or one-on-one education. Approximately 14% of surveyed Food Stamp participants indicated they were not comfortable in a group setting (Steinhaus et al., 2009). North Dakota EFNEP educators have used the following methods of delivery for programs: PowerPoint presentations, games, handouts, group discussion, one-on-one education, cooking demonstrations, and taste testing (D. Tande, personal communication, April 7, 2009).

Increasingly, nutrition educators are using learner-centered approaches to deliver programming (Cena et al., 2008). This approach is designed to accommodate different learning styles by applying a variety of teaching methods that enhance the information provided during the lessons (Cena et al., 2008). Cena et al. (2008) used a learner-centered program that included group discussions, participatory activities, worksheets, visual aids, cooking demonstrations, and instructor explanations.

Lesson activities favored by EFNEP participants in a Texas study included watching short videos, class discussions, and recipe preparation (Cullen et al., 2009). Not only did participants enjoy the video, but instructors in this study also found the videos to be beneficial in encouraging group discussion (Cullen et al.,

2009). Steinhaus et al. (2009) had similar findings in which the top preferred training methods for Food Stamp participants were recipes or cookbooks and videos.

Video lessons have been successful in improving healthy behaviors for low-income participants (Cox, White, & Gaylord, 2003). Participants in this study were assigned to either a traditional face-to-face group or a video group. Both groups participated in 12 lessons. Additional activities were conducted during the traditional lessons whereas the video group participants were given handouts, engaged in telephone conversations, and had five home visits with an educator. Both the traditional and video group had significant improvements in healthy behaviors. However, no significant changes for food intake or food-related behaviors were observed when compared between the control group and video group (Cox, White, & Gaylord, 2003).

Along with using different teaching techniques, educators should focus on developing a positive learning environment. A positive learning environment shows participants the educator is prepared for them (Norris, 2003). There are many ways to improve the learning environment including seating placed in a circular pattern for better discussion, welcome signs, and well-developed materials (Norris, 2003). Reminding participants of previous experiences is another way to enhance prior knowledge. Reinforcing messages with real-life situations will help adults remember the information better (Norris, 2003). Asking open-ended questions and encouraging partner interactions are important ways to reinforce prior learning. These techniques are also useful for exploring new topics (Norris, 2003).

Internet access has provided new opportunities to develop computer based nutrition education but current research is inconclusive. Silk et al. (2008) compared nutrition education attempts in a website format, printed pamphlet, and computer game modality. In this study low-income woman preferred delivery of the nutrition education through the website compared to a printed pamphlet (Silk et al., 2008). Significantly higher attention ratings were found for both the website and game modality. However, the game was harder to understand than the website. Participants were more likely to use the website compared to the printed pamphlet in the future (Silk et al., 2008). Interestingly, another study with healthy Dutch adults, found no significant differences between interactive-tailored computer programming compared to a print version of the nutrition information (Kroeze, Oenema, Campbell, & Brug, 2008).

Internet programs also can enhance weight management practices (Hunter et al., 2008). United States Air Force (USAF) personnel participated in a study to examine the use of behavioral internet therapy. USAF participants were required to participate in usual care, which requires them to meet yearly with a primary care provider and exercise three times a week with their unit. For this study, participants were randomly assigned to usual care or usual care with behavioral internet therapy. Participants enrolled in the internet therapy group completed diaries of food and physical activity a minimum of five times a week. Nutrition counselors responded weekly to the posts of participants. Online, weekly lessons were completed by internet therapy participants. In addition to the online correspondence, two telephone visits were scheduled after 4 and 8 weeks of the



study. Outcomes were significantly better for internet therapy participants for weight loss, body mass index, waist circumference, body fat, and weight gain prevention (Hunter et al., 2008).

WIC has reported success using an internet-based education program: [wichealth.org](http://wichealth.org) (Bensley et al., 2006). Participants found the WIC website easy to use and the information helpful with 84% reporting interest in having more lessons online (Bensley et al., 2006). Of program participants using [wichealth.org](http://wichealth.org), 56.3% were able to access it from home and 20.9% were able to connect at a parent's home or from work.

Distance education interventions for low-income participants had similar results to traditional face-to-face programming (Campbell, Koszewski, Behrends, King, & Stanek-Krogstrand, 2009). Mail and online nutrition education programs were given to 106 participants while 107 individuals completed face-to-face sessions. Both programs, independent of format, were successful in increasing healthy behaviors and improving nutrient intakes. Distance education was just as effective as traditional programming (Campbell et al., 2009).

One web-based program was designed to increase fruit and vegetable intake by utilizing internet resources. The Making Effective Nutritional Choices (MENU) program explored three techniques: 1) website with basic nutrition information on fruits and vegetables (control group) 2) website with nutrition information tailored to participants based on their baseline survey responses for interests, needs, and special diet requests 3) website with tailored information and motivational interviewing via email (Alexander et al., 2010). Additional information

to reinforce the “session” material was presented using videos and audio files. When compared to the control group (website without tailoring) participants in group 3 consumed a statistically higher average of fruits and vegetables a day at a 12 month follow-up (Alexander et al., 2010). All three intervention groups had an increased intake of fruit and vegetable servings by more than two servings a day. Ninety-five percent of participants rated the program as very good to excellent (Alexander et al., 2010).

Interactive multimedia (IMM) functions also have shown to increase nutrition knowledge for WIC participants (Trepka, Newman, Huffman, & Dixon, 2010). IMM is a method to deliver educational material using a variety of media formats including audio, text, video, animation as well as quizzes, case scenarios, and games. Computer kiosks were available for mothers to participate in IMM nutrition education at WIC clinics. Participants (87.5%) reported that they agreed or strongly agreed that they “use computers a lot” independent of education level, age, race/ethnicity, or employment status. Individuals completing the IMM modules agreed or strongly agreed that they “enjoyed using the computer kiosk” (94.3%) and thought the kiosk was “easy to use” (97.2%). Participants also agreed or strongly agreed they “learned a lot from the program” (95.5%) and would “prefer using the kiosk to reading pamphlets” (86.9%) (Trepka et al., 2010).

While computer and internet applications are growing in popularity, this method may not be appropriate for everyone. Audio resources also are being explored for nutrition interventions. Podcasts are a type of audio presentation that can be accessed through portable audio players and computers (Turner-McGrievy

et al., 2009). Participants were randomly assigned to two podcast groups: control and enhanced. The control group podcast consisted of discussions between two hosts on how to lose weight. Podcasts for the enhanced group were designed based on the Social Cognitive Theory. Every participant received two podcasts a week for 12 weeks. Those in the enhanced group had greater weight loss and reported eating more fruits and vegetables. Weight-loss knowledge was higher for those in the enhanced group (Turner-McGreivy et al., 2009).

Guthrie, Stommes, and Voichick (2006) discussed that there is no agreement on the best method to deliver nutrition education in the community. Debated delivery methods include: if education should be primarily through print material, face-to-face either individual or group settings, mass media, or precise computer designed programs (Guthrie et al., 2006). Because of the wide-range of methods it is important for educators to identify those most valued by the intended audience.

Despite the fact that there are several nutrition programs targeting low-income families, there is still an increased rate of obesity in this population (Center for Disease Control and Prevention). Increasing participation rates in these programs may help individuals improve their health status. Attending at least six EFNEP lessons in North Dakota has been shown to improve nutrition practices, food safety practices, and food resource management of the participants (Tande, 2009). Unfortunately there are numerous barriers that make it difficult for families to attend such programming and further research aimed at identifying successfully overcoming these barriers is imperative.

## **MATERIALS AND METHODS**

The purpose of this research was to identify barriers Head Start parents have to participating in nutrition education classes, to identify nutrition topics of interest, and to identify their preferred learning methods. Overcoming barriers and addressing the needs of the audience may help increase attendance for nutrition education sessions and lead to improved health behavior changes.

### **Instrument**

The survey instrument used was adapted from research completed by Steinhaus et al. (2009). Steinhaus et al. adapted the survey from John et al. (2004). Information on demographics, barriers to attending nutrition education sessions, topics of interest, and preferred learning methods were included in the survey. The survey instrument is found in Appendix A.

### **Procedure**

Approval from the North Dakota State University Institutional Review Board (IRB) was obtained prior to the start of this study. IRB approval documentation is found in Appendix B.

