

UNDERSTANDING HEALTH AND NUTRITION  
PERSPECTIVES OF NATIVE AMERICAN WOMEN  
ELIGIBLE TO RECEIVE COMMODITY FOODS USING  
SOCIAL MARKETING PRINCIPLES

By

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## CHAPTER I

### INTRODUCTION

Native Americans/Alaska Natives (NA/AN) experience a disproportionate burden of chronic diseases nationwide. Cardiovascular disease is the leading cause of death in the NA/AN population (USDHHS, 2003; CDC, 2007). NA/AN also have the highest prevalence rate of type 2 diabetes at 2.6 times that of the general United States population (USDHHS, 2003). Diabetes affects about 16.5% of the NA/AN population ages 20 and over (NIDDK, 2007). Additionally, the rate of diabetes varies according to geographic locations as the rate among Alaska Natives was 6% while the rates in southern Arizona were 29.3% in 2007 (NIDDK, 2007). Furthermore, the Oklahoma Native American REACH 2010 project reported that the diabetes rate among Native American adults in Oklahoma was disproportionately high at 13.1% compared to 7% for whites (Campbell, 2008).

Health disparities exist on many levels in the NA/AN population which necessitates a need for an in-depth analysis of possible improvements to the healthcare system for this population (IHS, 2006). The rates of substance abuse are highest in the NA/AN population ages 12 and up at 14.1%. The life expectancy for NA/AN is about 6 years less than the general United States population at 70.6 years versus 76.5 years (USDHHS, 2003). NA/AN also suffer disproportionate rates of tuberculosis (600% higher), alcoholism (510% higher), motor vehicle crashes (229% higher), injuries (152% higher), suicide (62% higher) and homicide (61% higher) compared to the rest of the United



States population (IHS, 2006). Health disparities that exist in the NA/AN population may be affected by a range of socioeconomic conditions such as increased poverty, inadequate access to healthcare and lack of cultural understanding (IHS, 2006).

The lifestyles of Native Americans/Alaskan Natives (NA/AN) have changed considerably since the 15<sup>th</sup> century when Europeans began to settle in North America. NA/AN are increasingly shifting from a traditional diet and physically active lifestyle to a more westernized diet and sedentary lifestyle (Dillinger et al., 1999). Modern lifestyle changes may be contributing to the increased prevalence of chronic and infectious diseases in the NA/AN population (IHS, 2003; Broussard et al., 1995; Castor et al., 2006; Dillinger et al., 1999). The Indian Health Service (IHS) has worked to reduce health disparities by providing health care and developing health interventions for an estimated 1.6 million NA/AN from more than 560 federally recognized tribes (USDHHS, 2003).

In 2004, the population of NA/AN was estimated to be 4.4 million totaling 1.5% of the United States population (USCB, 2005). Native Americans comprise about 7.8% of Oklahoma's population. The Native American population living in Oklahoma experiences the highest rate of obesity compared to other population groups with approximately 28% being classified with a BMI>30 (Polley et al., 2005). In general, Native Americans have a higher rate of obesity at 37% compared to the United States population at 21% (Baker et al., 2006). Increased prevalence rates of overweight, diabetes and cardiovascular disease indicate a need for more culturally appropriate health interventions that will improve dietary and physical activity behaviors (Polley et al., 2005).

Obesity is a serious health problem for many NA/AN communities. Individuals who are overweight or obese are at an increased risk for other health problems such as cardiovascular disease, hypertension, certain cancers, arthritis, breathing disorders, diabetes and gallbladder disease (Wilson et al., 2007). There are many contributing factors that need to be researched to understand the increased incidence of overweight and obesity in the NA/AN population. Although it has been well documented that positive energy balance brought about by energy intake exceeding expenditure leads to weight gain, an effective intervention that will address this imbalance necessitates culturally effective health education targeting dietary and physical activity behaviors (Wilson et al., 2007). However, very little research has been conducted in the NA/AN community to understand how cultural perceptions influence health behaviors.

Social marketing principles can be used to facilitate a better understanding of cultural values and beliefs of a specific community and inform the development of health messages and interventions to positively influence behavior change (Wright et al., 1997). Researchers utilize social marketing principles and audience segmentation to assess the health needs of a community by exploring perceived advantages and disadvantages of health behaviors (Raval et al., 2004).

