USING SOCIAL MARKETING PRINCIPLES AS A FRAMEWORK TO DESCRIBE NATIVE AMERICAN WOMEN'S VIEWS OF TYPE 2 DIABETES

By

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CHAPTER I

INTRODUCTION

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Diabetes Mellitus (DM) is commonly referred to as diabetes and is characterized as either Type 1 or Type 2 (Taber's, 2005). Type 2 DM is defined as a "chronic metabolic disorder marked by hyperglycemia resultant from insulin resistance, with inadequate insulin secretion to sustain normal metabolism" (Taber's, 2005). Type 2 was previously identified as "adult onset" diabetes because it was primarily diagnosed among obese middle aged people (usually over 40) with sedentary lifestyles (Taber's, 2005).

According to the United States Census and the Indian Health Service, in the year 2007, there were 3.3 million American Indians and Alaska Natives residing in the United States (Oklahoma State Department of Health, 2004). In Oklahoma, the total population who identified as Native American or Alaska Native was 7%, or approximately 247,000 (State Health Facts, 2008). Oklahoma ranks 4th highest in the U.S. among states in terms of the Native American or Alaska Native population (U.S. Census Bureau, 1999). Approximately, 16% of American Indian and Alaska Native adults were diagnosed with DM compared to 8.7% of non-Hispanic whites diagnosed with DM in the same year (Oklahoma State Department of Health, 2004). Moreover, 95% of American Indians and Alaska Natives diagnosed with DM were classified as having Type 2 DM (Oklahoma

State Department of Health, 2004). The overall likelihood of American Indians and Alaska Natives having DM compared to non-Hispanic whites is 2.2 times higher with an estimated 30% having pre-diabetes (Oklahoma State Department of Health, 2004).

Overtime, DM has increased more drastically among American Indians and Alaska Natives than other population groups. Reports indicate a 58% increase in DM prevalence among American Indians and Alaska Natives aged 20-29 from 1990-1998, as compared with the 9.1% increase in the United States general population (Oklahoma State Department of Health, 2004). The increase is not restricted to the adult population. In 2005, there were 1,758 American Indian and Alaska Native youths under the age of 19 diagnosed with DM and a 68% increase in DM from the year 1994 to 2004 among American Indian and Alaska Native youths aged 15-19 years (Oklahoma State Department of Health, 2004).

Native Americans (NAs) have the highest DM prevalence rate in comparison with all racial/ethnic groups in Oklahoma (Oklahoma State Department of Health, 2004). In 2004, DM became the 6th leading cause of death in the United States for the general population (NVSS, 2006) and the 4th leading cause of death among NAs in Oklahoma (Oklahoma State Department of Health, 2004). The death rate due to DM for American Indians and Alaska Natives compared to the U. S. general population in 2004 was three times higher (NVSS, 2006). For the year 2001-2002, Oklahoma ranked the 11th highest in the nation for death rates due to DM (Oklahoma State Department of Health, 2006). In 1999, the death rate from DM was 182% higher among NAs than among whites in Oklahoma (Oklahoma State Department of Health, 2004).

Data indicates DM is a growing problem among NAs and our previous research indicates that DM weighs heavily on the minds of NA families (Hunter, 2009). Hunter reported that participants considered DM as the number one health concern among a population of Supplemental Nutrition Assistance Program Education (SNAP-Ed) eligible NAs in 100% of the focus groups; as such the current study builds upon that which was learned and was designed to target concerns about DM in NAs (Hunter, 2009).

Purpose of the Study

The purpose of the current study is to identify perceptions of Type 2 DM among limited income NAs eligible to receive SNAP-Ed services. The results of this study will be used to inform the development of a culturally appropriate social marketing campaign targeting NA SNAP-Ed and Food Distribution Program on Indian Reservations (FDPIR) recipients in a targeted region. The current research is a means of formative assessment to aid in the understanding of limited income NA views of Type 2 DM and general health and will allow for the tailoring of nutrition messages targeted to the indigenous views of the target population.

Research Objectives

The research objectives developed for the current study include the following:

1. To identify the preferred daily physical activities among limited income NAs who are eligible to participate in commodity or supplemental assistance programs in Oklahoma. This objective was designed to identify health product.

2. To identify indigenous views of Type 2 DM among limited income NAs who are eligible to participate in commodity or supplemental assistance programs in Oklahoma. This objective was designed to identify health product.

3. To identify what limited income NAs who are eligible to participate in commodity or supplemental assistance programs in Oklahoma are willing to do to prevent DM. This objective was designed to explore the social marketing principle of price.

4. To identify how limited income NAs who are eligible to participate in commodity or supplemental assistance programs in Oklahoma would like to receive information about Type 2 DM prevention. This objective was developed to explore the social marketing principles of promotion and place.

Assumptions of the Study

The assumptions of the current study include the following:

1. Reality is socially constructed and value driven; that is, NA women's views of DM can only be understood using their insight (Creswell, 2007).

2. Participants provided honest responses to the questions asked during the telephone interview (Jones 1996; Lavrakas 1998; Seidman 1998).

Limitations of the Study

The limitations of the current study include the following:

1. Use of a convenience sample, NA SNAP-Ed and FDPIR participants, cause results to be reflective of only a small sample size of the population, therefore, limiting the generalizability of results (Creswell, 2007).

2. Reported views of DM may not be actual; participants may share views that they felt the interviewer may want to hear (Jones 1996; Lavrakas 1998; Seidman 1998).

3. Low response rates due to the limited ability of researchers to contact participants for various reasons including: incorrect telephone numbers, disconnected services, call screening, and unavailability of participants (Kempf and Remington, 2007). As such, the research may be biased towards those with consistent phone service.

4. Although interviewers were trained, they were all newly trained and as a result there may be interviewer bias (Kirsch & Brandt, 2002).

CHAPTER II

REVIEW OF LITERATURE

Type 2 DM

Diabetes Mellitus (DM) is commonly referred to as diabetes and characterized as either Type 1 or Type 2 (Taber's, 2005). Type 1 diabetes accounts for just 5-10% of all diagnosed cases while Type 2 accounts for the 90-95% of all diagnosed cases (NDEP, 2008). Type 2 DM is defined as a "chronic metabolic disorder marked by hyperglycemia resultant from insulin resistance, with inadequate insulin secretion to sustain normal metabolism" (Taber's, 2005). Type 2 was previously identified as "adult onset" diabetes because it was primarily diagnosed among obese middle aged people (usually over 40) with sedentary lifestyles (Taber's, 2005). Type 2 DM is commonly asymptomatic with a gradual onset of symptoms (Taber's, 2005). Common symptoms of Type 2 DM are polyuria, polydipsia, and peripheral neuropathy (Taber's, 2005). According to the National Diabetes Education Program (NDEP), "feeling tired or ill, unusual thirst, frequent urination (especially at night), weight loss, blurred vision, frequent infections, and slow-healing wounds" are the most commonly seen symptoms of Type 2 DM (NDEP, 2008). Some symptoms develop gradually and may not be as noticeable as in Type 1, yet some people have no symptoms or may not even notice their symptoms (NDEP, 2008).

DM is one of the leading causes of death and disability in the U. S. with total health care and related costs for the treatment of DM totaling $174 billion annually (NDEP, 2008). In 2007, the prevalence of DM among the adult population in the U. S. was 8% compared to 10% of the adult Oklahoma population with diagnosed DM (BRFSS, 2004). A person is more likely to develop Type 2 DM if they have a family history of DM; are a member of an ethnic group like American Indians and Alaska Natives; are overweight or obese; are 45 years old or older; had gestational diabetes; have high blood pressure, abnormal cholesterol (lipid) levels, polycystic ovary syndrome (PCOS); or are not getting enough physical activity (NDEP, 2008). There are almost 3% of U. S. adults who have DM but are currently undiagnosed with the disease (Health, 2004). As such, it is important for individuals with any of the risk factors for Type 2 DM to be aware of their lifestyle and pay attention to any symptoms they may develop.

Chronic Diseases and Health Problems Associated with DM

Type 2 DM is associated with several other chronic diseases and health problems. One such problem is an increased risk and prevalence of cardiovascular disease (CVD), which includes any heart or blood vessel disease, such as: cardiomyopathy, coronary artery disease, and atherosclerosis (Taber's, 2005). Individuals who experience Type 2 DM are two to three times more likely to have CVD than those without DM (Jarrett, 1992). Moreover, the risk for stroke is two to four times higher among people with DM and about 75% of patients diagnosed with DM will also have high blood pressure (NDEP, 2008). Among the Native American (NA) population diagnosed with DM, the prevalence and severity of risk factors for the development of CVD have increased and

the age of onset of these risk factors have decreased (Galloway, 2005). The rate for the population of NAs who are at an increased risk of developing CVD is higher than that of the general U. S. population who are at an increased risk of developing CVD (Galloway, 2005). CVD has become the 6th leading cause of death for people with DM and about 68% die of heart disease or stroke (NDEP, 2008).

Metabolic syndrome is also associated with Type 2 DM. Metabolic syndrome is the presence of four interrelated atherosclerotic risk factors including: insulin resistance, hypertension, hyperlipidemia, and obesity (Taber's, 2005). For individuals with metabolic syndrome there is a five times increased risk of Type 2 DM compared to those individuals without metabolic syndrome (Grundy, 2006). Metabolic syndrome can be used as a simple clinical tool to identify those individuals at an increased risk for developing Type 2 DM (Grundy, 2006). Metabolic syndrome is becoming more and more prevalent as state and national rates of overweight and/or obesity continue to climb. In 2007, 63% of the U. S. adult population met the criteria to be classified as overweight or obese while 65% of the Oklahoma adult population met the same criteria (BRFSS, 2007). Obesity among the adult population in the year 2007 was 26% of the U. S. general population and 28% for the Oklahoma general population (BRFSS, 2007).

Additional health problems associated with Type 2 DM include foot or limb amputations, foot ulcers, and adult blindness due to retinopathy, cataracts, or glaucoma (Klein & Moss, 1992). Amputations occur as a result of peripheral neuropathy and a lack of skin care knowledge, especially of the legs and feet, among those living with Type 2 DM (Taber's, 2005). Patients with DM are fifteen times more likely to have an amputation than those patients without DM (Bild et al, 1989). Foot ulcers are also a

result of peripheral neuropathy and approximately 15% of DM patients will develop at least one in their lifetime (Shearer et al, 2003). In 1997, 67% of the lower extremity amputations performed in the U. S. where due to DM complications (CDC, 1999). In 2003, there were over 1,649 lower limb amputations among Oklahomans with DM (Oklahoma State Department of Health, 2006). The extent to which all of these problems occur is predominantly influenced by the duration of the disease and the degree of metabolic control patients have over their disease (WHO, 1994). Foot ulcers and lower limb amputations can be greatly reduced and possibly prevented with regular foot examinations by a trained professional. In the U. S., an estimated 68% of the population with diagnosed DM has a yearly foot exam (BRFSS, 2004). In Oklahoma, NAs with diagnosed DM that had an annual foot exam was 78% (BRFSS, 2004). The rate of amputations among NAs is three to four times higher than that of the general U. S. population (CDC, 1999).

Prevalence of DM among the NA Population

According to the United States Census and the Indian Health Service, in the year 2007, there were 3.3 million American Indians and Alaska Natives residing in the U. S. (Oklahoma State Department of Health, 2004). Approximately, 16% of American Indian and Alaska Native adults were diagnosed with DM compared to 8.7% of non-Hispanic whites diagnosed with DM in the same year (Oklahoma State Department of Health, 2004). Moreover, 95% of American Indians and Alaska Natives diagnosed with DM were classified with Type 2 (Oklahoma State Department of Health, 2004). The overall likelihood of American Indians and Alaska Natives having DM compared to non-

Hispanic whites is 2.2 times higher with an estimated 30% having pre-diabetes (Oklahoma State Department of Health, 2004). This means that the percentage of the NA adult population with pre-diabetes is an estimated 41 million people (NDEP, 2004).

Overtime, DM has increased more drastically among American Indians and Alaska Natives than other population groups. Reports indicate a 58% increase in DM prevalence among American Indians and Alaska Natives aged 20-29 from 1990-1998, as compared with the 9.1% increase in the U. S. general population (Oklahoma State Department of Health, 2004). The increase is not confined to the adult population. In 2005, there were 1,758 American Indian and Alaska Native youths under the age of 19 diagnosed with DM and a 68% increase in DM from the year 1994 to 2004 among American Indian and Alaska Native youths aged 15-19 years (Oklahoma State Department of Health, 2004).

NAs have the highest DM prevalence rate in comparison to all racial/ethnic groups in Oklahoma (Oklahoma State Department of Health, 2004). In 2004, DM became the 6th leading cause of death in the U. S. for the general population (NVSS, 2006) and the 4th leading cause of death among NAs in Oklahoma (Oklahoma State Department of Health, 2004). The death rate due to DM for American Indians and Alaska Natives compared to the U. S. general population in 2004 was three times higher (NVSS, 2006). For the year 2001-2002, Oklahoma ranked the 11th highest in the nation for DM death rates due to DM (Oklahoma State Department of Health, 2006). In 1999, the death rate from DM was 182% higher among NAs than among whites in Oklahoma (Oklahoma State Department of Health, 2004).

Risk Factors among the NA Population

There are numerous risk factors associated with Type 2 DM and the development of Type 2 DM is strongly related to lifestyle factors (Mahan & Escott-Stump, 2004). Lifestyle risk factors identified in previous studies with the NA population include diet, more specifically fruit and vegetable intake, and physical activity (Gittelsohn et al., 2000). The incidence of overweight and obesity among this population has also been identified as playing a major role in development of Type 2 DM (Archer et al., 2002).