Surveys were distributed to Head Start parents in the Fargo, North Dakota area during the Head Start fall picnic. Invitations to the picnic were sent to all 305 Head Start families by Head Start staff. Upon arrival at the picnic, individuals were directed to contact survey administrators. In order to participate in the survey individuals were required to be 18 years of age, be able to read English, and have a child registered in the Head Start program in the Fargo, North Dakota area. Participants who met survey criteria were given a survey and directed to read

through and keep the implied consent form and continue with the survey. Consent form is found in Appendix C. Completed surveys were returned to administrators and placed in a box. A sample thank you bag was displayed at the picnic registration table to show parents what they would receive for completing the survey. Participants were given a thank you bag that included a reusable shopping bag, plastic water bottle, jump rope, food samples, and a variety of educational materials. These items are pictured in Appendix D. To ensure confidentiality names were not included on the survey. Surveys were analyzed using descriptive data, frequencies, means, and t-tests with SAS version 9.2 software (Statistical Analysis System, Cary, NC). A significance level of 0.05 was used.

T-tests were conducted by categorizing demographic results in the following areas. Education levels were grouped into two categories a) those that indicated some high school and/or high school graduate/GED and b) post high school. Employment levels also were grouped into two categories a) those who marked unemployed or disabled/retired and b) all other categories.

Primarily, frequencies and descriptive data were used to represent the results from this study. For lack of a better test, data was analyzed using the t-test despite the fact the t-test may not represent the data collected may in the best statistical way.

## **RESULTS**

The objectives for this study were to identify barriers that deter Head Start parents from attending nutrition education sessions, identify nutrition topics of interest, and assess their preferred learning methods.

### **Participants**

Sixty-seven surveys were completed, and a total of 60 met study criteria. Surveys were excluded for the following reasons: no children listed and incomplete data. At the time of survey administration there were 305 families enrolled in the Head Start program in the Fargo, North Dakota area. All of these families were invited to the fall picnic; however, only 95 adults attended the event. As previously mentioned, because the surveys were anonymous, it may have been possible that multiple entries were submitted for the same household.

### **Participation Rates**

Sixty surveys were used for analysis. Table 2 displays demographic information of the participants. From these surveys, 50.9% of respondents indicated an interest in attending classes about nutrition and/or cooking. The majority of participants were under the age of 35 (71.9%) and female (93.1%). More respondents in this survey had at least some college education (55.3%) compared to 44.7% who indicated at least some high school education. Thirty percent of the parents were working full time, 23.3% working part time, 11.7% were in school, 5.0% were working full time and in school, an additional 5.0% were working part time and in school, and 25.0% were unemployed, disabled/retired. The majority of respondents identified themselves as white/Caucasian (72.4%),

22.4% were African American/Black, 3.5% American Indian, 1.7% mixed, and 8.6% identified themselves as being Hispanic/Latino.

Table 2. Demographic Characteristics of Respondents

	Number	Percent
<b>Age</b>		
18-25	13	22.8
26-30	15	26.3
31-35	13	22.8
36-40	7	12.3
41 or above	9	15.8
<b>Gender</b>		
Male	4	6.9
Female	54	93.1
<b>Education Level</b>		
Some High School	10	17.9
Graduated High School/GED	15	26.8
Some College	21	37.5
Associates Degree	6	10.7
Bachelors Degree	2	3.6
Graduate Degree	2	3.6
<b>Employment Status</b>		
Working full time	18	30.0
Working part time	14	23.3
In school	7	11.7
Unemployed	13	21.7
Disabled/retired	2	3.3
Working full time and in school	3	5.0
Working part time and in school	3	5.0
<b>Race/Ethnicity</b>		
White/Caucasian	42	72.4
African American/Black	13	22.4
American Indian	2	3.5
Caucasian/African American/American Indian	1	1.7
Hispanic/Latino	5	8.6

### **Barriers to Participating in Nutrition Education**

Approximately one quarter of respondents (28.8%) marked childcare as “always an issue” barrier which was the highest response in this category. Arranging to come to classes was the second most frequently cited “always an issue” barrier with 20.7% of the responses. Time of day, (69.5%) and day of the week (64.4%) were the most frequently reported “sometimes an issue” barriers. There were 69.5% of respondents who marked either “sometimes an issue” or “always an issue” for childcare, 65.5% for arranging to come to classes, 76.3% for day of the week, and 81.4% for time of day. Barriers that were reported as “never an issue” were highest for transportation (67.8%), don’t like being in a group (65.5%), and location (60.7%). Figure 1 displays the percentage of responses for each level (“always an issue”, “sometimes and issue”, and “never an issue”) as well as the reported number of responses (n).

Each barrier was given a mean based on responses. “Never an issue” was worth 0 points, “sometimes an issue” was worth 1 point, and “always and issue” was worth 2 points. Highest averages were found for childcare (0.98), time of day (0.93), and day of the week (0.88). Figure 2 shows the mean response for each barrier.

Individual responses written in the “other” section included language, no time to attend the offered classes, and I don’t feel I need the classes. No significant differences were found between the barriers and employment level using t-tests.



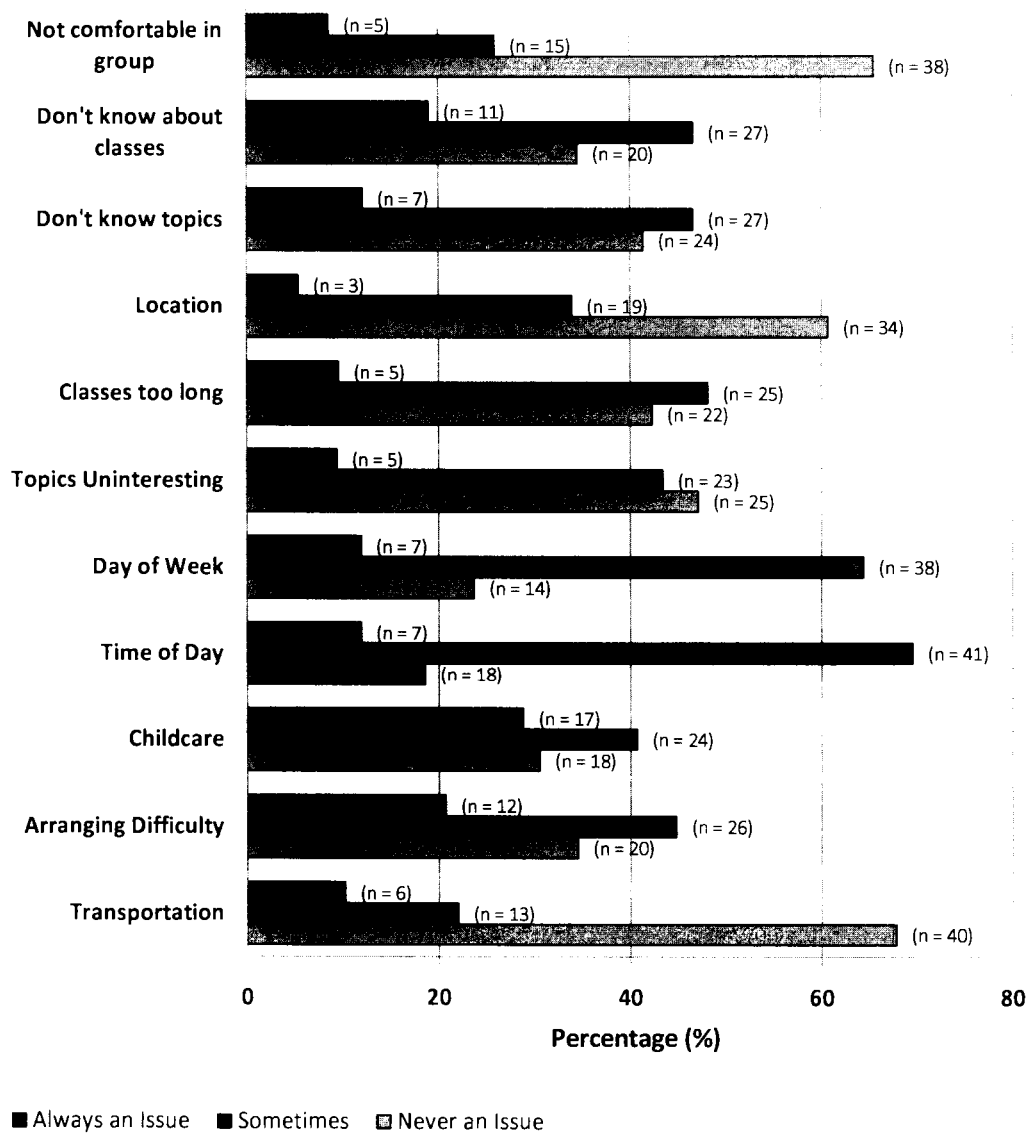


Figure 1. Percentage of responses for barriers. Each barrier is shown with the percentage of responses as well as the number of responses, n = number of responses.