Health marketing has been described as a public health approach that combines techniques from the communication, marketing and public health disciplines to develop and deliver effective health messages to a target audience. Health marketing is defined by the Centers for Disease Control (CDC) as a means of “creating, communicating, and delivering health information and interventions using customer-centered and science-based strategies to protect and promote the health of diverse populations” (CDC, 2005).

Social marketing is a theoretical model that utilizes what has been referred to as the “4 P’s” of marketing to influence behavioral change in the target audience. The “4 P’s” are product, price, promotion and place. Product is the desired health behavior developed for the target audience (Andreasen, 2008). Price is determined by evaluating the perceived benefits and barriers towards the product (Andreasen, 2008). Promotion involves determining the most effective communication channels to reach the target audience (Andreasen, 2008). Lastly, place involves the location where the health intervention will occur (Andreasen, 2008).

Audience segmentation is used to specify the target audience and involves defining a segment of a population based on factors such as geographical location, demographic data, physical condition, medical history, attitudes, psychographic data and behavioral choices. It is more effective for social marketers to have a segmented group with common similarities to promote the benefits of a specific health behavior because that group will be more likely to respond to the same health message (Weinreich, 1999). The audience segment for the purposes of our study is Native American women who receive or are eligible to receive commodity food benefits and reside in a specified Indian Nation's jurisdictional territory.

### Purpose

The purpose of this study was to identify health concerns and issues among Native American women who receive food stamps or commodity foods utilizing social marketing principles. The short-term goal of this study is to develop a social marketing campaign appropriate for Native American families who receive or are eligible to receive

commodity food benefits and reside in a specified Indian Nation's jurisdictional territory. The long term goal is to reduce overweight and obesity in this population.

### Objectives

- Identify a health product for the social marketing campaign. For this study, product will be determined through perceptions of fruits and vegetables, body weight and physical activity using focus groups.
- Determine the price of participating in a health intervention through participants' evaluation of the perceived benefits and barriers to behavioral change regarding fruit and vegetable intake, body weight and physical activity.
- Identify the most effective methods of communication to promote health messages that will influence behavioral change. Promotion is defined as how to create demand for the products being explored.
- Identify a place to conduct health interventions and disseminate health messages. Place is defined as the channels and physical locations for promotion of the products being explored.

## CHAPTER II

### REVIEW OF LITERATURE

#### Native American/Alaska Native Healthcare: Background & Historical Information

##### Development of Indian Health Service

Native Americans and Alaska Natives (NA/AN) were the first inhabitants of the Americas dating back more than 10,000 years. Their history encompasses many traditional values and beliefs that were unique to each tribe. Presently, these values are practiced by many tribes through different tribal languages, religions and customs. The relationship between NA/AN and the early settlers of America has been difficult as many lives were lost to gain equal rights. At that time, NA/AN rights were first established by treaties in 1774, the Constitution of 1787 and laws, Supreme Court decisions and Executive Orders where the government assumed varying responsibilities towards Indian people (IHS, 2003).

Unfortunately, many Indian communities were overcome in the 1700s by a lack of immunity to many infectious diseases brought to Native lands by European settlers. The spread of disease continued in the early 1800s until the United States army officers began to offer medical treatment to NA/AN living near army posts for the purposes of infection control. This responsibility to provide medical care was moved throughout different federal government programs. Indian Health Service (IHS) was established in 1955 by the Department of Health and Human Services (DHHS) to be the main provider

of healthcare for Indian people (IHS, 2003). Today, the Indian Health Service provides health care free of charge for all eligible NA/AN who are members of a federally recognized tribe (Noren, Kindig, & Sprenger, 1998).

Indian Health Service is also integral to promoting Indian rights through advocacy and informing Congress of NA/AN current health needs. Federal legislation in the 1970s changed the structure of IHS through increased participation from tribal governments. The Indian Self-Determination and Education Assistance Act (ISDEA) of 1975 gave tribes the opportunity to contract healthcare services instead of using IHS. The ISDEA was amended in 1994 to include the Tribal Self-Governance Demonstration Program which allows tribal governments to exercise control over IHS programs. In addition, the Indian Health Care Improvement Act of 1976 provided educational scholarships for Indian students and gave tribes more input in the development and planning of health care programs (IHS, 2003).