Fruit & Vegetable Intake

In 2007, adults in the U. S. who consumed the recommended daily intake of fruit and vegetables, more specifically five or more times per day, was 24% compared to only 16% of Oklahomans who consumed the recommended amounts (BRFSS, 2007). Specific fruit and vegetable intake information for the NA population on the state or national level is scarce. In a 2005 study by Taylor et al., the 4 day weighed food record for 71 NA women in Oklahoma was studied. The main objective was to identify core and secondary foods based on the frequency of consumption which was calculated from the food records and a list of 53 commonly consumed foods (Taylor et al., 2005). Core foods were identified as the top 30 from the list and secondary foods were the remaining 23 from the list of commonly consumed foods (Taylor et al., 2005). In the list of core foods, there were very few fruits and vegetables listed; among them were: French fries, tomatoes, bananas, orange juice and onions (Taylor et al., 2005). Core foods only provided 40% of the recommended food guide pyramid servings and secondary foods provided 19% of the

recommended servings; the Oklahoma NA diet did not meet the recommendations for vegetable or fruit servings (Taylor et al., 2005).

Overall Diet Quality

The U. S. Department of Agriculture uses individual food surveys to compute the Healthy Eating Index (HEI) as a summary measure of people's overall diet quality (Basiotis et al., 1999). The HEI score is a sum of 10 components that represent different aspects of the diet with the range of 0 to 10 for scores with 0 as the minimum and 10 as the maximum score (Basiotis et al., 1999). According to the HEI survey completed in 1996, the fruit component had the lowest mean score for the NA population at 4.7 and the vegetable component mean score was 6.4 (USDA, 1996; Basiotis et al., 1999). Furthermore, the percentage of NAs meeting the dietary recommendations for fruits and vegetables respectively, are 21% and 34% (USDA, 1996; Basiotis et al., 1999). The USDA survey results indicate that 74% of NAs consume a diet in need of improvement (USDA, 1996; Basiotis et al., 1999). The survey also concluded that 10% of NAs consumed a good diet and 16% consumed a poor diet (USDA, 1996; Bowman et al., 1998). The differences between the NA population and the U. S. general population are not statistically significant; overall, the U. S. general population has a diet that needs improvement at 70.7% (USDA, 1996; Bowman et al., 1998). The percent of the U. S. general population that was classified as having a good diet was 11.6% and 17.7% that had a poor diet (USDA, 1996; Bowman et al., 1998). More of the NA diets needed improvement and less had a good diet as classified by the USDA HEI components.

In general, NA diets are higher in fat and calories in comparison to traditional diets (NDIC, 2002). This change in diet is attributed to the limited availability of fresh fruits and vegetables which is due in part to high cost and limited access; as well as the adoption of a Westernized high fat diet (IHS, 2000). Furthermore, the current NA diet in Oklahoma relies heavily on commodity foods which are often high in fat and calories (IHS, 2000). If an individual receives commodity foods, they are most likely consuming a diet consisting largely of commodity foods with few additional food items. The lack of variety in food choices and food availability could be major contributors to consumption of diets high in fat and calories among Oklahoma NAs. It should be noted that the typical NA diet can be somewhat different among individuals based on socioeconomic status.

Physical Activity

The state of physical activity in Oklahoma is suboptimal as compared to national reports of physical activity. In 2007, adults in the U. S. who followed the recommended physical activity guidelines were 49.5% compared to 45.5% of Oklahomans who followed these recommendations (BRFSS, 2007). When asked "Did you participate in any physical activities," 70.4% of Oklahomans answered yes compared to the 77.4% of the national population (BRFSS, 2007). When adults were asked if they participated in 20 or more minutes of vigorous physical activity three or more days per week, 24.9% of Oklahomans answered yes compared to the 28.3% of the national population (BRFSS, 2007). When adults were asked if they participated in 30 or more minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20 or more

minutes three or more days per week, 45.5% of Oklahomans answered yes compared to the 49.5% of the national population (BRFSS, 2007).

Specifically, NAs have experienced decline in physical activity over the last several decades and have adopted a more sedentary lifestyle with sedentary occupations as opposed to hunting and farming occupations of decades ago (IHS, 2000). NAs have a variety of reasons related to lack of physical activity that include: economic status, education, personal traits, social support, environmental situation, and age (Coble & Rhodes, 2006). Low self-esteem related to a lower motivation for self care including physical activity is reportedly a result of poverty and oppression common among NAs (Belza et al., 2004). Studies show that NAs express feelings of disconnect and isolation when using fitness facilities; these feelings include: being out of place, not fitting in, and being uncomfortable around non-Indian individuals (Belza et al., 2004). These reasons as well as the need for NAs to feel a community connection when participating in physical activity are seen as barriers that NAs face resulting in the decreased physical activity levels among this population (Belza et al., 2004).

Overweight and/or Obesity

Disparate rates of overweight and obesity are evident among NAs. In 2007, White adults in the U. S. who were classified as overweight or obese totaled 59% of the population compared to 63% of those identified as American Indian or Alaska Native (State Health Facts, 2008). Weight classification by Body Mass Index (BMI) nationwide for the White population was as follows: 37% neither overweight nor obese (BMI less than 24.9), 36.6% overweight (BMI at 25.0 to 29.9), and 26.3% obese (BMI at or above

30.0) (BRFSS, 2007). For the same year in Oklahoma, white adults classified as overweight or obese totaled 62% of the population compared to the 67% of those identified as American Indian or Alaska Native (State Health Facts, 2008). Weight classification by BMI for the state of Oklahoma's White population was 34.9% neither overweight nor obese (BMI less than 24.9), 36.3% overweight (BMI at 25.0 to 29.9), and 28.9% obese (BMI at or above 30.0) (BRFSS, 2007). This reiterates the statistics showing the prevalence of Type 2 DM among Native American or Alaska Native individuals who are overweight or obese and shows that Oklahoma is above the national statistics.

Previous research found that there were specific environmental and social factors that influenced overweight and/or obesity in the NA population. Parental influence, cultural acceptance of larger body sizes and the dietary habits of NAs all seem to be contributing factors to overweight and obesity among the NA population (Layton, 2008; Thompson et al., 2002). Cultural food practices including the amount of food eaten and the preparation of foods were also found to contribute to overweight and obesity among the NA population (Layton, 2008; Thompson et al., 2002).

NA Views of Physical Activity

In the Cross-Cultural Activity Participation Study (CAPS), 30 African American and 26 American Indian women were interviewed about their perceptions of physical activity (Henderson & Ainsworth, 2003). Most of the women in this study believed that physical activity was important for physical and mental health reasons and yet, many women indicated they were not regularly physically active (Henderson & Ainsworth,

2000). The American Indian women "associated physical activity with feeling good, being with others, being and feeling healthy, and experiencing spiritual and psychological benefits" (Henderson & Ainsworth, 2000).

Constraints or barriers to physical activity were explored because researchers thought the general attitude of the participants were indicative of their want to be physically active (Henderson & Ainsworth, 2003). Time and social support were the major constraints that the researchers addressed in their results. Time was said to be the biggest constraint for American Indian women with other underlying constraints such as: job demands, physical tiredness, physical illnesses or ailments, economic constraints, lack of facilities, and expectations and/or needs of the family and others in the community; playing a role in their lack of physical activity as well (Henderson & Ainsworth, 2003). The social support constraint refers to the idea that most participants found personal empowerment and a greater sense of control over their lives through social networking but this could ultimately cause them to put the needs of others above their need to engage in physical activity (Henderson & Ainsworth, 2003). On the other hand, social networks also provided a way for participants to find companions for physical activity (Henderson & Ainsworth, 2003).

The CAPS study also identified sociocultural influences related to marginality and the negative connotations associated with this idea for the American Indian women participants of the study (Henderson & Ainsworth, 2003). Marginality, for American Indian women referred to the lack of recreational facilities available to them and the amount of work for pay that had to be done as well as the importance of physical activity to them culturally (Henderson & Ainsworth, 2003). Many traditional NA ceremonials

and traditions require an individual to be physically active but as a result of NA assimilation into urban culture; NA life has changed tremendously and they have lost some of their traditions (Henderson & Ainsworth, 2003). Therefore, NAs have decreased amounts of physical activity overall in comparison to the U. S. general population, which was previously discussed.

NA Views of DM and DM Education Materials

The NA population is unique in that not much is known about the specific ideas and beliefs that they hold about DM and various other health issues. The need to understand the NA population's views and establish a long term relationship with NA communities is described and well documented in the Pathways study (Gittelsohn et al., 2003). The idea was to develop and maintain long term relationships with the NA community and do so in a manner that supported participation in both external and internal areas (Gittelsohn et al., 2003). The researchers found it crucial to include various members of the tribe and tribal officials in their study and their participation was welcomed in various forms ranging from the tribal members being involved in giving feedback and having a presence on most subcommittees and working groups of the project to having a vital role in the formative research phase of the project (Gittelsohn et al., 2003).

In a study done by Struthers et al., traditional Talking Circles were used as an intervention as a way to address DM wellness; qualitative interviewing took place after the intervention so that participants could describe their experience with the Talking Circle intervention (Struthers et al., 2003). From the interviews with eight individuals,

researchers identified seven themes including: "(a) living with, and surrounded by diabetes; (b) exchanging emotions and feelings about diabetes; (c) receiving up to date diabetes information; (d) sharing experiences and stories; (e) obtaining guidance from the facilitator; (f) harmonizing diabetes using traditional indigenous methods; and (g) taking action to stabilize diabetes" (Struthers et al., 2003).

Participants described DM as being all around them; more specifically, "everywhere you go, and affect[ing] everybody" (Struthers et al., 2003). This population also thinks of DM as a "silent killer" and "something in our makeup that goes into action when certain factors [go] together," in turn, they describe DM as a "sickness that is affecting our people" (Struthers et al., 2003). This study also found that some NAs attribute the process of acculturation to the development of the disease among their population while others are unsure of the cause stating "I don't know why I ever became to be a diabetic" (Struthers et al., 2003).

Struthers et al. found that for participants of the Talking Circles, DM was "an intimate and personal thing," they "described it as incurable, being hopeless once you have it, a struggle, devastating, and a burden that limited what one could do physically" (Struthers et al., 2003). For this population DM also represents uncertainty with looming concerns about who will be diagnosed next with DM and many NAs believing "that they might get it someday" (Struthers et al., 2003). Another striking idea from this study was that most felt that many deaths in the community were DM related with a participant describing DM as "a death sentence" (Struthers et al., 2003).

In a study by Ho et al. with First Nations in Canada, participants' perceptions of DM were identified (Ho et al., 2006). Many participants felt that "diabetes was a major

concern because while they knew people with diabetes, they personally knew very little about the disease; even people with diabetes admitted that they did not know much until they were diagnosed" (Ho et al., 2006). Ho et al. stated that the "lack of awareness of the signs and risk factors of diabetes among First Nations contrast with a strong sense of inevitability about diabetes" (Ho et al., 2006). Researchers found that despite participants' perception of their own high risk for development of the disease, a majority of participants thought that DM could be prevented (Ho et al., 2006). Participants suggested increasing awareness of the disease and having more workshops as ways to prevent DM (Ho et al., 2006). They also felt that educating people without DM would give support to people with DM; in particular, family members (Ho et al., 2006).

In 1997, the Association of American Indian Physicians, a national organization, conducted focus groups with 95 tribal leaders, Indian health professionals, and American Indian community members as a guide for the development of culturally appropriate educational materials for the National Diabetes Education Program (Roubideaux et al., 2000). This qualitative study focused on the NA views of DM education materials. In general, the participants wanted more DM education materials available in their communities and schools; they also requested culturally relevant materials with information about diet and exercise (Roubideaux et al., 2000). Overall, 98% of the participants felt that DM was a risk to their communities and 95% of participants wanted DM education materials with information that was relevant to their tribe and/or culture (Roubideaux et al., 2000).

Suggestions made for the improvement of DM education materials were: culturally adapting the materials, changing the emphasis of the materials, and using

different types of materials such as cooking classes or one on one teaching (Roubideaux et al., 2000). Participants were presented specific DM education materials and critiqued them individually. Participants thought the culturally relevant health education video needed to be updated but they liked the relevance to the culture and beliefs of the culture as well as the quality of the video (Roubideaux et al., 2000). The Traditional Native Cookbook was well received; participants liked the focus on traditional foods and wanted more cookbooks, recipes, menus and cooking classes (Roubideaux et al., 2000). The handouts and pamphlets for the general public were thought to be of poor quality, more specifically, too technical with too much information; participants also wanted a more traditional American Indian focused handout (Roubideaux et al., 2000). The Indian Health Service handouts and pamphlets were described as being of good quality with simple, easy to read information with colorful pictures and American Indian graphics; the participants like the cultural relevance of the pamphlets (Roubideaux et al., 2000).

DM Prevention among the NA Population

Based on findings from early intervention trials, the Finnish Diabetes Prevention Study (Tuomilehto et al., 2001) and the Diabetes Prevention Program (Diabetes Prevention Program Research Group, 2002) were designed to explore effects of lifestyle interventions on the prevention of DM among high risk individuals (Mahan & Escott-Stump, 2004). Weight loss and physical activity were shown to be of greater benefit than medication to delay or even prevent DM (Mahan & Escott-Stump, 2004). These ideas have been the basis for many of the lifestyle modification intervention programs aimed at NA individuals that emphasize lifestyle changes to prevent DM.