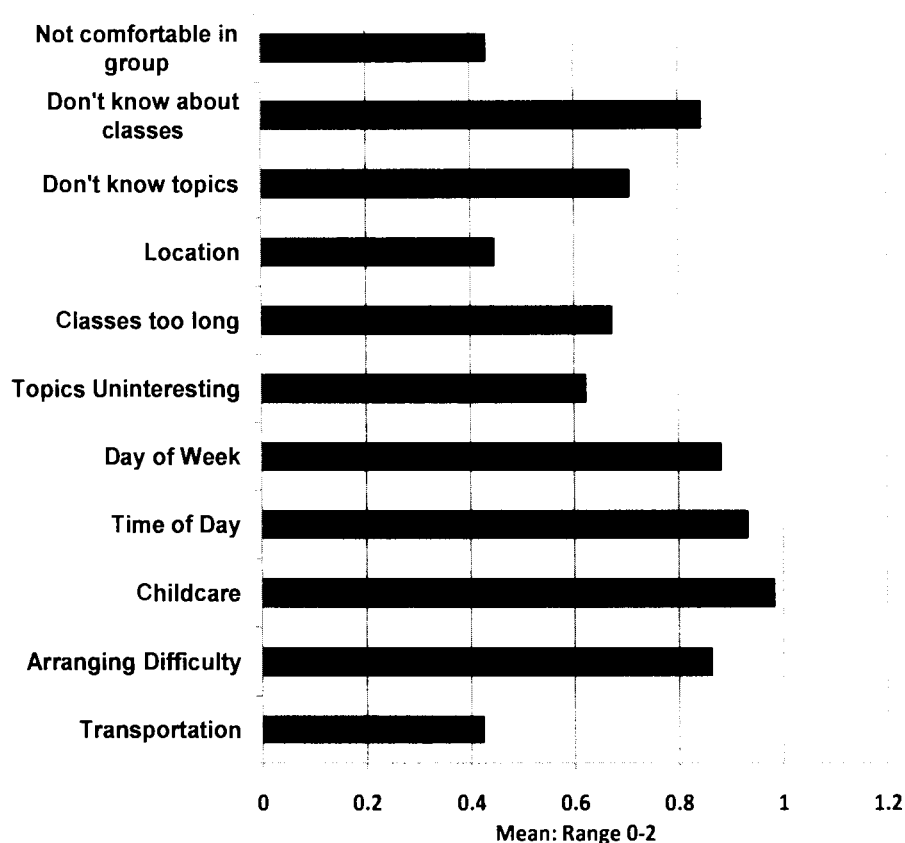


Figure 2. Mean response for barriers to participating. Average response rate was determined based on responses with a range from 0-2.

### Preferred Learning Methods

Educational methods reported as “very useful” were: recipes (63.8%), practicing cooking in a class (54.2%), and attending group classes (50.9%). The most frequent training options that were found to be “somewhat useful” were: meeting one-on-one with an instructor (49.2%), and using videos (45.8%). These methods were marked either “somewhat useful” or “very useful” 94.8% for recipes, 89.8% practicing cooking in a class, 91.5% attending group classes, 86.4%

meeting one-on-one, and 86.4% watching videos. Learning methods most frequently reported as “not useful” were participating in an online discussion group (43.9%), participating in an online class (41.1%), using social networks such as Facebook, Twitter, MySpace (42.9%) and listening to audio CD’s, tapes, MP3’s (32.8%). Figure 3 displays the percentages of responses for each level “very useful”, “somewhat useful”, and “not useful” as well as the number of each response (n). Individual comments written in the “other” section of the survey included: no computer and no internet.

Means were computed for each learning method based on responses. “Not useful” was worth 0 points, “somewhat useful” was worth 1 point, and “very useful” responses were given 2 points. Learning methods with the highest means were receiving recipes (1.59), practicing cooking in a class (1.44), attending group classes (1.42), and watching videos (1.27). Figure 4 shows the means for each learning method.

### **Interest in Nutrition Education Topics**

Nutrition education topics most frequently chosen as “very interested” were saving money at the grocery store (66.1%), planning healthy meals (58.3%), and maintaining a healthy weight (55.9%). No participants marked “not at all interested” for saving money at the grocery store and planning healthy meals; only one marked “not at all interested” in maintaining a healthy weight. The following topics were marked as either “interested” or “very interested” saving money at the grocery store (94.9%), planning healthy meals (90.0%), and maintaining a healthy weight (79.7%). Using dry beans (18.6%) and gardening (14.0%) were the most

frequently marked “not at all interested.” Figure 5 displays the percentages of responses for each level “very interested”, “interested”, “neutral”, “somewhat interested” and “not at all interested” as well as the number of each response (n).

Mean values were assigned for each nutrition topic based on responses for “not at all interested” 0 points, “somewhat” 1 point, “neutral” 2 points, “interested” was 3 points, and “very interested” was 4 points. Highest averages were found for saving money at the grocery store (3.61), planning healthy meals (3.47), and maintaining a healthy weight (3.25). Topics requested in the “other” section of the survey were make ahead freezer meals, gluten-free, and egg and dairy-free cooking. Figure 6 shows the results for the mean response for each nutrition topic.

### **Demographic Differences**

The majority of participants indicated they were Caucasian/white (72.4%). Transportation barrier responses were significantly higher for other races compared to Caucasian/white ( $p=0.023$ ). Learning one-on-one with an instructor was favored by other races ( $p=0.046$ ). Several nutrition topics were significantly different between races. T-test results indicated a significantly higher interest reported from all other races compared to Caucasian/white in the following topics: using MyPyramid ( $p=0.002$ ), cooking basics ( $p=0.005$ ), choosing healthy beverages ( $p=0.040$ ), choosing calcium rich foods ( $p=0.006$ ), choosing healthier fats ( $p=0.05$ ), planning healthy meals ( $p=0.0005$ ), choosing lean meats and/or high protein foods ( $p=0.043$ ), and choosing more whole grain foods ( $p=0.023$ ). No other statistically significant results were found between Caucasian/white and other races.