#### Partnerships Between IHS and Tribal Organizations

Most of the 560 federally recognized tribes have gained more responsibility and control of health programs for NA/AN. Increased participation allows tribes to make decisions about staffing, facility development and community health programs and health needs (IHS, 2003). In 2003, almost 80% of outpatient care clinics in IHS were controlled by tribes and most community health programs today are currently directed by tribes. The improved partnership between tribal leaders and IHS representatives allows IHS to improve their programs by focusing on the individualized health needs of each tribal community (IHS, 2003).

Partnerships between local tribes and IHS may help promote cultural awareness during the training of employees in management positions. Noren et al. (1998) conducted a national survey in 1996 with 5 IHS service regions to determine the most critical areas for improved healthcare as perceived by IHS staff. Cultural awareness training was cited as a critical factor to management's ability to accurately understand and serve the NA/AN population. It was suggested by staff that management training include a traditional style of management that would reflect the management of local tribes to decrease conflicts and improve communication (Noren et al., 1998). Information learned from this study and others not only points to the need for the development of cultural awareness on the part of staff working with NA/AN but also supports the need for the development of culturally relevant health programs (Noren et al., 1998).

#### Integrated Delivery System of IHS

Indian Health Service provides healthcare through three main channels. First, there is direct care which is provided by IHS facilities on reservations or Urban Indian Health Programs. Second, there are contract care services that provide funds for specialty services purchased from outside private healthcare providers. There are also tribal health programs established through contracts or government compacts with tribes that transfer the operational management of a facility or program to a tribe (Orloff & Lessans, 1999).

In 2003, Indian Health Service provided care for about 1.6 million NA/AN from 560 federally recognized tribes. Most of the NA/AN population who receive service live on reservations or in rural communities in 35 states (IHS, 2003). It was reported by IHS

that about 55% of NA/AN rely on IHS as their major source of healthcare due to isolated geographic locations and financial constraints (IHS,2006) Isolated environments of reservations often pose problems in terms of staff recruitment and retention (Noren et al., 1998).

Because low recruitment and retention impact the quality of health care received, a Health Professions Support Team was developed by IHS to focus on improved strategies for recruiting physicians and clinical staff. IHS developed a Loan Repayment Program to repay student loans or cover medical school costs in exchange for contractual service in a disadvantaged IHS service area. Though these initiatives have improved recruitment rates, high turnover rates remain and result in job vacancies for critical positions at IHS facilities. The vacancy rate varies among IHS facilities with some facilities reporting few problems filling positions while others report vacancy rates as high as 65% (Noren et al., 1998).

The results of a local survey to IHS clinicians in the Navajo Area by Kim in 2000 provided insights to the problems associated with recruitment and retention of staff (Kim, 2000). The most common reasons healthcare providers cited for beginning employment with IHS included a desire to work with the Native American population, the Southwest location, convenient hours, the loan repayment program and work variety. The factors dissuading providers from IHS positions included concerns about local schools, increased distance from their family and friends, administration, salary and housing. The primary reasons IHS healthcare workers reported for continuing employment were medical staff co-workers, convenient schedules, location of Southwest and work variety (Kim, 2000). Common reasons cited for ending employment were poor administrative support, fear of



transfer of management from IHS to the Navajo Nation, distance from family and friends, extra working hours and poor local schools (Kim, 2000).

Indian Health Service operates through more than 600 health care facilities including hospitals, health centers, stations and clinics. Indian Health Service is divided into 12 area offices which are further broken down into 150 service units throughout the United States (IHS, 2003). These local service units are administrative units that provide care under the supervision of their regional area office (Shalala, Trujillo, Hartz and D'Angelo, 1999).

The IHS clinical care staff includes physicians, dentists, pharmacists and nurses. Additional healthcare support includes allied health professionals such as engineers, sanitarians, physician assistants, nutritionists, dental assistants, health educators and medical administrators (IHS, 2003). Additionally, there are 34 Urban Indian Health Programs which provide medical and dental care to NA/AN living in urban areas (IHS, 2003). The Urban Indian Health Programs were developed under the Indian Health Care Improvement Act of 1976 to increase access to healthcare for the increased number of NA/AN who were moving to urban areas (Noren et al., 1998). Currently, it is estimated that more than 60% of the NA/AN population live in urban areas. However, Indian Health Service has allocated only 1% of its funds towards urban Indian Health programs. (Evans-Campbell et al., 2006).