The risk of DM can be reduced with appropriate nutrition education aimed at prevention and maintaining healthy lifestyle interventions that have been shown to decrease risk factors and further prevent complications associated with the disease. The Oklahoma State Department of Health recommends the following as a way to prevent DM complications: Control your blood sugar levels; stay active most days of the week; eat low fat meals that are high in fruits, vegetables, and whole grain foods; keep your weight in control; get an annual dilated eye exam, comprehensive foot exam, and lipid profile; get your hemoglobin A1c levels checked at least twice a year; and ask your doctor about influenza and pneumococcal vaccinations (Oklahoma State Department of Health, 2004). In addition to the recommendations provided by the Oklahoma State Department of Health, there are numerous nutrition and healthcare programs in place at the national, state, and community levels that are aimed at prevention and further limiting the risks and complications associated with DM.

Lifestyle changes in conjunction with medication and/or insulin treatment to keep blood glucose levels in the desired target range have been the main intervention strategies used for those diagnosed with Type 2 DM. The National Institutes of Health sponsored an important trial; the Diabetes Prevention Program (DPP) that showed Type 2 DM can be delayed or even prevented in overweight adults with pre-diabetes, including American Indians and Alaska Natives. To prevent DM, the participants in the program lost 5-7% of their body weight, which is 10-14 pounds in a person who weighs 200 pounds; were physically active for 30 minutes a day, 5 days a week with most participants choosing brisk walking; and made healthier food choices that limited the amount of calories and fat

in their diet (NDEP, 2008). Most DM prevention programs are now aimed at incorporating these lifestyle changes for best results for the participants.

In a commentary in the American Journal of Preventive Medicine, there is an obvious need for interventions with social-contextual and psychosocial risk factors in mind (Liburd et al., 2005). The REACH 2010 program under the Oklahoma State Department of Health is aimed at the NA population and is explored in detail (Liburd et al., 2005). In 1997, President Clinton announced One America in the 21st Century: The President's Initiative on Race which included the goal of eliminating racial and ethnic disparities in health by the year 2010; this goal parallels the focus of the Healthy People 2010 guidelines which describe the Nation's health objectives for the 21st century (Oklahoma State Department of Health, 2007). This initiative funded the REACH (Racial and Ethnic Approaches to Community Health) 2010 projects overseen by each state (Oklahoma State Department of Health, 2007).

In 1999, the Oklahoma Native American REACH 2010 Coalition was formed and Oklahoma was funded for Phase I in 1999, and Phase II in 2000 (Oklahoma State Department of Health, 2007). The coalition includes members from the Absentee-Shawnee Tribe, Chickasaw Nation, Choctaw Nation, Cherokee Nation, Cheyenne-Arapaho Tribes, Pawnee Nation, Seminole Nation, Wichita and Affiliated Tribes, Indian Health Care Resource Center of Tulsa, and Oklahoma State Department of Health (Oklahoma State Department of Health, 2007). The project is coordinated through the Oklahoma State Department of Health and each tribe or community implements and manages their own intervention which the Oklahoma coalition determined to be "using

physical activity to reduce the CVD and DM disparities among the NA population" (Oklahoma State Department of Health, 2007).

Just as governmental actions on the national level are aimed at prevention and limiting further complications associated with DM; the state governments also have these types of health and nutrition education programs. In Oklahoma, the Diabetes Control and Prevention program is a population based public health program that designs, implements, and evaluates public health prevention and control strategies that are aimed at improving access to and the quality of care for all, especially those communities most impacted by the burden of DM (Oklahoma State Department of Health, 2007). The burden of DM is so high that the Diabetes Control and Prevention Program wrote and distributed the Oklahoma Diabetes State Plan which is a written plan addressing the underlying causes, statistics, interventions, and evaluation procedures for the treatment and prevention of DM (Oklahoma State Department of Health, 2007). The main goal of this plan is to decrease the impact, including death rate and monetary cost, DM has on the State of Oklahoma (Oklahoma State Department of Health, 2007).

The Native American Diabetes Project was a study aimed at determining culturally appropriate content and delivery methods for "Strong in Body and Spirit," a Native American DM education program (Carter et al., 1997). Through meetings and focus groups with clinic staff, patients, tribal leaders, and tribal health workers, researchers found the important information to be traditional values, food and nutrition, exercise, and family and community support (Carter et al., 1997). Using a non-judgmental approach, repeated opportunities for learning including materials that are visual and easy to read, presenting information individually as well as in a group, and

providing support groups were said to be effective ways of presenting information (Carter et al., 1997).

The Inter-Tribal Heart Project was a study looking at the reported food habits among the NA population with DM who participated in a community based health program and compared the dietary intake with those who had not participated in the health program (Archer et al., 2002). This program was a cardiovascular disease epidemiological and health promotion project with adults from three NA communities in Wisconsin and Minnesota with data collection for two years by trained technicians and interviewers (Archer et al., 2002). Participants completed a food habits survey regarding consumption of fast food, food preparation and cooking methods; as well as a questionnaire indicating if any type of health or nutrition classes had been attended (Archer et al., 2002). Fasting blood work was also completed but is not of importance to the findings presented in relation to our study.

All of the Inter-Tribal Heart Project participants could improve their dietary intake in regards to fat and sodium intake. Participants who reported that they usually ate the visible fat on meat was 23-32%, the skin on chicken or turkey was 37-47%, and those that ate fried chicken almost always was 7-19% (Archer et al., 2002). The study also found that 17-25% of participants ate at a fast food restaurant at least twice per week and 67-77% added salt to their foods (Archer et al., 2002). These findings support the need for nutrition education as a way to prevent overweight and/or obesity among the NA population, therefore, preventing or reducing the risk for developing DM in the NA population.

Challenges of DM Prevention

In a 2000 study by Griffin et al., teachers or mentors of the Native American Diabetes Project (NADP) reported their beliefs about factors that affect participation in the NADP lifestyle education sessions (Griffin et al., 2000). Researchers categorized the factors into two main areas: community activities and community beliefs and/or attitudes. The community activities that were summarized as "other responsibilities, obligations, and activities" in the community that conflicted with attending sessions for the lifestyle education intervention included: "traditional and religious activities such as feast days and religious ceremonies, and social activities such as birthdays and graduations" (Griffin et al., 2006). The mentors reported several beliefs and attitudes held by the community that they believed kept people from attending the education sessions including: "issues related to community members not having detailed knowledge about the program, recruitment procedures, and the existence of a social stigma toward diabetes" (Griffin et al., 2006).

In order to overcome some of the challenges of this study, the flexibility of the NADP lifestyle education sessions was emphasized to eliminate or at least reduce the community activity time conflict challenge reported by mentors (Griffin et al., 2006). To eliminate the potential community belief and attitude challenges, solutions were provided as a part of the NADP program. In order to increase knowledge about the program, flyers were posted throughout the community; multiple recruitment methods were used to increase participation and mentors were encouraged to hold meetings periodically with tribal leaders, tribal health care workers and clinic staff (Griffin et al., 2006).

The meetings were meant to be informational and hopefully reduce any negative social stigma about the NADP program or DM in general (Griffin et al., 2006). Other efforts to address the social stigma of the disease included: "(1) focusing on health and wellness rather than sickness and illness, as reflected in the title of the program, 'Strong in Body and Spirit,' and its content; (2) holding sessions away from clinics in neutral settings to ensure privacy and confidentiality among participants; (3) recruiting participants using confidential methods; and (4) encouraging participants to bring family members to the sessions for support" (Griffin et al., 2006). Researchers also stated that it is important to note that changing a community's attitudes and beliefs about a disease can be slow and complicated; challenges can not be overcome overnight and having the participation of key community members, tribal leaders, and organizations may be helpful (Griffin et al., 2006).

Social Marketing

Social marketing is defined as:

> A social change management technology involving the design, implementation, and control of programs aimed at increasing the acceptability of a social idea or practice in one or more groups of target adopters. It utilizes concepts of market segmentation, consumer research, product concept development and testing, directed communication, facilitation, incentives, and exchange theory to maximize target adopters' response (Kotler & Roberto, 1989).

In short, social marketing is "a program planning process that applies commercial marketing concepts and techniques to promote voluntary behavior change" (Grier & Bryant, 2005). The process is iterative and focuses on the target audience and the named product (Neiger et al., 2003). The 4 Principles (Ps) of social marketing include: product,

place, price and promotion. Product is defined as the desired behavior. Price is defined as the target population's views of the benefits and barriers related to the named product. Place is defined as the channels and locations identified for information dissemination related to the named product; while promotion is defined as the target population's views of how to publicize information related to the named product (AMA, 2009).

Benefits of social marketing research are reasoned from the idea "that if the target population directs the program development, the intervention will more likely result in the desired behavior change" (Bellows et al., 2008). Formative research is used in the process of social marketing as a way to seek out the input of the target audience (Bellows et al., 2008). Results of formative research are used to drive the development of a marketing strategy intended to direct the development, implementation, and tracking of a program (Grier & Bryant, 2005). Formative social marketing research identifies the target audience's values, attitudes, opinions, interests, learning characteristics, and preferred media outlets related to the named health related product (Bellows et al., 2008). The social marketing process operates on the assumption that in order to "develop an effective program intervention, researchers must understand what drives, facilitates, and maintains the behavior of the target audience, as well as the channels of information distribution and communication preferred by the target audience" (Flora & Farquhar, 1988; Bellows et al., 2008).

Social Marketing Programs Specific to NA Population & Healthy Lifestyles

The Pathways study was a multicenter study to test the effect of a school based program to prevent obesity in NA children (Davis et al., 2003). There were two phases

of the study; the first phase included formative assessment, the development and testing of interventions, measurement protocols, and evaluation approaches of the school based intervention program (Davis et al., 2003). After this first "feasibility phase" was complete, the phase two full scale study was conducted and the findings are notable (Davis et al., 2003).

Formative assessment concluded that social, cultural, and environmental factors could and did influence the learning and behavior of NA children (Davis et al., 2003). For these reasons, this study included not only a classroom component but a family component as well. The study's "family component was designed to increase family involvement in creating home environmental changes related to healthful eating and physical activity" (Davis et al., 2003). The interventions for the family component were call Family Packs and Family Events (Davis et al., 2003). The design of the interventions was intended to include extended family members, "since many NA households include uncles, aunts, grandparents, cousins, and/or clan member in addition to the immediate family" (Davis et al., 2003).

In the Pathways research, several evaluation measurements were used to evaluate the family component of the interventions, these included attendance rosters for family events, evaluation forms for both adults and children who attended family events, and family logs filled out and returned that were used to record participation in different activities at home (Davis et al., 2003). Descriptive information that was collected through the comment sections of the evaluations indicated that the take home and family participation components were generally well received (Davis et al., 2003). The comments received on the evaluations for all the Family Events were positive and

emphasized that those who participated really enjoyed them and that they would adopt the practices that they were learning (Davis et al., 2003). Of the adults who attended the Family Events, a total of 2,544 parents, grandparents, and other extended family members; 97% stated it was a worthwhile event, 96% stated that they learned about healthful foods and physical activity, and 96% said they would attend another Family Event (Davis et al., 2003).

Overall the Pathways study was "deemed successful in introducing children and their families to new concepts regarding healthful living and in increasing their cultural identity" (Davis et al., 2003). "The inclusion of the family was important in the effort to extend the Pathways messages beyond the classroom and into the home environment" (Davis et al., 2003). There were no behavioral outcome measurements but family members frequently stated that they would adopt the practices they learned at the various family events (Davis et al., 2003). This study and conclusions of this study state the importance of the family and a family component of nutrition interventions among this population.

Telephone Interviewing

Telephone interviews were used in this study as a means of increasing participation rates and decreasing the burden placed on researchers and participants. Past research has shown that there are few differences in the quality of the data between in person interviews and telephone interviews (Kirsch & Brandt, 2002; Groves, 1989; Lavrakas, 1998). Some advantages of telephone interviewing are that the equipment used is readily available and relatively inexpensive; as are any long distance charges that may

accrue, especially when compared to travel costs for the participant or researcher (Kirsch & Brandt, 2002). Another convenience of this method was the ease at which interviews could be re-scheduled for more convenient times for the participants (Kirsch & Brandt, 2002).

Some disadvantages of using telephone interviews in research are the risks of technological failures such as telephone or recording device connections and the limited knowledge interviewers had about the respondents' affect (Kirsch & Brandt, 2002). The length of the interviews may have also been affected because of the research tool used; participants were cautious about the length of time they were willing to spend on the telephone interview (Kirsch & Brandt, 2002).

CHAPTER III

METHODOLOGY

Previous Study

The current study is a part of a larger series of ongoing studies with limited income Native Americans (NAs) eligible to receive SNAP-Ed services. The overarching theme is prevention of diabetes (DM) for this population. A prior study focused on overall health and nutrition perspectives of this population, therefore, our study focused more on physical activity as a preventative measure against DM or physical activity as a way to reduce the risk of developing DM.

Sample Population

In order to participate in this study, participants were required to have been the recipient of commodity foods or food stamps within the past year from the date of the telephone interview, be female and have children less than 18 years of age residing in the home. Participants were recruited from a Food Distribution Program on Indian Reservations (FDPIR) list provided by the Indian Nation under study. The researchers contacted a random sample of participants from the list and conducted a telephone interview with those who agreed to participate. Telephone interviews were conducted

with 23 individuals who met the inclusion criteria for this study. This study was approved by the Oklahoma State University Institutional Review Board (Appendix A).