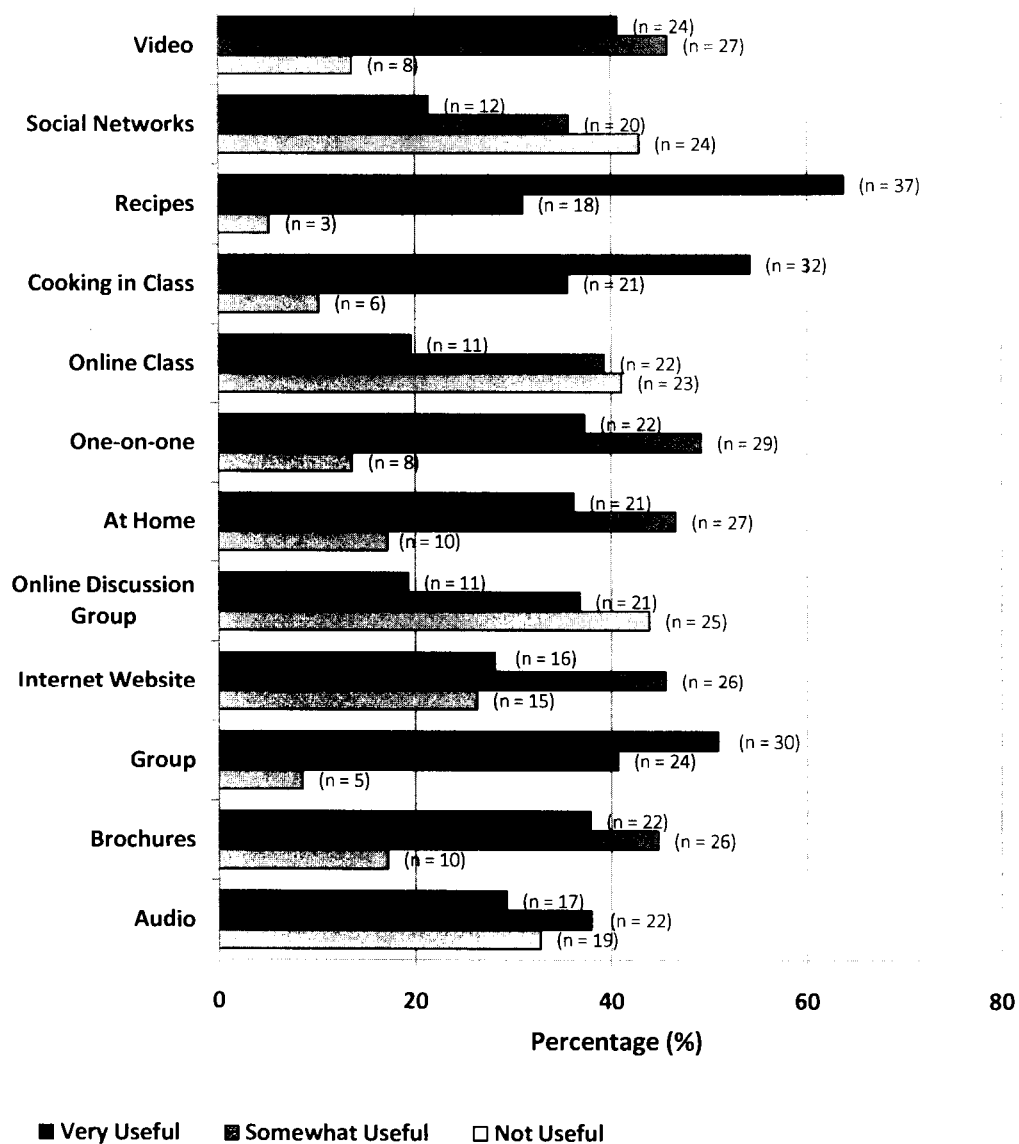


Figure 3. Percentage of responses for learning methods. Each learning method is shown with the percentage of responses as well as the number of responses, n = number of responses.

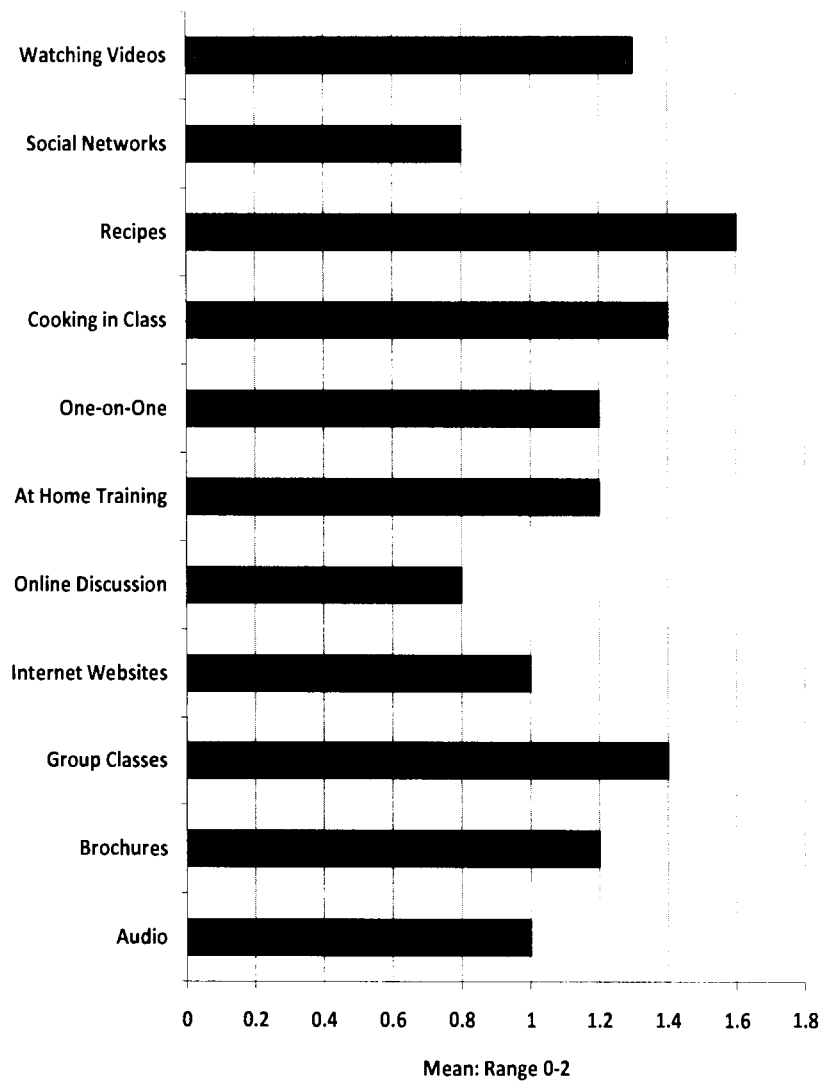


Figure 4. Mean response for learning methods. Average response rate was determined based on responses with a range from 0-2.