## Health Problems Affecting the NA/AN Population

### Disproportionate Health Problems and Risk Factors in the NA/AN Population

The NA/AN population experience disproportionate rates of many chronic and infectious diseases when compared to the general United States population (IHS, 2003; Broussard et al., 1995; Sequist, Cullen & Ayanian, 2005; Castor et al., 2006; Collins, 2008). The U.S. Census Bureau reported in 2005 that the 10 leading causes of death in NA/AN were heart disease, cancer, unintentional injuries, diabetes, stroke, chronic liver disease and cirrhosis, chronic lower respiratory disease, suicide, influenza/ pneumonia and nephritis or nephritic syndrome (CDC, 2007).

IHS has estimated that diabetes occurs in 1 out of every 4 NA/AN age 45 and older and prevalence rates are increasing each year. An increase in diabetes prevalence rates was also evident in NA/AN under 45 between 1990-1998 at ten times the rate for the same age group in the general U.S. population. Moreover, diabetes mortality rates in NA/AN is four times that of the general U.S. population (USDHHS, 2003). Because of disproportionate rates experienced by the NA/AN population, IHS created a diabetes program to help prevent, monitor and provide education for diabetes for all age groups with an emphasis on youth (USDHHS, 2003). The “Yes! Diabetes prevention program” sponsored by the National Institutes of Health facilitated an understanding that diabetes can be prevented when diagnosed as “pre-diabetes” through behavioral changes regarding physical activity and diet leading to modest weight loss of 5-7% of their weight (NIDDK, 2007).

Cardiovascular disease rates have increased in the NA/AN population along with increases in rates of diabetes, hypertension and hypercholesterolemia (CDC, 2003). IHS reported that the rate for cardiovascular disease has increased to almost two times the rate of the general U.S. population since 1968 in contrast to a 50% or more decrease in cardiovascular disease rates among the general U.S. population (IHS, 2003).

Rates of cancer are increasing in the NA/AN population, and five year survival rates were the lowest in NA/AN compared to all other minority groups. The cancer survival rate may be low due to late detection of cancer and inadequate healthcare services for the disease (USDHHS, 2003). The disproportionate prevalence rates of chronic diseases in minority populations necessitates a need for culturally appropriate educational materials to provide improved healthcare related to screening, prevention and treatment (IHS, 2003).

It has been reported that some statistics for the NA/AN community may not accurately report the extent of health problems due to errors based on race on statistics records (Castor et al., 2006; Canales, 2004). The small population size and relocation of many NA/AN from reservations to urban areas makes it difficult to identify members of this ethnic group. Some NA/AN who have moved to urban areas may report more than one tribe or nationality. Thus, a classification system to accurately identify people in the NA/AN population needs to be developed to accurately report health disparities in this population (Castor et al., 2006). Mistakes based on underreporting of NA/AN due to problems with racial classification were found on death certificates and reports of health disparity rates. These mistakes result in misleading data that make it difficult to

determine the most critical health issues for the NA/AN population because of inaccurate local, state and federal statistics (Castor et al., 2006).

IHS has made significant strides towards improving the overall health of NA/AN (IHS, 2003). Tuberculosis was estimated to occur in 8 out of every 1,000 NA/AN in 1955, but current estimates indicate a decrease of 97% between 1955-2003 (IHS, 2003). Life expectancy has also improved, but it is still 2.4 years less than the general United States population at 74.5 years versus 76.9 years from the 1999-2001 rates (IHS, 2006). Additional improvements noted from 1973 thru 2003 include declines in infant mortality rate (58% lower), maternal mortality rate (78% lower), gastrointestinal disease mortality rate (73% lower), pneumonia (51% lower) and influenza rates (51% lower) and overall mortality rate (31% lower). These improvements are a result of increased public health measures along with a heightened health awareness that has influenced personal behavioral choices (IHS, 2003). Despite improvements in these areas, room for improvement remains especially in the area of chronic disease prevention among the NA/AN population (IHS, 2003).