Methods & Analysis

Eligible participants took part in a telephone interview. Telephone interviews have been identified as a valuable research method that is appropriate for use in public health research and practice (Kempf & Remington, 2007). The three primary advantages of telephone interviews for data collection are: (1) the ability to maintain quality control over the entire process of data collection, (2) cost efficiency and (3) the speed of data collection (Lavrakas, 1993). Transportation problems stem directly from lack of financial resources to cover the cost of transportation. Telephone interviews are a useful tool in community research that completely eliminates the cost of transportation (Kirsch & Brandt, 2002). Because our population has limited resources, eliminating the costs associated with transportation increased the population sample size making the results more representative. With these ideas as the basis for our telephone interview coupled with the transportation and recruitment problems evident among limited resource populations, we chose to utilize telephone interviews as the method to achieve the objectives of this study.

The telephone interview script (Appendix B) was structured using principles of social marketing. Social marketing is defined as:

> A social change management technology involving the design, implementation, and control of programs aimed at increasing the acceptability of a social idea or practice in one or more groups of target adopters. It utilizes concepts of market segmentation, consumer research, product concept development and testing, directed communication, facilitation, incentives, and exchange theory to maximize target adopters' response (Kotler & Roberto, 1989).

Each question developed for the telephone interview addressed one of the 4 Ps of social marketing: product, place, price and promotion. Operational definitions for each principle were developed to address reliability and validity in our current study (NCI, 2005). For this study, the operational definitions for each of the 4 Ps were developed using the CDCynergy guide for social marketing and are as follows (NCI, 2005). Product was defined as the desired behavior, namely the target population's views of diabetes (DM) and DM prevention strategies. Price was defined as the target population's views of the benefits and barriers related to the named product of views of DM and DM prevention strategies. Place was defined as the channels and locations identified for information dissemination related to the named product of views of DM and DM prevention strategies; while promotion was defined as the target population's views of how to publicize information related to the named product of views of DM and DM prevention strategies.

Three research assistants were trained to administer the telephone interviews and utilized a structured script consisting of ten open ended questions regarding physical activity, DM and how the target population would like to receive information about health. The telephone interviews were audio recorded and subsequently transcribed verbatim.

Data Analysis

Transcripts were analyzed using thematic content analysis (Charmaz, 2006). Initial coding involved a trained researcher examining transcripts first at a line by line level to identify relevant themes independently. The importance of starting with the line

by line coding is to analyze the data for not only relevance but fit as well (Charmaz, 2006). Two researchers then discussed the initial themes and determined whether any discrepancies existed and came to an agreement on the themes identified. The researchers used in vivo codes to describe themes in order to preserve the symbolic markers of participants' speech and meanings when applicable (Charmaz, 2006). The next step of analysis for the researchers was focused coding which means using the most significant and frequent line by line or in vivo codes to go through the large amount of data (Charmaz, 2006). This step was also done independently by researchers and then again the researchers came together in order to discuss the focused codes and eliminate any discrepancies between the two. Focused coding requires the researchers to make decisions about which initial codes make the most analytic sense to categorize the data incisively and completely (Charmaz, 2006). After the focused coding themes of all the telephone interviews were agreed upon, the themes were categorized using theoretical coding in accordance with the social marketing principles that where originally used to come up with the interview questions (Charmaz, 2006). At this stage, tables were formed to help present the data in an organized fashion that would not take away from the underlying importance of the data (Appendix D).

CHAPTER IV

FINDINGS & DISCUSSION

Participant Description

The participants of the study met the inclusion criteria noted earlier. In addition, the participants were served by a Food Distribution Program on Indian Reservations (FDPIR) site and resided within the Indian Nation's service area boundaries. Each participant resided in a household that received commodity foods, food stamps or Women, Infants and Children (WIC) benefits. The age range of the participants was 21 to 72 years and each participant lived in households of two to six individuals. Out of the 23 telephone interviews that were completed, we eliminated two interviews from analysis. This elimination was based on the questionable quality of the data. The interviewees provided very brief responses and the researchers viewed the responses as insincere.

Product

The product, defined as the desired behavior, or the target population's views of diabetes (DM) and DM prevention strategies; was identified by asking "What do you and your family do for fun?" Researchers were able to identify activities and code them according to general characterizations made about each named activity. The most

common types of activities described by participants (Table 1) were outdoor recreation activities, outdoor play activities, and sports. Outdoor recreation type activities required participants to travel to a location other than the home and neighborhood. Participants most commonly referred to going to the park, camping, fishing, and other recreational activities that are done outdoors. Outdoor play most commonly referred to riding bikes or throwing a ball around outdoors. The sport characterization was given to actual sporting activities named such as: basketball, baseball or softball. Participants mainly referred to these organized sporting activities as things done more so by their children and not by themselves. Other activities that were mentioned four or less times by participants included reading, walking, bowling, and watching movies or television; just to name a few.

Table 1. Major Themes Identified for Question 1: What do you and your family do for fun? (n = 21)

Activity	Freq*	Notable Quotes
Outdoor Recreation	15	Um, we go to the park, we play outside; we've been going to the zoo a lot. (TJ11)
Outdoor Play	9	Umm, play outside and pretty much, my little boys just got a bike so he likes to ride his bike and we usually stay outside pretty much all day even when its raining because he's three and he's real energetic and he's always out doing something in the yard. (SP1)
Sport	5	My kids, they play basketball, baseball and track. (TJ5)
Read	3	Read books. (TJ8)
Indoor Sedentary	3	We do like to go to the movies, or watch TV, or go camping, or whatever. (TJ16)
Walking	3	Me and my daughter always walk around the park, we always play outside. (TJ13)
Indoor Activity	3	We like to go to the park and we like to go bowling, we have 99 cent bowling night, we do that. (SP5)
Social Gatherings	2	For fun, oh let's see, usually we go together, we go to the park, or we gather at one of our houses. (TJ12)
Not Active	2	I don't know, we really don't do a lot. (TJ3)
Everything	1	We do everything. (TJ6)
Yard work	1	Work out in the yard, we play soccer. (TJ6)
Exercise	1	We do try a little baseball and we exercise. (TJ6)
Games	1	And we do do cookouts and we go out there and play soccer and softball, and all kinds of games. (TJ12)

*Refers to the number of responses in which the theme was evident.

To further gain a sense of possible DM prevention strategies related to physical activity, researchers asked participants "What physical activities would you be willing to do with your family?" This question was asked to identify activities that participants would be likely to incorporate into their current life situations but currently do not actively participate. Researchers used the same codes to characterize the activities participants were willing to do or already did with their families (Table 2). Outdoor play and outdoor recreation activities again ranked highest and included riding bicycles, swimming, and going to the park. Other activities that participants identified as things they would be willing to do were: playing sports, walking or going bowling.

Table 2. Major Themes Identified for Question 2: What physical activities would you be willing to do with your family? (n = 21)

Activity	Freq*	Notable Quotes
Outdoor Play	6	They like to play basketball, we have small children. They like to play basketball and play catch and run and play outside and ride their bikes. (TJ11) Oh, we do ride bikes; we do some bicycle riding together. (TJ12) Oh goodness, right now we do everything. She's little, so we just try to go outside and play with a ball. (TJ13)
Outdoor Recreation	6	Um, well in the summertime we like to camp and go out to the lake and go swimming. (SP4) We do ride horses and there's a lot of things we do. (TJ12) Ok, I have no idea, I guess go to the park. (TJ2)
Sport	5	Uh, we I believe, like, baseball, or swimming; something like that. (TJ7)
Walking	3	Umm, we like to go to the park and walk; it's about a mile and a half. I've got them on that moccasins trail. (TJ9) Go for walks. I like to walk around, so, they're non-stop going with me. At night, go on bike rides and stuff like that. (TH1)
Indoor Activity	3	Um, well we do stuff like that now. Like we'll go walking at the park sometimes, like I said, we go outside and play, go bowling and stuff like that, so. (TJ8)
Social Gathering	2	There's that and then, we go like to some festivals, and then we're going to the Rattlesnake Festival next weekend. We do quite a lot together. (TJ3)
Spectator Sport	1	We go . . . shoot, I don't know. I've got two-a 15 and 16 years old, and a 5 and 6 year old, so that does kind of . . . shoot, then I've got a 39 year old, and he likes to go around visiting, I don't know. Basically we like to go to like basketball games or softball games and stuff like that, so the two younger ones, they just like to go play. (TJ14)
Indoor Play	1	Umm, well both of my kids take dance class that their grandparents pay for them to take so we like to; we dance around a lot and umm, at our house, and just have fun that way. (SP5)
Anything	1	Um, pretty much anything. (TJ1)
Nothing	1	No. (TJ16)

*Refers to the number of responses in which the theme was evident.

Benefits and barriers emerged related to incorporation of physical activity. The frequency of each benefit and barrier as well as notable quotes that convey participants' views are identified in Table 3. The main barriers identified were having a physical limitation such as being handicapped or pregnant, perception of active lifestyle, the lack of time, and the age of the participant's children. A major theme identified related to the named product of DM prevention strategies was the idea that the target population perceived themselves as already active. Participants stated that they were already doing the named activities or that they already "do a lot." Other barriers named were the weather or season, cost, a lack of personal time, and the parental relationship related to the sex of the children. The main benefits for achieving the named activities were enjoyment and/or fun of the named activity and how doing the named activity was a way to incorporate family time.

Table 3. Benefits and Barriers Related to Incorporation of Physical Activity

Benefits (+) and Barriers (-)	**Freq***	**Notable Quotes**
Perception: Active Lifestyle Already(-)	6	We stay pretty active. (TJ12) We're just doing everything right now. I don't know because we do a lot. (TJ6) Um, what we do for fun is we're real active; the children are real active in softball and baseball. We like to go bowling, we like to spend a lot of time outside and then inside we like to read, that's what we do for fun. (SP4)
Family Time (+)	4	Um, okay, we have movie time, family time, watch movies and read books; sometimes we go to the park and read books. (TJ9) Because I do things with them you know, physical activity, I go with them, you know, when they go fishing or four-wheeling; but I sometimes don't like the four-wheeling or fish. I just go to be with them. (TJ3)
Physical: (total)	(4)	
Handicapped(-)	3	Well, I'm crippled up pretty bad and I don't do a lot of anything because I have two bulging discs in my neck and two in my back and I have arthritis real bad in my spine. But the kids like to go skate when they can. (SP2) Ok, now I'm wheelchair bound. (TJ2)
Pregnant (-)	1	I'm pregnant right now, so it's kind of limited, but you know, there's still certain things you can get out and do. (TJ1)
Enjoyment/Fun(+)	3	Oh, we well, my little ones like to play ball and basketball, and soccer, and ride bikes. (TJ7)
Time (-)	2	Um, I think it was just getting together on a weekend or on days off work, and work something out you know? Like get everyone to come down on a weekend and get everyone together. (TJ1)
Age of Children (-)	2	My little girls are two, my youngest one is about to turn 3 and we want to enroll them in the tae-kwon-do out there at the wellness center, and that kind of thing. We are just waiting until they are all of age so we can do it together. I would be willing to do sports and stuff like that but they're just not old enough yet so. (TJ10)
Incentives (+)	1	I didn't get their city ID cards until late, but they get free shoes if they walk so far. So that's what we do. They show them an incentive of something good to do. (TJ9)
Weather/Season(-)	1	Yeah. So, umm, and we like to ride bikes a lot so, lately not so much since the weather is so funky, but usually that's what we do is ride bikes or go to the park and play. (SP5)

Table 3. *Continued*

Cost (-)	1	Well, I'm in full time school so we try to do things that are inexpensive. (SP5)
Personal Time (-)	1	Well, I try to stay home and send everybody on down the road. But in July, they always go camping about a week, so they go swimming and do whatever. (TJ14)
Parental Relationship (-)	1	Um, we gosh, my husband and my boys like to fish, and they ride four-wheelers. They go out on the boat. I don't fish but I watch them. And um, oh gosh, they . . . I don't know, we don't really do a lot, you know, they do more with their daddy, with them being boys. (TJ3)

*Refers to the number of responses in which the theme was evident.
(-) Denotes a barrier related to incorporation of physical activity.
(+) Denotes a benefit related to incorporation of physical activity.

To further explore DM as a health product, researchers asked participants to “Tell me a story about someone you know who had diabetes.” An overwhelming majority of participants shared stories related to family members and secondly the individual (Table 4).

Table 4. Individuals Identified for Descriptive Story about Diabetes (n=21)

Person Identified	**Freq***	**Notable Quotes**
Family (total)	(18)	My grandma. She's got diabetes and everyone's swearing I'll end up having it one day. But she's always got to take real good care of herself and then my uncle, he's got diabetes also and he had to take insulin shots everyday. (TH1)
Grandparents	4	
Dad/Mom	3	
Aunt/Uncle	3	
Brother	2	And my daddy was diabetic and so way my grandmother. I have a nephew that's diabetic and I also have a niece that's diabetic. (SP2)
(Ex) Mother in law	2	
Niece	1	But my step mom does and my cousins got it, but I think she got a light trace of it, it's really not bad. (TJ7)
Step-mom	1	My step mom. She's a diabetic and she has it bad. She's a diabetic. (TJ7)
Cousin	1	I'm afraid my grandpa has it now. (TJ9)
Son	1	
Individual	5	I've got diabetes. (TJ2) Well, I have diabetes. (TJ16)
No one	4	No one in my family has it. (TJ7) No, I don't know anybody, I mean that's, no I don't know anybody. (TJ8)
Friend	1	My best friend died two months ago with a heart attack resulting from diabetes. (TJ3)
Nurses	1	Umm, well, I don't really personally know anyone that has diabetes but I've seen it on the nurses, I work ten clinics that I've see it. A lot of them have quite a bit of health problems, circulation problems and no one in my family particularly has it so I don't know anyone personally. (SP5)

*Refers to the number of responses in which the theme was evident.