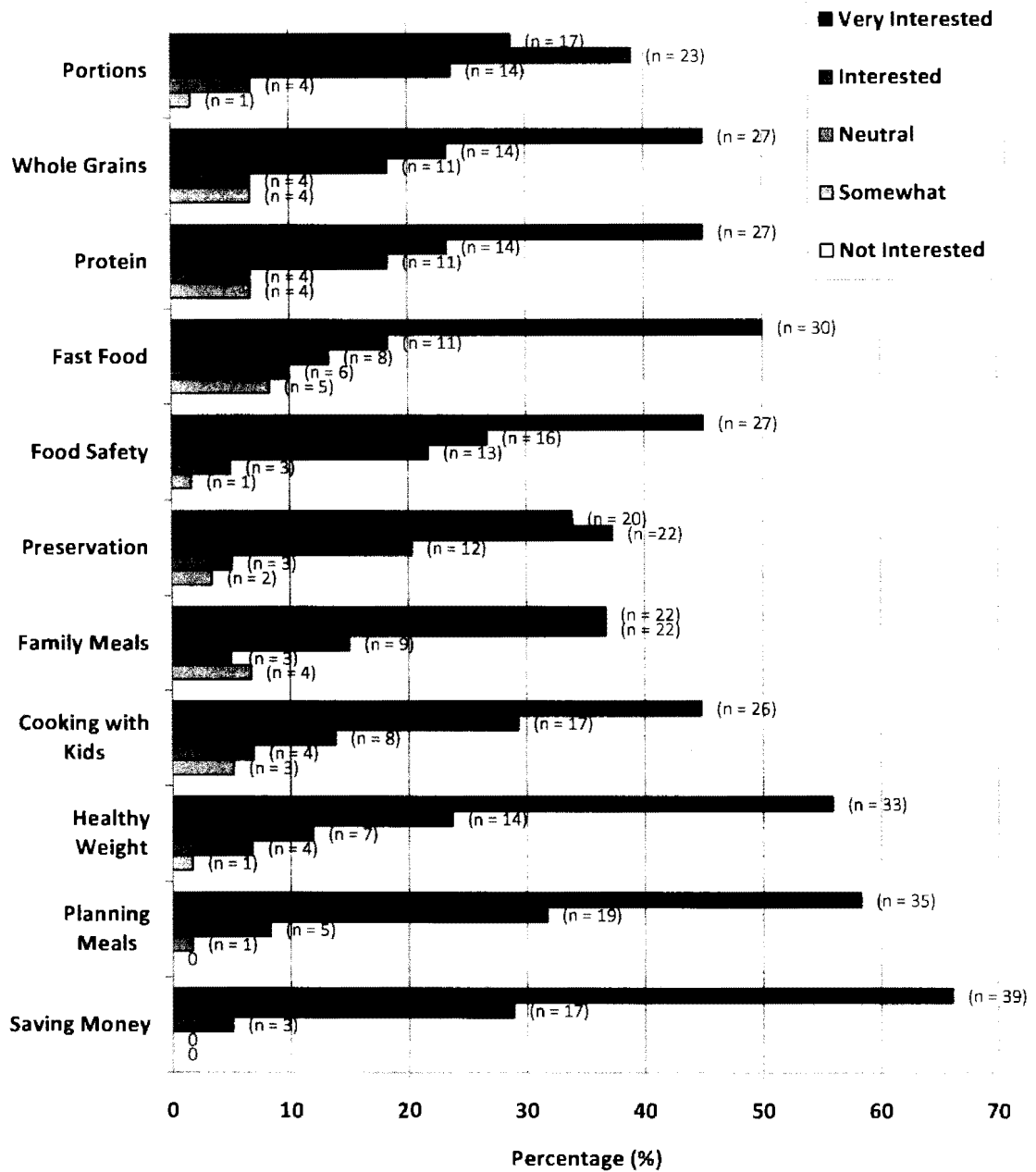


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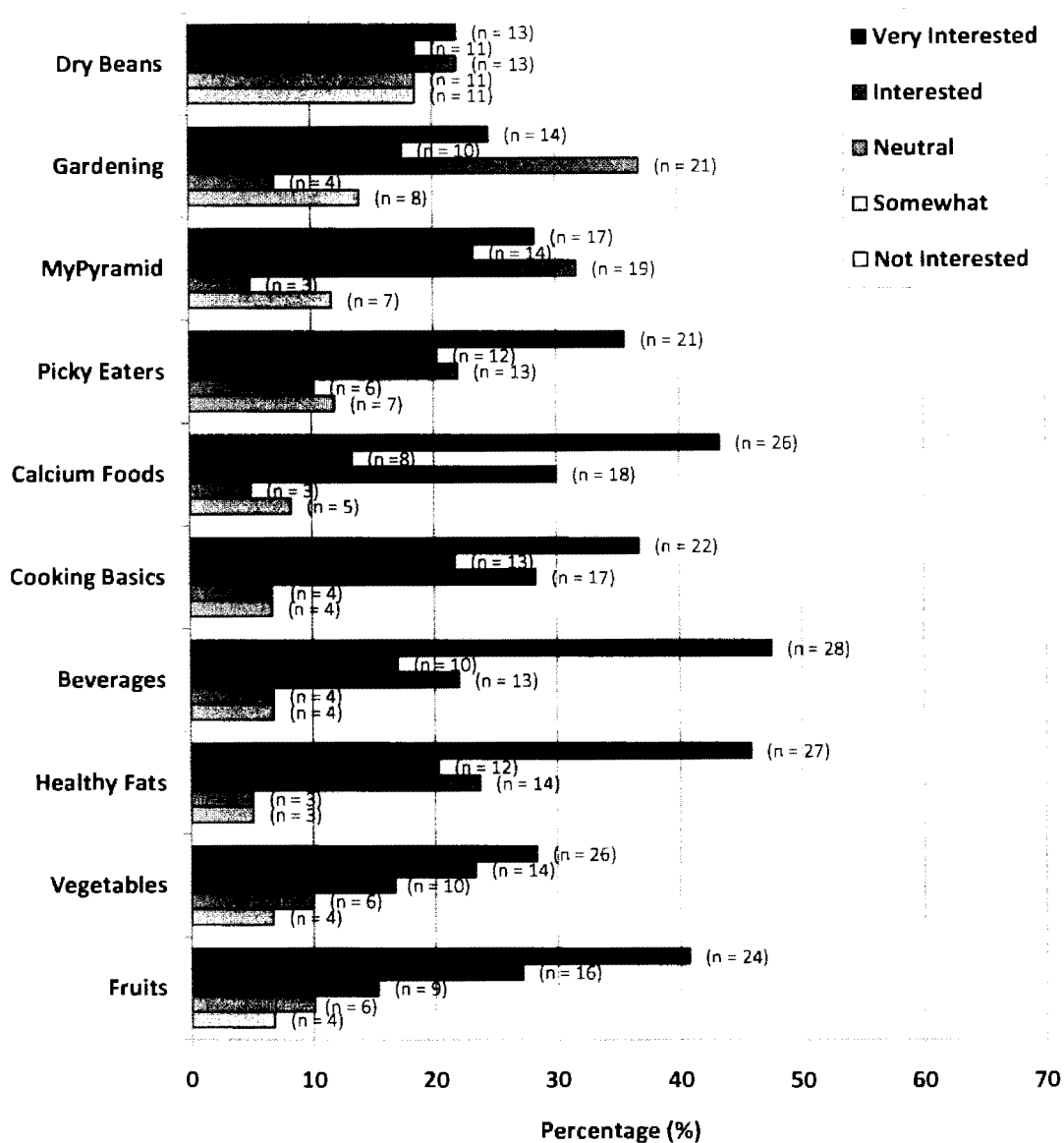


Figure 5. Percentage of responses for nutrition topics. Each nutrition topic is shown with the percentage of responses as well as the number of responses, n = number of responses.



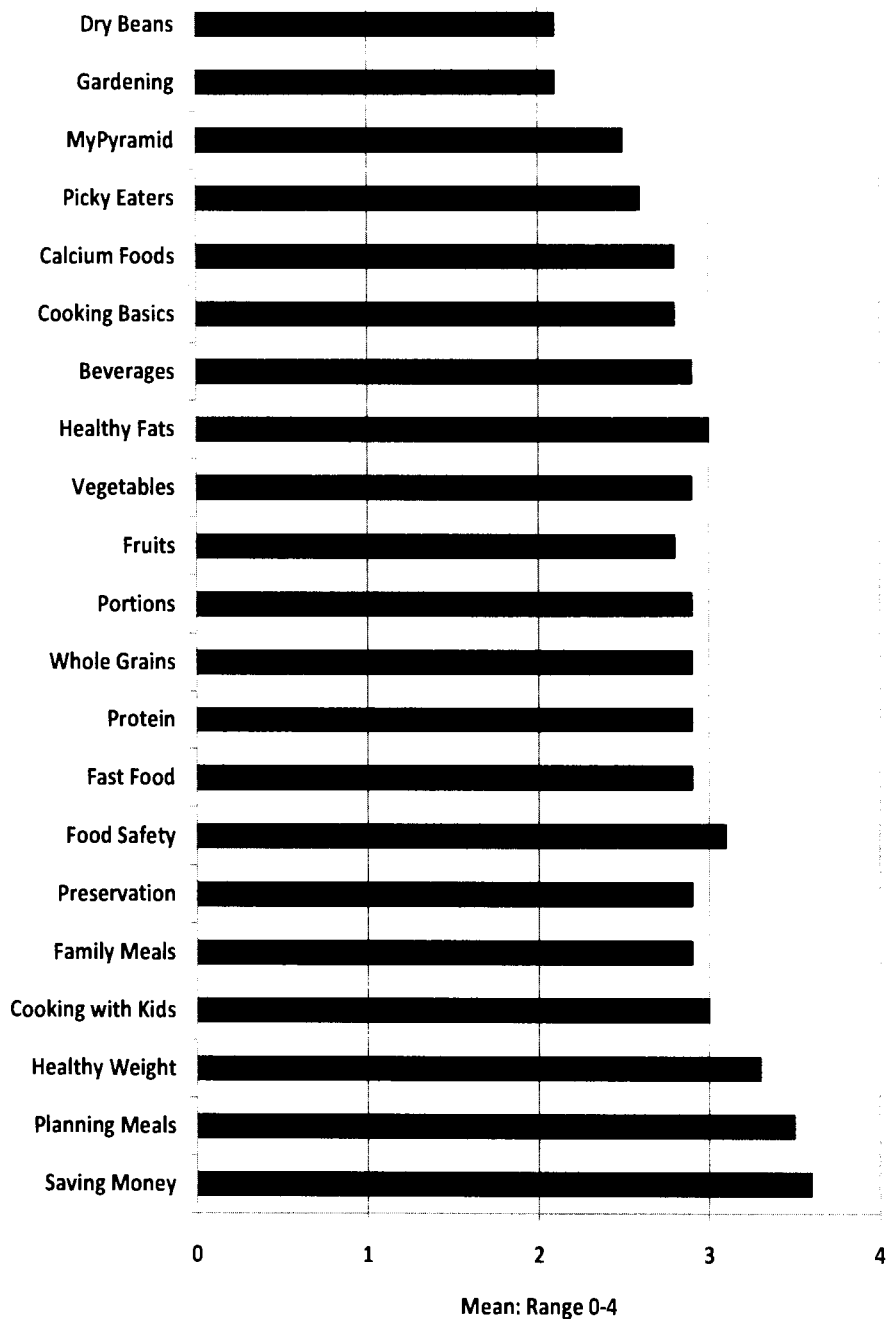


Figure 6. Mean response for nutrition education topics. Average response rate was determined based on responses with a range from 0-4.