NA/AN have a diabetes prevalence rate that is 2.8 times the rate of non-Hispanic whites. Many factors contribute to the disparity in diabetes prevalence including genetics, sedentary lifestyles and a shift towards increased consumption of Western foods. Traditional diets consisted primarily of protein and depended heavily upon hunting and fishing. Fat was consumed in moderate amounts and fiber was a regular part of the diet. Today consumption of traditional foods and food acquisition methods such as hunting, gathering, fishing and farming has decreased substantially (Taylor et al., 2006; Taylor et al., 2005; Teufel, 1996).

Currently, most NA/AN who live on reservations obtain food from local grocery stores and supplemental food programs (Taylor et al., 2006). NA/AN living on reservations may be more at risk for nutritional problems due to less desirable living conditions where resources such as transportation, fuel, running water and refrigeration may be lacking (IHS, 2006). Indian Health Service reported that about 12% of NA/AN homes had an inadequate water supply and waste disposal areas compared to only 1% of the United States population (IHS, 2006). Approximately 50% of Native Americans who reside on reservations live at the Federal poverty level creating a need for food assistance programs such as the Food Distribution Program on Indian Reservations (USCB, 2005). Although FDPIR food options have been updated to include more healthful items such as fresh meats, fruits and vegetables, improvements are needed to reduce options with a high fat, sugar and sodium content (USDA, 2008).

Socioeconomic factors have contributed to growing health disparities in the NA/AN population. In 2003, it was estimated that 32% of the NA/AN population were living below the poverty level (IHS, 2003). In 2006, the U.S. Census Bureau estimated that 17% of individuals in Oklahoma were living below the poverty level and 12.8% of families in Oklahoma were living below the poverty level (USCB, 2006). These rates are higher than the national rates of 13.3% of individuals living at the poverty level and 9.8% of families living at the poverty level (USCB, 2006). Based on a three year average, it was reported that 29% of NA/AN did not have health insurance (USCB, 2005). Unemployment in NA/AN was also 2.5 times the rate than that of the United States population (USDHHS, 2003). Health issues facing NA/AN may be associated with increased prevalence of poverty, unemployment, discrimination, inadequate access to

healthcare and lack of cultural understanding. Recent collaborations between tribal communities and IHS centers may help to focus on the individualized needs of each tribe to overcome some of the socioeconomic barriers to care (USDHHS, 2003).

### Health Problems and Risk Factors Affecting NA/AN Women

NA/AN women experience higher mortality rates for cancer, diabetes and heart disease than non-Hispanic whites (Strauss et al., 1997). In addition, the reported rate of diabetes from national data was found to be higher in NA/AN women at 12% compared to 9.7% in NA/AN men (Taylor et al., 2004). It was also reported that Native American women are twice as likely to die from cervical cancer than white women (Barnes et al., 2005). Data from the 1999-2003 National Health Interview Survey (NHIS) reported that NA/AN women had a higher prevalence rate of obesity (29.4%) than white women (20.3%) and Asian women (5.8%), but NA/AN women had a lower prevalence rate of obesity compared to black women at 36.6% (Barnes et al., 2005). Such health problems could be prevented with increased access to quality healthcare and positive behavior change (Lutz 1997).

Evans-Campbell and colleagues (2006) implicate that some of the current problems associated with poor health are related to increased rates of all forms of violence and the resulting effects on both physical and mental health. NA/AN women have endured the highest rates of violence with 31.4% reporting rape, 61.4% reporting physical assault and 17% reporting stalking (Evans- Campbell 2006). Also, the 1999-2003 NHIS also reported that NA/AN women reported the highest prevalence rate of psychological distress at 11.8% compared to 4.0% of black women, 3.4% of white

women and 2.4% of Asian women (Barnes et al., 2005). In addition, NA/AN women who experienced violence are reportedly more likely to suffer from depression and low self-esteem, posttraumatic stress disorder, suicide attempts and alcohol abuse. The effects of violence may cause NA/AN women to decline necessary healthcare services putting them at risk for sexually transmitted diseases, mental disorders, chronic disorders and a decreased immune system. (Evans- Campbell 2006).

### Dietary intake among Native Americans

#### Methodological Issues Affecting Data Collection Among Native American Populations

Studies that target the NA/AN population and focus on dietary quality and dietary habits are needed to improve nutrition education programs (Taylor et al., 2005; Dillinger et al., 1999; Taylor et al., 2006; Ikeda et al., 1998). However, few studies exist examining NA/AN dietary food patterns and the relationship with chronic health problems such as diabetes and obesity. More research needs to be conducted in NA/AN populations who do not live on reservations to understand dietary and exercise behaviors for that segment of the population also (Taylor et al., 2006).