Table 5 identifies the story themes that emerged related to the named product, DM. Most of the stories told related to management and the issues surrounding management of DM. Lifestyle changes such as the use of medication, eating healthy and controlling weight were main themes talked about with management. Secondly, stories were told that included complications suffered from the family members or individuals having DM. Complications included: the loss of teeth, eyesight, and going through the different stages of kidney failure. Some stories relayed the type of DM and the duration of the disease. Other key themes that arose from the stories told by participants included: the emotional impact DM has on a person and the degree of severity of the disease for the individual with DM. The idea that DM is hereditary was brought up several times with some participants connecting DM with their family.

Table 5. Major Themes Identified for Question 3: Tell me a story about someone you know who had diabetes. (n = 21)

Story Themes	**Freq***	**Notable Quotes**
Management (total)	(16)	She's been doing good with it. She manages it. (TJ6)
Insulin shots	4	Um, let me think . . . my mother in law has diabetes.
Positive control	3	She uh, her sugar is so high, I guess it's diabetes
Dietary	4	where her sugar is really high and she has to take
Medication	2	insulin shots. (SP4)
Weight controlled	1	She's on quite a bit of medication right now. (TJ12)
Food controlled	1	And I watch my diet. (TJ2)
Self-care	1	Okay, umm, well, actually my ex-mother in law had
Lifestyle	1	diabetes and she, hers is more, I think it's weight controlled, or um, food controlled, and she does really good, she don't have to take medicine for it, but I guess she's borderline. (TJ1)
		She took pretty good care of herself. (TJ1)
Complications (total)	(8)	Um, she . . . her eye sights not that great anymore,
Kidney Transplant	1	and she's lost almost all of her teeth. (TJ12)
Hospital	1	Oh, well, my sons got diabetes. He's got everything-
Heart Attack	1	his kidneys have shut down, he does dialysis three
Eyesight	1	days a week and they just diagnosed me with diabetes
Loss of Teeth	1	about a year ago, so you need anymore? (TJ14)
Kidneys shut down	1	And I know there's times when she gets up and
Dialysis (3/wk)	1	doesn't feel very well but she still has to go back to
Physiological Impact	1	work. But other than that I don't really know anybody that has diabetes. (SP4)
Emotional Impact	4	Oh, it's affected me in numerous ways. I have to do all the shots and uh take the pill and if I don't well I get nervous and everything. Plus, I eat all the time. (SP3)
		She's had a rough time of it. (TJ12)
Duration (total)	(4)	
20 yrs/1 yr/2 yrs	3	I've had it 20 years and I deal with it just fine. I deal
Newly diagnosed	1	with it just on an everyday basis. (TJ2)
		Um, he's had it for about two years. (TJ10)
Type (total)	(4)	Umm, my brother had juvenile diabetes and he
Juvenile DM	2	passed away at the age of 29 from a motorcycle.
Type 2 DM	1	(TJ5)
Non-insulin Dependent DM	1	Um, yes, my mother has diabetes and then my brother is in the army, and he just found out that he has diabetes. He has type 2 diabetes. (TJ11)
		I don't know exactly what type; it's not the type you give yourself insulin with. It's the non-insulin dependent. (TJ10)

Table 5. *Continued*

Degree of Severity	(4)	
Death	2	Oh ok, yeah, my cousin's mom, she has the low, like a low dose of them, of diabetes and she has a little test that she takes, that she pokes her finger with every day to check her blood level. (SP1)
Light	1	
Low Dose	1	
Heredity	3	But, grandparents have had it. It's just kind of in the family. (TJ10)
Coping Strategy	2	I don't let it get me down. I take my medication and I do what I want to do. (TJ2) Oh, well when I first got it, it was real hard because I had to give up a lot of things that I still like . . . like I was real bad about drinking cokes and I can't drink them anymore unless they're diet cokes and it's real hard to drink a diet coke if you've never drank one. (TJ16)
Professional Observations	2	But I've seen it through just working in the health field so there's a lot of people that you know they don't; they have to change their diet, they have to change a lot of things in order to be able to keep them under umm, healthy wrap. (SP5)
Chronic Disease		Well, the only person I can think of, because I don't know if my grandpa does, but my grandma did. She has cancer and she had diabetes and we just lost her. (TJ9)
Cancer	1	
Impact on Job	1	He's trying to stay in the army; they are trying to get him to leave the army, because of his diabetes. (TJ11)
Disease Enormity	1	Well, it does quite a bit, people don't realize this, but you have to stay on schedule of food because I'm on two types of insulin now. I was on pills, which wasn't too bad, but now I'm on the insulin. I have to make sure that I'm up by 7 and I have to get my sugar test in the evening before 7:30 and the reason being is because I have to take my second insulin which is, Landacin, and it had to be taken about the same time everyday.. So, it does and then you have to watch everything you eat and like if you're lazy, if I eat anything uh like maybe a few grapes between then it raises my sugar and it's higher before mealtime than it should be. (SP2)
Obesity Relationship	1	They tell me that being obese and which I'm not, but this is what I hear all the time. That being obese is what causes diabetes, but I've got a brother that's diabetic and I bet he don't weight 136 pounds. (SP2)

*Refers to the number of responses in which the theme was evident.

Table 6 further explores health product in terms of what participants want their children to know about DM. Most participants want their children to be aware of the proactive strategies identified; most aimed at prevention through diet, weight management and education about the disease. The next most common ideas that were reported were management of the disease, general knowledge/awareness of DM, and the cause or symptoms of the disease. Parents agree that their children need to be educated about DM and how to take care of themselves in order to maintain health. Other key themes identified were the idea that DM is caused by heredity, the cultural connection surrounding DM and the risk of developing DM.

Table 6. Major Themes Identified for Question 5: What would you like your children to know about diabetes? (n = 21)

What / Key Themes	**Freq***	**Notable Quotes**
Proactive Strategies (total)	(18)	Take care of themselves and eat healthy. Eat vegetables and fruits. (TJ6)
Dietary prevention	4	So, I just . . . I think the kids in school and stuff should know, I think it should be a part of the curriculum really. (TJ10)
Take care of themselves	3	I would like them to know that diabetes is something that you need to get yourself educated about, you need to know how to eat, things to stay away from, watch your carbohydrates and your sugars and all of that so that you don't develop diabetes. (TJ12)
Prevention	2	They need to watch and try to do everything they can to not get it. (TJ16)
Be careful	1	
Educate themselves	1	
Stay on top of it	1	
Personal experiences	1	
School curriculum	1	
Annual check-ups	1	
Eat vegetables & fruits	1	
Weight management	1	
Diet & obesity	1	
General Knowledge/ Everything/ As much as Possible/ Awareness	6	Everything they can. (TJ14) Uh, everything that's happening to me. (SP3) Uh, no really, I explain, uh, everybody was saying that I am too thorough because I explain everything. We don't do stuff like eat too much of this because it can cause stuff like that so, they understand, they don't understand to the right extent yet, because they are still too young, but they know everything. (TJ9)
Cause/Symptoms	6	They just need to know that it's there, that the disease is out there, and you know, what symptoms are, as they get older and if the symptoms are there, then they need to be checked before it and then like I said, deal with it at the time. (TJ3) I think that the most, the best thing is that if your, most of the diabetes that I've seen so far has been you know that is brought on by diet and obesity and a lot of the big stuff and just the fact that if your healthy and you take care of yourself you could prevent yourself from ever being affected by it, you know? (SP5)
Management (total)	(5)	That it can be controlled by medication and/or diet. (TJ5)
Medication	1	Um, that it can be managed, and that they can do their best to stay on top of it and they can do their best if things happen to them. (TJ11)
Dietary	2	
Manageable disease	1	
How to deal at time	1	

Table 6. *Continued*

Heredity	4	It usually it has to run genetically, in your bloodline to get it. (TJ1) That I don't know if it's inherited, they say it is, but I'm the only one out of twelve children . . . sisters and brothers that has diabetes. So, I don't my grandmother didn't have it, my grandfather didn't have it. Aunts and uncles didn't have it, so I don't know where I got diabetes. (TJ2)
Risk (total) *Gestational Diabetes* *Diabetes*	(3) 1 2	If you're female and you have over, like I think it's an 8 pound baby, if you have an 8 pound baby or larger, you could get gestational diabetes. (TJ1) Oh, I would like them to know the risk of it, the symptoms about it. (TJ7)
Cultural Connection	2	Um, as much info as they can. It's not only on my side of my family. My husband's side, they are a lot more Indian. His grandma is almost full blood and she is a very bad diabetic. I mean, she's insulin dependent. (TJ10) Well, I yeah, you know, like make them really aware if they don't lose weight. I know everybody's always saying they need to lose weight, so they're both overweight. You know, Indians are Indians. They just have this gene I guess that, everything they eat goes to fat. (TJ14)
Lack of Knowledge	2	Well, I guess if it could affect them. I don't know if it's hereditary or if it's caused by, you know, I don't know what it is. (TJ8)
Health Profession	2	Like if they ever got them I guess, just the doctor would just explain it to us, because I don't really know nothing about diabetes myself. (TJ13)
Degree of Severity: Death	1	Um, I know that it's deadly and that if you don't take care of yourself that things can happen. So, I just want them to know to eat healthy and go to their annual check ups. (SP4)
Social Support	1	If you ever get it, take care of yourself, be careful, don't think that you can beat it by yourself. (TH1)
Nothing	1	Nothing. (TJ4)

*Refers to the number of responses in which the theme was evident.

Price

Price is defined as the target population's views of the benefits and barriers related to the named product of views of DM and DM prevention strategies. In an effort to identify additional benefits and barriers associated with DM and DM prevention strategies, participants were asked "Is there anything about diabetes that scares you?" and "What is it that scares you?" Overwhelmingly, complications ranging from amputations to problems with circulation were identified as the aspect of DM that scared participants. The complications identified were all negatively associated with DM meaning they are affects that happen when DM is left uncontrolled. Other key themes that were identified were the need for management with DM and the emotional impact having DM has on a person. All the responses are presented in Table 7 with notable quotes providing more colorful illustrations of the identified themes.

Table 7. Major Themes Identified for Question 4: Is there anything about diabetes that scares you? What is it that scares you? (n = 21)

What / Key Themes	**Freq***	**Notable Quotes**
Complications (total)	(21)	
Amputations	5	Um, well, a lot of things that scares me, most of the time is not just that it could kill you, but that you could have your legs amputated because of it and stuff. (TJ1)
Eyesight	3	
Affect on Organs	3	
Sores/Lesions	2	
Physiological	2	Um, the complications scare me, you know, the losing body parts or limbs, and the shut down of the vital organs. (TJ5)
Death	2	
Sick/Bad Health	2	
Circulation	2	Um, I think that what scares me is when my mother's blood sugar drops, and she starts sweating real bad and has a reaction, she is opposite of most people. She likes to try and go to sleep, instead of just, she gets into these sweating modes, I guess its what you wanna call it, and she'll start sweating really bad and her eyes will go blurry and we'll take her blood sugar, and her blood sugar is low. And of course we'll give her orange juices and crackers and that sort of things to try to bring it up. But I think the worst thing is, what scares me is that my mother may lose a leg or an arm to diabetes, or her eyesight, or just lose her life completely. (TJ12)
Nothing	7	None of it. (TJ2) Not really, I know if somebody had it, it would probably be scary, because you don't get to eat certain stuff and stuff like that. (TJ13) Um, not really, I don't guess. I guess because we get a lot of information from my work, I work at the hospital and we get a lot of information that tells us how to take care of yourself and things like that. (SP4)
Management (total)	(5)	
Dietary	2	No, just eat right, change your eating habits. And exercise. (TJ6)
Exercise	1	
Food Restriction	1	And that's how it scares me you know, because I have a lesion on my foot so I have to be real careful with it and what type of shoes I wear. I have to wear those diabetic shoes to work in. (SP3)
Change Shoes	1	

Table 7. *Continued*

Emotional Impact: Fear of Complications	4	Um, I think the fact that you can lose your, you know if you're not careful and you don't care of yourself, you can lose your limbs, you can lose your circulation in parts of your body, that's a little scary, you know if you don't take care of yourself. (SP5)
Health Profession	2	Really there's nothing because I know a lot about it. I went through a nursing program and like I said there's really any of a lot that bothers me because I basically know most of it. (TJ9)
Lack of Knowledge	2	I don't really even know anything about it. (TJ8) Umm, I really don't know that much about it really to tell you the truth. I mean yeah, hopefully I won't get them, but I really don't know nothing about it, the research or nothing about them. (SP1)
Proactive Strategies (total) *Research* *Prevent Overweight in Children*	(2) 1 1	Um, no, I try and research as much as possible and try and keep my girls from being overweight to stay away from it as much as possible. (TJ11)
Lack of Education	1	I'm not really that well educated, I know I see brochures and stuff like that every now and then, I talk to some of the nurses that know something about it, but they don't really tell me what I want to know, they just kind of tell you what's in the brochures and stuff. I'm not a doctor and I can't really understand what is going on, and why it's going on. (TJ14)
Comprehension	1	Well, I really, I really don't understand it. (TJ14)
Genetics	1	I think it's just that it's predominant in the Native American society and knowing that it's already in our genes to have it. (TJ10)
Everything	1	Overall is a scary disease, you know, um, my niece lost her eyesight, but of course go it back, but its just so many different things that because you have diabetes, it can cause all these other things, like her bones are crumbling in her feet and her kidneys failed and her eyesight failed and then my friend's heart, you know, um, weakened, and it's just a scary disease. (TJ3)

*Refers to the number of responses in which the theme was evident.