### Differences in Education Level

Over half (55.4%) of the participants had at least some college education and 44.6% who had some high school or graduated high school or have a GED certificate. Participants with some college education found computer-based training to be more useful than those with high school education. Internet websites were found “very useful” or “somewhat useful” by 83.3% of the college educated group compared with 62.9% of the high school educated group. Using internet websites as a method was significantly more useful for college educated respondents ( $p=0.05$ ). Online classes had similar results with 73.3% of college educated participants finding them “very useful” or “somewhat useful” and only 42.3% of high school educated individuals thought they were useful. As with using internet websites those with a college education found online classes to be significantly more useful ( $p=0.020$ ) compared with respondents who have a high school education or less. Although not significantly different, online discussion groups had “very useful” or “somewhat useful” responses by 70.0% of the college educated group compared to 40.7% of the high school educated group who marked those responses.

Compared to high school education, college-educated participants reported brochures to be more useful ( $p=0.03$ ). No other significant differences were found between education level and preferred learning methods. Participants with a high school or less education were more interested in learning about cooking basics compared to college-educated respondents ( $p=0.003$ ). No other significant differences were found for education level and nutrition topics.

### **Interest in Attending Nutrition Education Classes**

About half (50.9%) of respondents indicated an interest in attending classes about nutrition and/or cooking. Not knowing when classes are scheduled was marked “sometimes an issue” or “always an issue” by 78.6% of participants who indicated an interest in nutrition education and/or cooking classes compared to 55.2% of those who did not have an interest in nutrition classes. T-tests results indicated a significant difference in the barrier of not knowing about the classes, between those who are interested in nutrition education and those who indicated no interest ( $p=0.027$ ). Participants who indicated interest in attending a class reported transportation as a higher barrier ( $p=0.003$ ). No other significant differences were found in barriers between those who were interested in nutrition education and those who were not.

Significant differences were found for many of the nutrition topics between those who marked an interest in nutrition education and those who indicated no interest in attending. Respondents who indicated an interest in attending nutrition classes responded with a significantly higher interest in the following topics using MyPyramid ( $p=0.009$ ), cooking basics ( $p=0.002$ ), choosing healthy beverages ( $p=0.026$ ), using dry beans ( $p=0.0212$ ), fitting in family meals ( $p=0.007$ ), making better choices when eating fast food ( $p=0.001$ ), choosing healthier fats ( $p=0.018$ ), serving safe food ( $p=0.004$ ), maintaining a healthy weight ( $p=0.014$ ), saving money at the grocery store ( $p=0.039$ ), determining recommended portion sizes ( $p<0.0001$ ), choosing lean meats and/or high protein foods ( $p=0.031$ ), choosing more whole grain foods ( $p=0.035$ ), and cooking with kids ( $p=0.004$ ).

### **Employment Differences**

Time of day was indicated “sometimes an issue or always an issue” by 86.36% of participants who are in school or working, compared to those who were unemployed or disabled or retired (66.7%). Employment levels were grouped into two categories a) those who marked unemployed or disabled/retired (25%) and b) all other categories (75%). A t-test did not show significant differences between employment status and barriers reported.

## DISCUSSION

The purpose of this research was to identify barriers to participating in nutrition education classes, nutrition topics of interest, and the preferred learning methods of Head Start parents. Eliminating barriers and addressing the needs of the audience may help increase attendance for nutrition education sessions and lead to improved healthy behavior changes.

This study found childcare as the most frequently cited “always an issue” barrier with 28.8% of responses, followed by arranging to come to classes with 20.7% responses for “always an issue.” This is similar to what other researchers have found. French et al. (1998a) identified childcare as a barrier in attending a weight loss program for women using WIC services. Steinhaus et al. (2009) also found childcare to be a barrier for attending nutrition education sessions among FNP participants. Head Start locations provide childcare when educational sessions are offered and according to federal policy may not charge for available programming. Parents should be informed of the available childcare and no cost policy, which should eliminate this barrier for adults to attend (L. Daul, personal communication, April 6, 2009). It may be possible that parents are aware of the Head Start childcare policy but may not want to or choose not to leave their children with a childcare provider they do not know. Programs that include educational opportunities for parents and children may be beneficial. For example having a nutrition component for children and one for the parents after which they come together to make a short recipe.

Interestingly, transportation was “never an issue” for two-thirds of survey participants. Because this study was conducted at a location outside the home, parents would have required transportation to and from the fall picnic, thus it may have skewed the data for this barrier. Other research has showed mixed results. EFNEP participants in rural North Carolina indicated transportation as a barrier to accessing Extension information (Richardson, Williams, & Mustian, 2003). Steinhaus et al. (2009) also found about one-third of participants listing transportation as a barrier. Rural areas without adequate public transportation may have more difficulties with transportation to meeting sites. However, Woelfel et al. (2004) reported few individuals identifying getting to WIC locations as a barrier. Providing sessions in a variety of neighborhoods or locations that are accessible by public transportation systems may reduce this barrier. For some, public transportation also has barriers and may be a hindrance to attend sessions because of the additional cost and time.

Based on means, time of day and day of the week nutrition classes are held were primary barriers found from this study and others. Barriers for participating in a community health promotion program were finding time to attend classes and when classes are offered were (Gatewood et al., 2008). Gatewood et al. (2008) identified one of the most influential reasons individuals had for not attending their community course was lack of time to be at scheduled programming. Many Head Start families work part-or full-time, limiting the amount of time available to attend nutrition classes. Time of day was indicated “sometimes an issue or always an issue” by most Head Start parents in school or working, compared to those were

unemployed or disabled or retired (66.7%). This finding suggested that timing of classes is critical, and is unlikely that all will be accommodated by just one class time. Time of day that classes are offered as well as the length of the class could influence the number of participants.

Arranging to attend classes may be a barrier for many. As found in this study about two-thirds of participants thought arranging to attend classes was an issue sometimes or all of the time. Scheduling conflicts and family responsibilities were the most commonly cited issues for not attending a weight-loss program for low-income women (French et al., 1998b). Individuals taking care of dependent family members may have a very difficult time finding acceptable care for dependent members while they attend class.

It is challenging to determine the best time to hold sessions. Steinhaus et al. (2009) had mixed results for the most convenient time to offer classes. Participants indicated a preference for afternoon sessions during the week (Steinhaus et al., 2009). These times may change with changing responsibilities. To accommodate more schedules it may be necessary to hold educational sessions at a variety of locations and times. This study did not address this issue and may be an area for further research.

Computer-based education may help reduce the barriers for time and arranging to attend classes. Using internet programs, websites, and computer game modalities may be an effective way to conduct sessions that are more convenient for participants. WIC has had success using an internet based education program, [wichealth.org](http://wichealth.org) (Bensley et al., 2006). Low-income populations

may have limited access to computer-based programs because of the increased cost of having a computer and monthly internet expenses. Despite this, 56.3% of wichealth.org participants were able to access the website from home (Bensley et al., 2006). From this study overall online activities were found to be the least useful learning method. However, college-educated participants found them to be more helpful than those with a high school education. Computer programs may be beneficial for some, but traditional methods should not be forgotten. Educators need to find a balance to reach as many people as they can.

Access to short videos also may help address the barrier of arranging to attend classes and childcare. Educators can provide a series of learning sessions on a video that participants check out. Short videos have been beneficial in group learning environments as well as online web programs like MENU (Alexander et al., 2010). Videos or audio records can be an easy way to reinforce already learned information and provide new material. Access to videos and audio records could be available to check out at Head Start locations.

IMM programs that incorporate audio, video, and interactive computer modalities may also help improve health behaviors for this population. It may be possible to have computer access available for parents at Head Start locations to participate in educational programs similar to those that were provided with the IMM WIC program (Trepka et al., 2010). In addition to specific computer programming, these computer stations could also be used to deliver short podcast education sessions. Funding for computers may be difficult, but computers would provide a way for parents to access online and computer education programs.