NA/AN are not adequately represented in national nutrition surveys such as the National Health and Nutrition Examination Surveys which includes dietary intake data (Taylor et al., 2006; Ikeda et al., 1998). NA/AN were scarcely represented in the United States Department of Agriculture 1994-96 Continuing Survey of Food Intakes by Individuals with only 107 of the 15,000 being Native American (Taylor et al., 2006). Taylor et al. (2006) also noted that most studies in the NA/AN population are with those living on a reservation even though more than half of the population do not live on a

reservations. Another study by Guiliano et al. noted that behavioral data collected by the Centers for Disease Control and Prevention (CDC) and Behavioral Risk Factor Surveillance System (BRFSS) may not be accurate due to a small sample size, lack of detailed classification to identify NA/AN of different tribes and collection methods using a telephone. The CDC and BRFSS survey data is obtained through telephone interviews which may bias data towards NA/AN at higher income levels (Guiliano et al., 1998).

When collecting behavioral data to measure risk factors in the NA/AN population, researchers should use methods that do not bias data towards a higher income level. In a study by Guiliano et al. (1998), it was reported that only 33.5% of the Hopi population had a telephone and statistical differences ( $p < .05$ ) existed for rates of smoking, traditional healers and Hopi health behaviors between participants with and without telephone access. Furthermore, statistically significant ( $p < .10$ ) differences were evident for marital status, education and employment between Hopi women who did and did not have telephone access. Researchers in this study used face to face interviews that were conducted in participant's households which may cost more than telephone interviews, but is necessary to increase the accuracy of data for the development of more effective health interventions for each tribe (Guiliano et al., 1998).

### Dietary Intake Data

A study by Taylor et al. (2006) examined food consumption patterns in Native American women living in Oklahoma using 1 day food lists and 4 day food records. A convenience sample of 74 Native American women in Oklahoma was used for the 1 day food list and 71 Native American women completed 4 day food records. Participants



who completed food records also completed a food sort of the 53 most commonly consumed foods to determine perceptions about fat, sugar and healthfulness of foods (Taylor et al., 2006). The researchers found that participants' identification of foods being healthful or not had no relation to consumption patterns. For example, participants believed that sugared soda was not a healthful food but two thirds of participants reported soda consumption (Taylor et al., 2006). In addition, fried potatoes were eaten twice as much in participants who viewed them as a high fat food, although there was not a significant correlation (Taylor et al., 2006).

There were some discrepancies between the actual and perceived sugar and fat content of foods by participants in the food sort. Conflicting views on diet soda were found as 42% of respondents viewed it as unhealthy while 35% saw it as a healthy food. Cheese was viewed as a low fat food by 20% of the participants. Potatoes, jelly and jam were viewed as high fat foods by many of the participants. There were very few significant relationships between the consumption of the 53 common foods and the respondent's perceptions of their health value, sugar content and fat content. More data is needed to fully understand the food perceptions of Native Americans that influence dietary habits (Taylor et al., 2006).

Another study by Taylor et al. (2005) examined the 4 day weighed food record data in a convenience sample of 71 Native American women living in Oklahoma. The main objective of this study was to identify core and secondary foods in the participants diets from the 4 day food records based on frequency of consumption. Core and secondary foods were defined as the most commonly consumed foods in an individual's overall diet. The core and secondary foods in this study were calculated using food

frequency scores from the 4 day food records (Taylor et al., 2005). The top 30 foods in a list of 53 commonly consumed foods were identified as core foods while the remaining 23 were classified as secondary foods. The top ten foods consumed by participants were generally not nutrient dense and included soda, coffee, white bread, butter/margarine, tea, diet soda, chips, candies, sugar and sugar substitutes. There were very few fruits and vegetables listed in the core foods. French fries were consumed more than tomatoes, bananas, orange juice and onions in the core foods. The top 6 foods in the secondary food list were mustard, ice cream, ground beef, rice, green beans and hotdogs. In addition, the only Native American food that was reported in the list of 53 commonly consumed foods was frybread (Taylor et al., 2005).