Place

Place according to the 4 Ps of social marketing principles, is the channels identified for information dissemination related to the named product, which is views of DM and the DM prevention strategies identified earlier. Researchers asked if participants would be most interested in information on television, on the radio or in the mail and reasons why the particular channel is appealing; the responses are presented in Table 8. Most of the participants prefer information in the mail because it is easy to comprehend, a versatile channel, they enjoy reading and will be able to use information in the mail as a reference for a later time. Television and radio were preferred almost equally as a second to information in the mail. The participant already watching or listening, convenience, versatility, reaching a wide audience and being visual and auditory as well as an attention grabber were all reasons in favor of television or radio for delivery of health information.

Table 8. Major Themes Identified for Question 8: Would you be most interested in television, radio, or information in the mail? Why is this way appealing to you? (n = 21)

Preferred Medium	Freq*	Reasons for Preference	Notable Quotes
Mail	17	Reference Enjoy reading Ease/Versatile Comprehension	Information in the mail would be good. I like reading myself and I can read about it. (TJ1) Probably through the mail, because you can watch it but you won't remember everything that they talk about. If you have it in writing, you can go back and re-read it and research it. (TJ3) Information in the mail because I can read it, and I can always put it back and file it somewhere if I want to look back at it. (TJ9) Through the mail because I can sit there and read it, and if I don't understand the first time I can go back and read it again. (TJ14)
TV	6	Attention Grabber Already watches Child watches a lot Visual/Auditory	If you're watching TV, sometimes you'll think about it and wouldn't otherwise, you know? (TJ2) Mostly because I watch TV a lot, my little one does too. (TJ7) I guess because, not a whole lot but I watch TV anyway. That would probably be the best way to catch my attention, like a commercial or something like that. And it's visual, and you know auditory. (TJ8)
Radio	5	Reach wide audience Versatile Already listens Convenience	Yeah, radio, because I listen to it, like when I'm on my way to work and in the car all the time, and then, I keep a radio on in my bathroom. Yeah, I pretty much listen to radio. (TJ7) Oh, um, probably radio. I think it's because it's the way that I have the most time to pay attention to. Because working, I listen to the radio on the way to work, and on the way home from work, and it's just kind of something that helps me relax. When I'm relaxing at night I listen to the radio. (TJ10)

*Refers to the number of responses in which the theme was evident.

Promotion

The final social marketing principle explored was that of promotion, which we defined as the target population's views of how to publicize information related to their views of DM and DM prevention strategies. First we identified what individuals would be willing to do in order to prevent DM and the key themes are presented in Table 9. Overall, individuals are willing to use previously identified prevention strategies in their personal life; things such as eating right, exercising, and taking personal responsibility for the prevention of DM. Others were willing to do more externally to prevent DM, things such as speak about it or research prevention. While others spoke about the big picture wanting to do "whatever it takes" or "anything" to prevent DM. Other key themes emerged relating to the emotional impact DM has on an individual and how some individuals feel helpless to prevent DM.

Table 9. Major Themes for Question 6: What would you be willing to do as an individual to prevent diabetes? (n = 21)

Promotional Factor	**Freq***	**Notable Quotes**
Prevention (total)	(8)	
Eat Right	1	Just eat right. Exercise all the time. Drink water. (TJ6)
Exercise	1	
Drink Water	1	Probably uh, lowering my sugar intake and not letting my son, my child, eat a lot of sweet things.
Decrease Sugar	1	
Restrict Sweets	1	Mostly vegetables and fruits and stuff like that would probably help prevent them. (SP1)
Eat Fruit/Vegetable	1	
Obesity	1	
Personal Responsibility	1	
Anything/ Whatever it takes	4	I would be willing to do anything, like maybe go to conventions and you know, speak about it and you know try to learn more about it. (TJ1) Well, I would like to see something that to where we can, nobody in this world has diabetes. Kind of like, cure it. Um, I would be willing to do whatever it takes to help in that aspect in being able to prevent diabetes from ever happening to anyone. (TJ12) I don't know, whatever I'd have to do to prevent it, I would. (TJ16)
Management (total)	(5)	
Dietary	1	Uh, special diet and that's about it mostly. (TJ7)
Medication	1	Uh, stay on my insulin and my medication and uh, keep my eye on my blood pressure and my um, oh, I can't even remember what you do, your sugar level, you have to watch your sugar level all the time. Keep that down and exercise. (SP3)
Exercise	1	
Decrease blood pressure/ sugar levels	1	
Doctor visits	1	
Speak about it/Present it/ Teach others	3	Um, I would be willing to go out and help, like if people were willing to . . . people who knew how to teach it. I would be willing to go out and help present it and that kind of thing. (TJ10)
Increase Personal Knowledge/Research	3	Continue researching and tell anybody that can listen, teach them about it. (TJ11) Um, I guess just go to like or let people, well, I know at the hospital we have conferences and things all the time, diabetic wellness and things like that where people can go and check their sugar and tell you how to eat right. I guess I would do things like that. (SP4)

Table 9. *Continued*

Proactive Strategies (total)	(3)	
Monitor sugar	1	Get annual and get semi-annual check-ups to make sure that everything looks fine. (TH1)
Check-ups	1	
Role Model	1	For my kids, eat and watch what I eat and make sure that I take care of all of us health wise. (TH1)
Don't know	2	Um, I don't know what I could do. (TJ5)
Helplessness	2	Um, to prevent it? I don't know that there's anything I could to as an individual to prevent it. (TJ3)
Cure	2	Oh lord, I wish they'd find a cure for diabetes. (SP2)
Lack of Knowledge	2	No, because I don't really know or understand what diabetes is anyway. (TJ14)
Emotional Impact	1	Um, anything I can because like I said, I'm afraid my grandpa has it now and I just hate to see people suffer. (TJ9)
Awareness	1	Um, I think the best thing is to make it aware, you know especially in our society where obesity is running ramped, just make it aware that unhealthy lifestyles and the things that we bring on ourselves is what can contribute to that disease, you know? (SP5)

*Refers to the number of responses in which the theme was evident.

The next question asked by researchers aimed to explore how individual participants would like to receive information about health. Healthcare professionals and receiving information through the mail tied for the most frequently mentioned channels. Online resources such as email or internet research, as well as handouts of any type and books or magazine were all the next most preferred channel that participants identified as a preferred channel to receive health information. All of the responses are shown in Table 10.

Table 10. Major Themes Identified for Question 7: How would you like to receive information about health? (n = 21)

Preferred Medium	**Freq***	**Notable Quotes**
Healthcare Professionals (total)	(7)	
Doctors	4	Oh, I like to read articles about different things, and at the doctors I like for them to tell me that stuff. (TJ9)
Clinic Staff	1	
No one specific	1	
Diabetic foundation booklets	1	Um, through the mail, or even, like talking to doctors. (TJ11)
		I don't know. Pamphlets, or go to the doctor. (TH1)
		Uh, through the diabetic foundation, they send me these booklets out every month. So, I was receiving some of their stuff soon through, so it picks up on you know, diabetic stuff. Tells you how to fix your food and stuff. (SP3)
Mail	8	Mail would probably be the best. (TJ10)
		I guess through the mail. (TJ13)
		Oh yeah, or like brochures through the mail.
		Mail, through the mail. (TJ5)
		Um, well, like going to the doctor, or by mail. (TJ1)
		Um, probably by mail. (SP4)
Online/Email/Internet Research	4	Well, if something comes up that I have questions about, I usually get hold of the clinic and ask them about it, or go online and look up whatever it is that I'm concerned about and read up on it. (TJ3)
		We get on the internet a lot to research things. (TJ11)
Handouts/Pamphlets/Brochures	4	Um, I'm a reader so I like brochures and pamphlets, like I do really good you know reading stuff and remembering it, so that's probably how I would personally. (SP5)
		Now there is some people that, and if you hand out literature, if they can read, that's great, because you can go over it in your own time. (TJ2)
Articles/Magazines/Books	3	I don't know, I guess books, if you could read up on it. (SP2)
		You know, those books can tell you a lot because I've read a lot about being diabetic and you do learn a lot from it. (SP2)

Table 10. Continued

Group Education (total)	(2)	
Classes	1	Like different little classes or in service, or even little pamphlets. (TJ6)
In-service	1	
TV	1	Um, I guess probably TV. (TJ8)
Seminars/Meetings	1	I do a diabetes program, I've done seminars with him and stuff like that, diabetes doesn't scare me because I know what it is and how it affects you and what you need to keep it from affecting your kidneys, your eyes. If you're like sitting around, like watching TV, you can pick up that pamphlet and read, go to these seminars like I said, a one on one basis where you can ask questions. (TJ2)
Healthful Cook Books	1	I do look on the internet a lot about health things, I have seen things in magazines that help me, you know, when there's a new food that comes out-they say oh this could be bad. I guess there's that way or I have gotten health food books to help cook healthy nutrition meals. (TJ12)
Form Doesn't Matter	1	So it really doesn't matter how I receive it, just as long as I keep receiving it. (TJ12)

*Refers to the number of responses in which the theme was evident.

Table 11 identifies who the participants said they would like to see on television or in brochures providing information about health. People with first hand experience with DM or whatever disease is being discussed is preferred. Healthcare professionals are a close second as a channel to promote health and the idea that asking participants who they want to see is a novel idea emerged next as most frequent. Celebrities, Native Americans, everyday people and leaders were also responses.

Table 11. Major Themes Identified for Question 9: Who would you like to see on television or on brochures providing information about health? (n = 21)

Who / Key Themes	Freq*	Notable Quotes
First Hand Experience	7	Probably somebody that has a lot of experience with that would be like the best bet or something. (SP3) Somebody that has diabetes that knows what they're talking about. (TJ16) More of the people, it's not just that I want to see the big people-the actresses. I would be more of the people that have actually gone through it. If you have seen the people that have gone through it and actually fought through it, it makes more . . . I believe it would make a more interesting story, to see how they fought through it. Because if someone sees somebody that has actually fought through something, that gives somebody who has actually had that, going through that more of that reassurance that there is a change for them and that kind of thing. (TJ10) I don't know, maybe, someone who has health problems that has kind of overcome them by like good habits or medication or whatever. (TJ8) Well, personally, it depends on exactly what they say. Is it about cancer? Is it about diabetes? Is it about heart disease? Somebody who's been there, who's experienced those things and being treated and continuing on with a near to normal life. Doctors would be good too. (TJ12)
Healthcare Professionals	5	Um, just a doctor, a certified doctor, so that way I can know that they are certified. (TJ11) Like, probably like a doctor, or somebody who's had problems I guess. (TJ13) Well, a doctor that specialized in that field would be better. (TJ14)
New Concept	3	Oh, I have no idea! (TH1) I really don't know. I hadn't thought about it. (TJ2) That's kind of a hard question because I really wouldn't know who to start with. (TJ1)
Leader	2	Well, I guess I would like to see, the governor, or somebody speaking. (TJ7) Uh, the president. (TJ7)
Don't know/No one specific	3	I don't know a specific person. (TJ6)

Table 11. *Continued*

Native Americans	1	I guess my people. There's not anyone in particular, just to see your people up there speaking about it is, you know, always helpful, because it shows that they're caring more about what happens to their race and nationality. (TJ1)
Someone Already Watching	1	Oh, now, I watch the news and they give good tips and stuff like that. (TJ6)
Curvy People	1	I really don't know. I think they should do more, like the actresses, the more curvy people, so it shows, especially the girls, that really it's not good to be that skinny. (TJ9)
Celebrity	1	Um, Blake Shelton, he's a country singer. (SP1)
Everyday People	1	I would probably do the little commercial things because some things do catch my eye when they're on TV, talking about things, so commercials not cartoon like but just people. (SP4)
Not Sure	1	I don't know. I don't think I can think of anyone that I would particularly be overjoyed to see, you know? (SP5)

*Refers to the number of responses in which the theme was evident.

Participants most frequently preferred healthcare professionals when asked “Who do you think should do radio announcements about health?” Next, participants responded with people with first hand experience, no one specific or uncertainty. DJs, celebrities or everyday people where also identified as a channel for radio announcements about health. The frequencies and notable quotes are presented in Table 12.