Being unaware of programming is another barrier to attending nutrition education sessions. Head Start parents (65.5%) in this study indicated that not knowing about the classes was “sometimes an issue” or “always an issue”. Steinhaus et al. (2009) also found this to be a barrier where 34.5% of participants indicated they were unaware of nutrition sessions. Currently Head Start sends home flyers for nutrition education sessions and hangs informational posters when classes are being offered. Topics being covered are included on the posters and flyers. Head Start staff also will call parents prior to sessions as a reminder. Short email reminders may be beneficial for parents with internet access. Creative advertising and new ways to inform families of programming may be necessary.

Individuals who have difficulty speaking or reading English are less likely to be aware of the nutrition programs and may not feel comfortable attending. One of the limitations to this study was excluding those who cannot read English. However, several respondents commented in the “other” section that language was a barrier to attending classes. Fargo Head Start makes every effort to have interpreters available; unfortunately interpreters are difficult to hire in the Fargo area (B. Nielson, personal communication, March 18, 2009). Providing podcasts or videos in different languages would help reduce the language barriers for these families.

Saving money at the grocery store and planning meals were topics of the greatest interest for participants in this study. Other low-income audiences have indicated interest in these areas. Food pantry users in Washington State wanted more ways to stretch food dollars (Hoisington et al., 2002). Food Stamp

households with children in Nevada also were very interested in education on managing food dollars (Benedict et al., 2008). Education sessions that guide meal planning and grocery shopping can be supplemented with grocery store tours where participants can use the information from classes in a real-life setting. Providing tours will allow learners to practice using techniques learned in previous sessions while reinforcing messages with real-life situations which are very important to enhance the educational experience as noted by Norris (2003).

Learning topics most frequently marked “not at all interested” were using dry beans (18.6%) and gardening (14.0%). The current study did not address the reasons why participants were interested in a topic or not interested. It is possible that participants may be interested in receiving recipes or information about canned beans especially as canned beans are currently available to purchase using WIC vouchers. Gardening may not be of interest for parents who do not have an appropriate space for a traditional garden. This survey did not specifically inquire about square-foot gardens or container gardens which would be more applicable for individuals with limited space.

Using recipes was indicated as one of the favorite learning methods for Head Start parents. Cooking demonstrations or having participants make recipes during class may help address many of the identified education needs of low-income populations. Educators are able to talk about food labels using real food packages and provide basic cooking skills during this time. Focus groups revealed a need for basic nutrition knowledge in children’s serving sizes and understanding food labels (Reed, 1996). Professionals working with low-income audiences

remarked on participant's misconception of portion sizes and little understanding of food labels (Strolla et al., 2005). Many low-income participants appeared to have little understanding of healthy eating and limited cooking skills (Strolla et al., 2005). Recipe tasting and recipe preparation address the education need identified by food pantry users to make inexpensive foods taste good (Hoisington et al., 2002).

Increased nutrition knowledge has been found to help increase weight loss among low-income mothers (Klohe-Lehman et al., 2006). Strolla et al. (2005) found topics regarding weight management as desirable for low-income populations. Head Start parents also responded that weight management was a top interest. Nutrition education programs are designed to enhance basic nutrition knowledge and skills to choose healthy foods. Not all nutrition programs are designed to target weight-loss, but increasing their nutrition knowledge may help participants to manage their weight.

Only half of the participants in this study indicated an interest in attending nutrition education classes and or cooking classes. This is not unlike results from previous studies. A quarter of respondents in one survey indicated no interest in attending nutrition education (John et al., 2004). Another study found that 30.9% of participants marked that they were interested in learning more about nutrition and/or cooking (Steinhaus et al., 2009). This barrier is particularly difficult to overcome. With no interest in attending, it is highly unlikely individuals will participate in nutrition programs. While some have limited interest in general nutrition, other individuals may not be interested in a particular topic that is

addressed during a class. WIC participants identified boring and recurring nutrition information as a barrier to using services (Woelfel et al., 2004). Some participants are particularly interested in knowing what will be discussed during the sessions. Food Stamp clients were interested in knowing the topics prior to attending nutrition education (John et al., 2004). These barriers require educators to be creative in their program delivery and develop curricula that engage their learners.

### **Implications**

Providing nutrition education is one way to address the increasing obesity rates that are more prevalent among low-income families. Offering nutrition education is one part of the issue; however, getting people to attend the sessions poses distinct challenges. Results from this study provide insight to nutrition educators about the barriers and preferences of Head Start parents. Identifying attendance barriers allows educators to implement programs that minimize as many barriers as possible in order to increase class attendance. Assessing the learning methods and topics of interest for this audience allows the nutrition educator to provide information that is relevant and interesting to participating adults. Eliminating barriers and addressing the needs of the audience may help increase attendance for nutrition education sessions and empower participants to make healthy behavior changes.

Results from this study open the door for future research in this area. Information from this study is a significant contribution to addressing the nutritional needs and interests of Head Start parents; however, additional research would be beneficial. Focus groups could provide educators with ways to overcome barriers

and designing a program that meets their needs in a variety of formats. Internet programs could be developed from focus group responses and piloted to evaluate their impact. Only 50% of participants from this study indicated an interest in nutrition education. Additional research may be useful in identifying ways to increase interest in nutrition and healthy living.

## CONCLUSIONS

Increased obesity rates have required health educators to look for ways to increase nutrition knowledge and help motivate people to make healthy behavior changes. Results from this study provide information about the barriers to attending nutrition education sessions, identifying nutritional interests, and learning methods preferred by low-income parents.

Childcare, time of day, and day of the week were the barriers with the highest level of concern. Arranging to come to classes and not knowing the classes were being offered were also important barriers identified in this study. Half of the respondents indicated they would be interested in attending a class on nutrition and/or cooking class. Significant differences were found with the barrier category of transportation and not knowing about the classes between participants who indicated an interest in nutrition or cooking classes.

Learning methods that were the most useful were receiving recipes, practicing cooking in a class, and watching videos. Acceptance of online education modules appears to be partially based on education level. Additional research in this area would be beneficial to developing programs that are designed to address the interests and preferred learning methods of low-income participants.

Saving money at the grocery store, planning healthy meals, and maintaining a healthy weight were identified as the top valued nutrition topics. However, little interest in using dry beans and gardening was seen. Additional topics requested in the "other" section of the survey were make-ahead freezer meals and gluten-free and egg and dairy-free cooking.

The majority of participants indicated they were Caucasian/white. Participants who indicated a race other than Caucasian/white reported transportation more often as a barrier. Learning one-on-one with an instructor was favored by other races. Several nutrition topics also were significantly different between races including, understanding MyPyramid, cooking basics, choosing healthy beverages, choosing calcium rich foods, choosing healthier fats, planning healthy meals, choosing lean meats and/or high protein foods, and choosing more whole grain foods.

Even though Head Start offers free childcare when educational programs are delivered it was still identified as the top barrier to attending classes. Policies currently in place may need to be advertised in additional ways to increase parent awareness. In order to address timing conflicts, a variety of delivery formats may be necessary as well as a variety of times classes are offered. Educators may find success in utilizing computer-based education or take-home videos that parents can use on their own time.

Reducing barriers and increasing interest in nutrition may help improve attendance and will address the increasing obesity rates in low-income populations. Educators can use the information found in this study to address the barriers of attending nutrition education sessions. Preferred learning methods vary between groups and individuals. Because of these differences it is important for nutrition professionals to incorporate a variety of learning methods.

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## APPENDIX A. SURVEY INSTRUMENT

Anne Gregoire, a student at North Dakota State University (NDSU) along with NDSU Extension Service and Head Start are interested in knowing how we can better provide nutrition information to you. We hope you will help us by completing this survey. This is an anonymous survey and your answers will be confidential. The information you provide will not affect your benefits in any way. There are 3 complete pages with 12 questions to answer. When you complete the survey, put it in the envelope or box provided and you will receive a thank you gift.

### Nutrition Education Survey

1. How many adults (including yourself) live in your home? \_\_\_\_
2. How many children live in your home? \_\_\_\_
3. Age
  - 18-25
  - 26-30
  - 31-35
  - 36-40
  - 41 or above
4. Gender  Male  Female
5. Education Level (check one)
  - Some High School
  - Graduated High School or GED
  - Some College
  - Associates Degree
  - Bachelors Degree
  - Graduate Degree
6. Employment Status
  - Working full time (Over 35 hours/week)
  - Working part time (less than 35 hours/week)
  - Training
  - In school
  - Unemployed
  - Disabled/retired
7. Do you consider yourself to be:
  - White/Caucasian
  - African American/Black
  - Asian/Pacific Islander
  - American Indian
8. Are you Hispanic or Latino?  Yes  No
9. Would you be interested in attending classes about nutrition and/or cooking?  Yes  No

**10. How often do the following issues keep you from participating in food or nutrition education?**

Check one box for each line.