Table 12. Major Themes Identified for Question 10: Who do you think should do radio announcements about health? (n = 21)

Who / Key Themes	Freq*	Notable Quotes
Healthcare Professionals	12	Doctors and diabetes program coordinator people. (TH1) Um, somebody who is knowledgeable in that area. Whether it be an MD, nurses, just somebody who has knowledge in that area. I mean, if you are talking about diabetes, somebody who works in a diabetic center is going to have more knowledge than a nurse that works in an OB clinic, I mean. (TJ10) Well, um, you have radio broadcasters, but I believe doctors should get on there. I think it would be good to have them come on or maybe someone who is studying nutrition; and that knows something about it. One's health, as far as what foods to eat, how to fix them, and that kind of thing. You could get a nutritionist on there. If it's something to warn people about like heart disease, or whatever, then your doctors would be good, And then again, we also need to get our teenagers involved also. Because they are starting to come up with these diseases too. Some of them have been born with diabetes, some have been born with heart disease and I think someone who's been there to want to participate and make a change. To put some ample provider in there wouldn't be good. (TJ12)
First Hand Experience	3	I don't know, people who know about it, who know how to help people understand what diabetes is and ways how to prevent it. And warning signs. (TH1) Um, probably doctors would do. Maybe like people that have some kind of health problem, to talk to other people about it. (TJ13)
Non-specific/Anyone	3	Actually, anybody could do that. I don't have any certain person because I listen to, you know, different people on the radio that talk about health that I don't know that have made good points, so I really don't know anybody in particular that would be better than any other. (TJ5)

Table 12. *Continued*

Don't Know	3	Um, so far, I'm not sure on that one because I don't listen to the radio that much. (SP3) Um, I don't know. I really don't listen too much to know who would be good for the radio. (TJ9)
DJ	2	Not in particular, about the only ones I know is the one on (station) here in (city). (SP2) The DJ, or whoever can do it, or someone's playing music and if you get a commercial in there. (TJ2)
Everyday People	1	Um, I have no idea. Um, probably a Native or something is or American. I don't know who is like famous or nothing in the community or anything but, probably a Native Indian person. (SP1)
Celebrity	1	Um, well I like country music, so probably a country star. So, I'm not sure, maybe Kenny Chesney or somebody or Tim McGraw. (SP5)

*Refers to the number of responses in which the theme was evident.

Overall Importance

The final question asked of participants in the telephone questionnaire was "What do you think is most important of all the things discussed today?" Participants came up with a variety of responses and they are presented in Table 13. Most of the concepts were discussed in detail in an earlier question but novel themes that emerged from participants' responses to this summary question were the idea of coping with the disease situation and taking care of oneself now. The idea of "health being an important thing now" is something that was eloquently stated by a participant. This simple idea is something that stresses the need for individuals to act now and be as healthy as they can now.

Table 13. Major Themes Identified for Question S1: Of all the things discussed today, what do you think is the most important? (n = 21)

Key Themes	Freq*	Notable Quotes
Become Informed/ Health is Important	5	Probably just read up on diabetes. (TJ13) Gosh, how can you separate everything when it all goes together? The information I guess, to let everybody know that your health is important you know. (TJ14)
Diabetes / Knowledge of Diabetes	4	I think all of it is really, I mean, you know diabetes is important, and eating healthy and things like that is really important too. (TJ1) The question about diabetes. (TJ5)
Educate Future Generations/Family Responsibility	3	About the kids learning about it. (TJ10) To make sure that our children know what is going on in the world today. And how to keep themselves healthy and active. (TJ11)
Healthy Lifestyle/ Nutrition Aspect of Diabetes	2	Oh my, uh, personally, I think maybe the nutrition aspect of diabetes is good because of course, my mother has diabetes, so I think it's an important issue. Overall health, health and nutrition, or I should say exercise and nutrition, they go hand in hand. So, maybe that should be one of the top things. (TJ12)
Child Health Concern/ Prevention	2	Learning about diabetes, that and wanting to take care of my family, and make sure that my kids grow up fine without any health problems. (TH1)
Management/Coping	1	Probably getting literature and stuff out to people who do have diabetes or high blood pressure, or whatever the disease is, so that they know how to deal with it. What they can, you know, if it is preventable or if it is not preventable, and they do contract it, or come down with it, then how to deal with the situation, and live as long a life as they can with the disease. (TJ3)
Take Care of Yourself Now	1	The health, how to take care of yourself and learn more about diabetes. Because that is an important thing now. (TJ6)
Cure/Research	1	I guess the cure, finding something that will help us diabetics. (TJ16)
Severity	1	Because diabetes is a serious thing if you don't take care of it, or if you know you have it, and you've gone into little diabetes shocks. My grandma, she's been known to have a seizure from her diabetes. (TH1)

*Refers to the number of responses in which the theme was evident.

Discussion

As stated earlier, the questions asked in the telephone interviews were based on the 4 Ps of social marketing; the product was identified as the target population's views of DM and DM prevention strategies. The findings about the product presented above are similar to previous research. Hunter found that weight management, healthy eating and exercise were among the lifestyle changes participants talked about as possible ways to prevent DM (Hunter, 2009). Our participants talked about the management of DM through weight control and controlling food intake. Exercise was also mentioned as a way to prevent DM. One participant stated, "Just eat right, change your eating habits. And exercise." Similar findings regarding the need for lifestyle changes like increasing exercise and healthful diet behaviors are found in studies done in 1997 and later in 2000 (Carter et al., 1997; Griffin et al., 2000). In the focus groups conducted for the Native American Diabetes Project (NADP); researchers found in initial interviews with patients that important information concerned traditional values, food and nutrition, exercise, and family and community support (Carter et al,. 1997). Researchers also found that the community efforts needed to focus on health and wellness with the NADP (Griffin et al., 2000).

Price was defined as the target population's views of the benefits and barriers related to the named product of participant views of DM and DM prevention strategies. It is also important to note that the majority of the benefits and barriers associated with physical activity as a way to prevent DM centered on social and personal factors similar to those reported by other studies (Hunter, 2009; Ho et al., 2006; Henderson & Ainsworth, 2003). Our participants stated that a benefit of incorporating personal activity

would be the increased amount of family time; doing activities as a family were more easily incorporated as opposed to those that were more individualistic. Henderson and Ainsworth reported similar findings stating that "social networks were also a means of finding companions for physical activities like playing with children, walking with family members and friends" (Henderson & Ainsworth, 2003).

Barriers related to social and personal factors from our interviews were the age of children, a decreased amount of personal time and the parental relationship between parents and children of the same sex. Ho et al. found that barriers to physical activity included lack of safe walking or exercise areas due to a variety of factors such as dusty roads, cars, unleashed dogs and lack of equipment (Ho et al., 2006). These findings were not mentioned by our participants. In a 2003 study by Henderson and Ainsworth, it was concluded that both personal and cultural values influenced Native American (NA) women's physical activity behaviors. The main constraint or barrier affecting the amount of physical activity was time, or a lack of time with a whole host of issues that influence time (Henderson & Ainsworth, 2003). Time was an identified barrier for the participants in our study.

Place was defined as the channels and/or locations identified for information dissemination related to the target population's views of DM and DM prevention strategies. The most commonly preferred place or preferred method of health message delivery is from healthcare professionals or from other people who have some sort of first hand experience. One participant stated that, "someone who has health problems that has kind of overcome them by like good habits or medication or whatever" would be a good messenger of information. In focus groups conducted for the development of culturally

appropriate DM education materials for the National Diabetes Education Program, 95% of participants wanted materials that were culturally relevant (Roubideaux et al., 2000). A study in 1997 also found that it was important to obtain additional information concerning the meaning and importance of preserving traditional/tribal values (Carter et al., 1997). This is a similar idea put forth by several participants in our study suggesting that they wanted a "Native Indian person" to deliver health messages.

Promotion was defined as the target population's views of how to publicize information related to their views of DM and DM prevention strategies. Previous studies have identified a variety of channels named by participants as a way to publicize or receive information related to their health. Participants of this study identified healthcare professionals as the main preference for information about health and DM prevention strategies. Past research has shown that the NA preference is for story telling and oral traditions with a lot of information being passed down by word of mouth (Struthers et al., 2003; Carter et al., 1997).

Our participants wanted various healthcare professionals to tell them the information they needed to know about DM and DM prevention strategies; much like they want community members and older generations to pass on their knowledge through talking circles as shown in previous research (Struthers et al., 2003). The Diabetes Talking Circles study was characterized by "seven [main] themes; (1) living with, and surrounded by diabetes, (2) exchanging emotions and feelings about diabetes, (3) receiving up to date diabetes information, (4) sharing experiences and stories, (5) obtaining guidance from the facilitator, (6) harmonizing diabetes using traditional indigenous methods, and (7) taking action to stabilize diabetes" (Struthers et al., 2003).

These themes are very relevant to our findings and the sentiments are echoed throughout the telephone interview quotes presented in the results section. At times, participants spoke with great emotion and feeling thus leading researchers to believe that the emotional impact of DM can overcome participants; especially those that live with having DM themselves or are close to someone who has DM and has to deal with DM daily. Another important point to make stemming from our research is that almost all of our study participants knew something about DM; most of what they knew was what they had heard from other people sharing their experiences (word of mouth); this includes friends, family members, and healthcare professionals.

Participants of this study also identified the use of brochures, handouts, or pamphlets as the second preferred method of information regarding health and DM. This point was evident when participants continuously mentioned how they would want to keep information and re-visit it later. Most clinics and hospitals use this practice already and will continue to use this practice for nutrition education. In research done by Ho et al. in 2006, participants sought additional information about healing and treatment from books, magazines, pamphlets, and the internet just as our study showed (Ho et al., 2006). Past research done by Hunter also found that printed material was preferred (Hunter, 2009).

Another study that reported the types of DM education that helped participants the most was very similar to our results. Teaching by health professionals, friends, and family members; as well as handouts/pamphlets, videos/books, and other media sources were identified (Roubideaux et al., 2000). It is important to note that not just one channel

has been mentioned as preferred solely in any previous studies; this should be kept in mind when developing DM prevention programs.

Past research has shown that DM and the complications from DM, as well as prevention and the family connectedness weighs heavily on the minds of our participants and this population. Hunter states, "Participants expressed concerns about diabetes in their children and the need for their children to be more aware of the magnitude of the disease in the Native American population" (Hunter, 2009). This idea can be seen throughout the responses from participants as presented in the tables and through the major theme of heredity or genetics that was touched on multiple times by participants. Some participants believe that "Indians are Indians," therefore, DM is inevitable.

There is still much debate about the hereditary cause of DM that is referred to and written about in recent published research. Some participants believe that DM is caused only by their genetics while others note that their lifestyle choices can be an underlying cause to development of the disease. If a participant believes that they will inevitably develop DM, they often do not see the need for more healthful lifestyle factors in order to prevent or decrease their risk of developing DM. In 2006, researchers used formative research to develop an integrated health promotion program for multiple communities based on previously evaluated studies for people of First Nations in Canada (Ho et al., 2006). The participants' perceptions of DM are discussed and are similar to our population's views of DM and DM prevention strategies; specifically, lack of awareness of the signs and risk factors for DM, DM as an inherited disease, and the need for education about DM (Ho et al., 2006).

Not only was DM as a genetic disease discussed but the importance of doing something about it now was mentioned. One participant stated that, "It's an important thing now." This idea has not been referred to much in previous studies. There was a sense of urgency conveyed by the participants that gave the impression that they were ready to be more proactive in terms of preventing the disease. In addition to this idea, they gave numerous examples of proactive strategies that they would want their children to know about.

Among some of the participants, there was also a longing to find a cure for DM. They presented it in terms of a hope or wish. This coupled with the emotional feelings that were brought up through the stories about DM could be attributed to the different levels that DM affects individuals. DM has an emotional component to the disease and prevention should address this side of the disease in conjunction with the lifestyle changes that are illustrated in literature for the prevention of DM.

An observational result that was evident in the telephone interviews was that the participants had not had the chance to participate in this type of data collection experience before the current study. Many participants were more than willing to participate in the telephone interview and gave thoughtful answers; at times admitting that they had "never really thought about it" before. The basis of our study was to determine the target population's views of DM and DM prevention strategies through their own perceptions of the disease. This is a somewhat novel idea and many participants enjoyed the experience. This idea is somewhat similar to the results presented from The Native American Diabetes Project research that stated the strength of

“their study was focusing on the perspectives of community members in working to understand program participation” (Griffin et al., 2000).

CHAPTER V

CONCLUSIONS

Conclusion

The purpose of the current study was to identify the views of Type 2 diabetes (DM) held by the target population. The current research was formative assessment to aid in the understanding of limited income Native American (NA) views of Type 2 DM and general health and allow for the tailoring of nutrition messages targeted to indigenous views of the target population. The current study was also designed using the principles of social marketing; namely the 4 Ps of product, price, promotion, and place.

Four research objectives were developed for the current study. The first was designed to identify health product or the preferred daily physical activities for the prevention of DM among the target population. Outdoor activities that included outdoor play and outdoor recreational activities were the most frequent responses followed by sports.

The second objective was designed to identify the target population's views of the health product; DM and DM prevention strategies. There were a variety of responses regarding DM and DM prevention strategies; the main themes centered on proactive prevention strategies and management of weight, diet and exercise for the prevention of

DM. DM as a genetic or inherited disease was also brought up and the stories told about DM involved family members more than anyone else.

The third objective was designed to identify the price of DM and DM prevention strategies; what the target population would be willing to do in order to prevent DM. Most participants would aim their prevention of DM at increasing knowledge of the disease. The responses included increasing personal knowledge, teaching children or other family members what the disease can do, or participating in various proactive strategies to prevent DM.

The fourth and final objective of this study was designed to identify promotion and place of DM and DM prevention strategies; how the target population would like to receive information about DM and DM prevention strategies. The participants want information in a form that they will be able to refer back to or re-read; this would include various printed materials. Participants also wanted to be able to receive information from healthcare professionals or everyday people that where knowledgeable about the disease or those who had some sort of first hand experience with DM.

Implications for Practice

The results of the current study indicate that the target population is interested in their health and they are willing to do certain things to prevent DM. Participants in the current study valued the idea that they are the experts when it comes to their health and they want to contribute so that future generations (i.e. their children) will know what to do in order to prevent DM and complications that arise from having DM. This study population expressed opinions to which researchers should attend to when developing

prevention strategies in the future. Specific views to which researchers should attend are described in this section.

Participants conveyed the need for physical activities to be convenient, fun and able to be incorporated during time spent with family. Social outings including outdoor recreation and outdoor play, or sporting events are the simplest and most common activities this population does or would be willing to do to prevent DM.

Participants indicated an interest in more knowledge about the causes and symptoms of DM, as well as having a general knowledge and awareness of the disease. This is another reason why nutrition education is so important for the target population and for other populations who are trying to prevent DM. More importantly, participants want some sort of hand out or other printed material to be used as a reference for later times.

Participants also conveyed the importance of being able to relate to the person who is teaching them or sharing information with them; they want someone that is like them. They would also prefer to learn from someone who has first hand knowledge of DM, someone such as a person who is currently being treated for DM or someone who has made lifestyle changes in order to control their DM.

Healthcare professionals in the current study were identified as valued sources of information. It is important for healthcare professionals to remember that this population looks to them for the needed information about DM and prevention of DM. Participants want to know as much as they can about the disease and they conveyed a sense of respect for healthcare professionals as experts who will be able to give them the needed information. It is also important to note that dietitians and nutritionists were infrequently

mentioned as sources of health information for the current population. More direct referrals from healthcare professionals to dietitians are recommended because participants most often discussed doctors and physicians as the primary contact for information about their health.

Recommendations for social marketing programs related to DM prevention include programs that address strategies to help participants overcome barriers to physical activity and address the need for general knowledge of DM and proactive prevention strategies. Social marketing programs should also be delivered through more than one channel at a time that would include conversations about DM and DM prevention strategies from healthcare professionals and other people that have first hand experiences with the disease; as well as printed material that program participants could keep to use as a reference later.

Future Research

In the future, research could be done looking specifically at the best way to incorporate physical activity for the prevention of DM by overcoming some of the barriers that this population faces. It would be interesting to identify what actually works and what does not for this population in terms of increasing physical activity. Studies should also be done to investigate further the channel that is best received and increased the population's knowledge base the most.

The different components of DM were brought up by participants of this study and programs that incorporate education and behavior change, as well as, some of the

social or economical factors of DM and DM prevention would be helpful for the development of future DM prevention programs.

Future research with this population could also utilize different methods of qualitative research. The participants of this study seemed to enjoy participating and the depth of information received through a focus group addressing DM and prevention of DM would be greatly informative. This type of research would be immensely helpful in tailoring a DM prevention program specifically for this population; therefore, increasing the positive outcomes.

Additional qualitative research with the current population to identify motivating factors participants have for the prevention of DM for themselves as well as family members is recommended. A focus group setting is recommended given the oral tradition of the specified population. The question route should include specific questions about social, personal, and lifestyle factors impacting perceptions of DM.

Limitations

As with most qualitative research there are some limitations that should be noted. Analysis of the data can be somewhat skewed toward individual researcher bias; therefore, two researchers analyzed this data in hopes of alleviating researcher bias (Creswell, 2007). Analysis was completed separately by the individual researchers and then they came together to discuss the relevant themes. Discussion continued until researchers were in agreement 100%.

It should also be noted that our population is not representative of the entire NA population. Each NA tribe or community has some similarities but is vastly different

when compared to other NA tribes or communities. Geographical location and the amount of resources available to the tribe or community as well as numerous social factors can have an affect on the principles and themes we identified in this study.

Another limitation with our study was that the telephone interviewers were newly trained interviewers. This study utilized three interviewers, all of which completed a telephone interviewing training, and used the same telephone script with the same probes to complete the telephone interviews. There were slight variations in the script and probes that can be expected since three interviewers completed the interviews at different times.

Although telephone interviews are a valuable research method used for community research, there are some limitations to their use. Since telephone interviews were first conducted, telephone coverage, reaching participants, response and participation rates, and the reliability and validity of responses have been challenges faced by researchers (Kempf & Remington, 2007). There are also new and evolving telephone interview challenges that current researchers are facing that "make it more difficult to achieve the goal of collecting information from a target population" (Kempf & Remington, 2007). Some of these new challenges include the "increased used of cell phones, number portability, and call screening" (Kempf & Remington, 2007). Despite these challenges, telephone interviews still play a vital role in the public health research arena and as the means for collecting our data for this research project (Kempf & Remington, 2007). In attempts to increase the reliability and validity of responses, researchers conducted telephone interviews with the participants regardless of whether or not they were reached on a land-line telephone number as opposed to a mobile telephone

number. Researchers also asked if the participant had the time to complete the interview at that time or if there would be a better time to call them back for completion of the interview.

Other threats to internal validity include the lack of trust between the interviewer and interviewee as described by Rubin and Rubin as a difficulty in "casual small talk for lack of time before the interview [or] a lack of non-verbal cues that are not present during a telephone interview" (Rubin & Rubin, 2005). Interviewers tried to decrease or eliminate these challenges by going through a lengthy introduction before starting the question portion of the telephone interview and allowing for long pauses or silences when the participant was assumed to be thinking thoroughly about their responses. In the analysis of the interviews, researchers also made the decision to disregard the times when participants responded with "I don't know" or "I'm unsure" followed by a response. This was seen by researchers as an instance in which they where saying they did not know to give themselves the time to respond the way that they really wanted.

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APPENDICES

APPENDIX A

INSTITUTIONAL REVIEW BOARD FORM

Oklahoma State University Institutional Review Board

Date:	Tuesday, September 16, 2008	**Protocol Expires:**	**6/25/2009**
IRB Application No:	HE0680		
Proposal Title:	Development of a Social Marketing Campaign for Obesity Prevention in Chickasaw Nation Native Americans		
Reviewed and Processed as:	Exempt **Modification**		

Status Recommended by Reviewer(s) **Approved**

Principal Investigator(s):

Stephany Parker
419 HES
Stillwater, OK 74078

Toma Hunter
PO Box 281
Pawnee, OK 74058

Teresa Jackson
310 HES
Stillwater, OK 74078

The requested modification to this IRB protocol has been approved. Please note that the original expiration date of the protocol has not changed. The IRB office MUST be notified in writing when a project is complete. All approved projects are subject to monitoring by the IRB.

The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

The reviewer(s) had these comments:

Addition of T. Jackson as a PI is approved.

Signature :

Shelia Kennison, Chair, Institutional Review Board

Tuesday, September 16, 2008
Date

APPENDIX B

TELEPHONE INTERVIEW SCRIPT INCLUDING CONSENT

Instructions. Phone surveyors will say.

Hello, my name is _____. I am calling you because you receive commodity foods or food stamps. The Chickasaw Nation Get Fresh Program and researchers from Oklahoma State University would like for you to participate in a telephone interview to understand how Native Americans who receive commodity foods or food stamps feel about overall health in their communities. This interview will help us develop programs for the Chickasaw nation get Fresh Program. There are no right or wrong answers. We are just asking that you share your feelings and experiences on the different topics. We will be taping your responses, but all information will be kept confidential. Your name will not be a part of any of the transcripts. The interview should only take about 35 minutes and you will receive a check for $25.00 in the mail if you decide to complete the interview. Remember all information you provide will be kept confidential. Do you agree to participate in this study? _____YES or _____NO

If you have any questions about the validity of this survey you may feel free to call: Dr. Stephany Parker, Department of Nutritional Sciences, 419 HES, Oklahoma State University, Stillwater, OK 74078, (405) 744-6821. For questions about your rights as a research subject, contact **Dr. Sue Jacobs**, IRB Chair, 219 Cordell North, Oklahoma State University, Stillwater, OK 74078, (405) 744-1676.

I'd like to talk a little bit about things you and your family do for fun.

1. What do you and your family do for fun? *product*

2. What physical activities would you be willing to do with your family? *product*
    - If you do not do these activities now, how do you think you could do these with your family?

Now, let's move on to some questions about health.

3. Tell me a story about someone you know who had diabetes. *product*

4. Is there anything about diabetes that scares you? What is it that scares you? *price*

5. What would you like your children to know about diabetes? *price*

6. What would you be willing to do as an individual to prevent diabetes? *promotion*

7. How would you like to receive information about health? *promotion*

8. Would you be most interested in television, radio, or information in the mail? *place*
    - Why is this way appealing to you?

9. Who would you like to see on television or on brochures providing information about health? *promotion*

10. Who do you think should do radio announcements about health? *Promotion*

Wow, we have discussed a lot of information today and you all provided some great input. Of all the things discussed today, what do you think is the most important?

APPENDIX C

DEMOGRAPHIC QUESTIONNAIRE

Information in grey to be filled in by Phone Interviewer	
Interview date:	
Interview time:	
City of residence:	
Date:	**County of residence:**
Age (In years):	
Sex (Circle one): Female Male	
Public Assistance Family Participates in **Mark *all* that apply.** **_____ WIC** **_____ Food Stamps** **_____ Commodities** **_____ TEFAP (The Emergency Food Assistance Program)** **_____ Head Start** **_____ Child Nutrition (Reduced/Free School lunch/breakfast)** **_____TANF (temporary assistance to needy families)** **Other (Specify)_____**	
Number of Individual living in your household (*include yourself)* _____ **List age of each member below. *Do not include your age here*.** **_____ _____ _____** **_____ _____ _____** **_____ _____ _____** **_____ _____ _____**	
Your weight:	**Your height:**

APPENDIX D

ANALYSIS FORM

Interview #

Q 1. What do you and your family do for fun? *product*

Key Points & Themes	Notable Quotes

Q 2. What physical activities would you be willing to do with your family? *product*
If you do not do these activities now, how do you think you could do these with your family?

Key Points & Themes	Notable Quotes

Q 3. Tell me a story about someone you know who had diabetes. *product*

Key Points & Themes	Notable Quotes

Q 4. Is there anything about diabetes that scares you? What is it that scares you? *price*

Key Points & Themes	Notable Quotes

Q 5. What would you like your children to know about diabetes? *price*

Key Points & Themes	Notable Quotes

Q 6. What would you be willing to do as an individual to prevent diabetes? *promotion*

Key Points & Themes	Notable Quotes

Q 7. How would you like to receive information about health? *promotion*

Key Points & Themes	Notable Quotes

Q 8. Would you be most interested in television, radio, or information in the mail? *place*
Why is this way appealing to you?

Key Points & Themes	Notable Quotes

Q 9. Who would you like to see on television or on brochures providing information about health? *promotion*

Key Points & Themes	Notable Quotes

Q 10. Who do you think should do radio announcements about health? *Promotion*

Key Points & Themes	Notable Quotes

S 1. Of all the things discussed today, what do you think is the most important?

Key Points & Themes	Notable Quotes

VITA

Teresa Diane Jackson

Candidate for the Degree of

Master of Science

Thesis: USING SOCIAL MARKETING PRINCIPLES AS A FRAMEWORK TO DESCRIBE NATIVE AMERICAN WOMEN'S VIEWS OF TYPE 2 DIABETES

Major Field: Nutritional Sciences

Biographical:

Personal Data:

Born April 24, 1984 in Ada, Oklahoma to Travis Jackson Jr. and Terri L. Scott Jackson; one older sister, Tanya E. Jackson-White. Grand-daughter of Shirley A. Walker.

Education:

Graduated from Seminole High School, Seminole, Oklahoma in May 2002. Graduated with Bachelor of Science degree in Nutritional Sciences from Oklahoma State University, Stillwater, Oklahoma in May 2007. Completed the requirements for Master of Science in Nutritional Sciences at Oklahoma State University, Stillwater, Oklahoma in July 2009.

Experience:

Completed the Dietetic Internship at Oklahoma State University in June 2008. Employed by Oklahoma State University as Graduate Research Assistant from August 2008 until May 2009. Currently employed by Oklahoma State University as Social Marketing Coordinator in the Nutritional Sciences Department.

Professional Memberships:

American Dietetic Association Member, Oklahoma Dietetic Association Member, North Central District Dietetic Association of ODA Member, and American Diabetes Association Member.

Name: Teresa Diane Jackson Date of Degree: July, 2009

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: USING SOCIAL MARKETING PRINCIPLES AS A FRAMEWORK TO DESCRIBE NATIVE AMERICAN WOMEN'S VIEWS OF TYPE 2 DIABETES

Pages in Study: 104 Candidate for the Degree of Master of Science

Major Field: Nutritional Sciences

Scope and Method of Study:

The purpose of the current study was to identify perceptions of Type 2 DM among limited income NA women eligible to receive SNAP-Ed services. The results of this study will be used to inform the development of a culturally appropriate social marketing campaign targeting the participant population for the prevention of DM. The current research is a means of formative assessment to understand participant views using social marketing principles; namely the 4 Ps of product, price, promotion, and place. Participants included 21 women who met inclusion criteria and were willing to partake in the telephone interview that was audio recorded and transcribed verbatim for analysis. Researchers performed line by line content analysis to identify common themes.

Findings and Conclusions:

Product: Outdoor activities including outdoor play and outdoor recreational activities were the most frequently preferred physical activities for the prevention of DM. Proactive prevention strategies and management of weight, diet and exercise for the prevention of DM, and the genetic component of DM were all relevant themes. Price: Participants would increase personal knowledge, teach family members about DM, what it can do and various proactive strategies for the prevention of DM were identified as things participants would be willing to do. Promotion: Overall, information by mail or written information that could be used as a reference later is preferred for health information or DM prevention strategies. Place: Participants wanted to receive health information from healthcare professionals or everyday people that are knowledgeable about DM or some one who has first hand knowledge of DM. Discussions and word of mouth channels were identified as most wanted. Findings will be used for tailored nutrition messages targeted to indigenous views of the target population.

ADVISER'S APPROVAL: Dr. Stephany Parker