Transportation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Going to training is too difficult to arrange	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Childcare	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Time of day class is offered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Day of week class is offered	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Topics are not interesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Classes are too long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Location is too difficult to get to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't know the topic in advance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't know about the classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Am not comfortable in a group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please explain)			

**11. How useful would the following methods be to help you learn about food and nutrition?**

Check one box for each line.

Watching videos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Listening to CD's, tapes, MP3's	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attending group classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Training in my own home	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reading brochures or handouts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meeting with friends to learn about nutrition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meeting one-on-one with an instructor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trying recipes or cookbooks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Practicing cooking in a class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Visiting internet websites	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in an online class	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Participating in an online discussion group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using social networks such as: Facebook, Twitter, MySpace	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other (please explain)			



## 12. How interested are you in learning about the following food and nutrition topics?

Check one box for each line.

Planning healthy meals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fitting in family meals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saving money at the grocery store	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Serving safe food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Recommended portion sizes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintaining a healthy weight	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooking basics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooking with kids	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Handling picky eaters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Using dry beans	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gardening	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Saving fresh produce (freezing, canning, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Understanding the food pyramid (MyPyramid)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing more fruits	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing more vegetables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing lean meats and/or high protein foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing calcium rich foods (dairy, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing more whole grain foods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing healthier fats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Choosing healthy beverages	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Better choices when eating fast food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other:					

Thank you for completing this survey. Because we want to be able to use all of the information you provided, please take a moment to review all 3 pages to make sure you completely answered the 12 questions. Remember to pick up your thank you gift.

## APPENDIX B. IRB APPROVAL DOCUMENTS

**NDSU****NORTH DAKOTA STATE UNIVERSITY***Institutional Review Board*

*Office of the Vice President for Research, Creative Activities and Technology Transfer  
NDSU Dept. 4000  
1735 NDSU Research Park Drive  
Research 1, P.O. Box 6050  
Fargo, ND 58108-6050*

701.231.8995

Fax 701.231.8098

Federalwide Assurance #FWA00002439  
Expires April 24, 2011

August 26, 2009

Dr. Ardith Brunt  
Dept. of Health, Nutrition & Exercise Science  
EML 351F

**Re:** IRB Certification of Human Research Project:

**“Barriers to attending nutrition education, preferred learning methods and nutritional interests of Head Start Parents”**

Protocol #HE10046

Co-investigator(s) and research team: **Anne Gregoire, Michelle Strang**Study site(s): **Rhcault Farm (Head Start picnic)**Funding: **n/a**

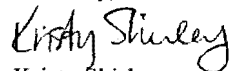
It has been determined that this human subjects research project qualifies for exempt status (category # **2b**) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, *Protection of Human Subjects*). This determination is based on the protocol form received 8/26/09 and consent/information sheet received 8/26/09.

Please also note the following:

- This determination of exemption expires 3 years from this date. If you wish to continue the research after 8/25/2012, submit a new protocol several weeks prior to this date.
- The project must be conducted as described in the approved protocol. If you wish to make changes, pre-approval is to be obtained from the IRB, unless the changes are necessary to eliminate an apparent immediate hazard to subjects. A *Protocol Amendment Request Form* is available on the IRB website.
- Prompt, written notification must be made to the IRB of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
- Any significant new findings that may affect the risks and benefits to participation will be reported in writing to the participants and the IRB.
- Research records may be subject to a random or directed audit at any time to verify compliance with IRB policies.

Thank you for complying with NDSU IRB procedures; best wishes for success with your project.

Sincerely,



Kristy Shirley  
Research Compliance Administrator

## APPENDIX C. INFORMED CONSENT FORM

### **Health, Nutrition, and Exercise Sciences**

NDSU Dept #2620

PO Box 6050

Fargo ND 58108 – 6050

**Title of Research Study:** Barriers to attending nutrition education, preferred learning methods and nutritional interests of Head Start parents.

**This study is being conducted by:** Anne Gregoire ([anne.gregoire@ndsu.edu](mailto:anne.gregoire@ndsu.edu) 241-5714)

**Why am I being asked to take part in this research study?** Your input is very important to provide programming that is valuable for Head Start parents. Head Start tries to provide sessions that are important to the families enrolled. In order to make these sessions better we are asking you to take part in this study.

**What is the reason for doing the study?** The purpose of this study to assess the barriers to attending nutrition education sessions, preferred learning methods and nutritional interests of Head Start parents.

**What will I be asked to do?** Complete a 12 question survey about experiences with nutrition education.

**How long will it take?** It should take about 5-10 minutes to complete.

**What are the risks and discomforts?** There are no risks or discomforts associated with completing the survey. Your name will not be included in the survey.

**What are the benefits to me?** Information from this study will be used to improve future nutrition education sessions that are offered to you as Head Start parents. You will receive a thank you gift that includes: reusable shopping bag, water bottle, jump rope, and various educational brochures.

**What are the benefits to other people?** Your answers will help nutrition educators to make nutrition sessions more accessible and meet the current needs of Head Start parents.

**Do I have to take part in the study?** Your participation in this research is your choice. If you decide to participate in the study, you may change your mind and stop participating at any time without penalty or loss of benefits to which you are already entitled. Your benefits will not be affected in any way.

**Who will see the information that I give?** Your information will be combined with information from other people taking part in the study. When I write about the study, I will write about the combined information that I have gathered. You will not be identified in these written materials. I may publish the results of the study; however, I will keep any identifying information private.

**This survey is anonymous.** That means that no one, not even members of the research team, will know that the information you give comes from you.

**What if I have questions?** Before you decide whether to accept this invitation to take part in the research study, please ask any questions that might come to mind now. Later, if you have any questions about the study, you can contact the researcher, Anne Gregoire at [anne.gregoire@ndsu.edu](mailto:anne.gregoire@ndsu.edu) or 241-5714 or Dr. Ardith Brunt, PhD, RD ([Ardith.Brunt@ndsu.edu](mailto:Ardith.Brunt@ndsu.edu) or 231-7475.

### **What are my rights as a research participant?**

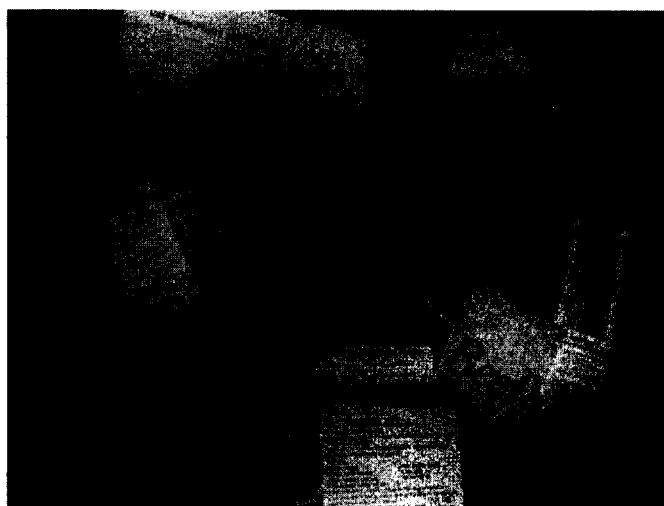
You have rights as a participant in research. If you have questions about your rights, or complaints about this research you may talk to the researcher or contact the NDSU Institutional Review Board (IRB) by

- Telephone: 701.231.8908
- Email: [ndsu.irb@ndsu.edu](mailto:ndsu.irb@ndsu.edu)
- Mail: NDSU Institutional Review Board, 1735 NDSU Research Park Dr., Fargo, ND 58105

The role of the IRB is to see that your rights are protected in this research; more information about your rights can be found at: [www.ndsu.edu/research/irb](http://www.ndsu.edu/research/irb).

**If you agree to the above, please take this page for you to keep, and complete the survey.**

APPENDIX D. PICTURES OF GIFT BAG ITEMS



APPENDIX D. PICTURES OF GIFT BAG ITEMS