When examining the dietary status of NA with respect to current dietary guidance, the diets of NA fall short with respect to fruits, vegetables and whole grains. Taylor et al. (2005) reported that core foods provided 40% of the food guide pyramid vegetable servings consumed. Secondary foods also provided vegetable servings for 19% of the food guide pyramid servings. The results of this study were limited by the use of a convenience sample in Native American women who live in Oklahoma instead of a randomized sample of Native American women from different geographic locations. Data from this study point to the need for improved and increased research on the dietary habits of the NA/AN population to identify areas that should be targeted in nutrition education interventions (Taylor et al., 2005).

In a study by Ikeda et al. (1998), the dietary quality of 198 Native American women in California was assessed using 24 hour food recalls. More adequately nourished (MAN) diets were defined as those supplying at least 2/3 of the RDA for 12 of

15 nutrients while less adequately nourished (LAN ) diets were defined as providing less than 2/3 of the RDA for 3 or more nutrients. Study findings indicated that 39% of participants had MAN diets compared to 61% of participants with LAN diets. The mean energy value for participants with a MAN diet was 2,357 kcal. Participants with LAN diets had a mean energy value of 1,412 kcal. It was also found that respondents with LAN diets had lower nutrient levels of vitamins A, C, and B-6 along with calcium and magnesium. There was also a significant association ( $P=.04$ ) with having a MAN diet and responding “yes” when participants were asked if they drink milk on a regular basis. It was found that 54% of participants with a MAN diet responded “yes” to drinking milk compared to 39% of participants with a LAN diet. Although there was not a relationship between participation in a food assistance program and nutritional adequacy of diet, 58% of participants with MAN diets were enrolled in WIC while 43% with LAN were not enrolled (Ikeda et al., 1998).

Ikeda et al. (1998) found low fruit and vegetable consumption among the participants with an average of 1 serving of fruits and 1.6 servings of vegetables using USDA Food Guide Pyramid serving equivalents (Ikeda et al., 1998). It was also reported that 60% of participants did not eat fruit. Furthermore, it was found that 28% of the women did not eat vegetables. There was also a statistically significant association ( $P=.002$ ) between MAN diet classification and vegetable consumption. Participants in the MAN group consumed an average of 2.1 servings of vegetables. Conversely, participants in the LAN group consumed an average of 1.3 servings of vegetables. Researchers suggest the need to promote increased fruit and vegetable intake. Nutrition

education and participation in available food assistance programs were also recommended (Ikeda et al., 1998).

In a study by Watts et al. (2006), dietary quality was compared between low-income pregnant white and low income pregnant Native American women. All participants were enrolled in the North Dakota Women, Infants and Children (WIC) Program between 1996-2000. The sample size was 5,862 and 14.3% of participants were Native Americans and the remaining 85.7% were white. The majority of women in both groups had incomes that fell in the lowest poverty level category at <100% of the poverty level at 54%, but Native American participants had a higher rate (81.7%) in that category than white participants (50.3%). Most of the women were between the ages of 20-30 with Native American participants representing 54.1% of that age group compared to 64% of white participants (Watts et al., 2006).

Participants in the study by Watts et al. (2006) completed a dietary quality index for pregnancy (DQI-P) to assess if the women were meeting nutritional recommendations for a healthy pregnancy. Native American participants consumed an average caloric intake of 2,079 kcal/day which was significantly higher than the average caloric intake of white participants consuming 1,900 kcal/day. However, the foods being consumed may have a low nutrient value as the DQI-P scores for both groups indicated a need for dietary improvement as Native American participants had a mean DQI-P score of 51.8 compared to white participants who had a mean score of 54.2. The DQI-P scores range from 1-100 to measure dietary quality where a good diet is associated with a score >80, 51-80 shows a need for dietary improvement and <50 may indicate a poor diet (Watts et al., 2006).

Native American and white participants in the study by Watts et al. (2006) were not found to have significant differences in dietary quality components. White participants had a slightly higher intake of grain and fruit servings while Native American participants had a slightly higher intake of iron, folate, cholesterol, total fat and saturated fat (Watts et al., 2006). Watts et al. (2006) suggested that changes be made to the package of supplemental WIC foods to include a greater emphasis on fortified cereal to increase iron and folate intake while including the addition of fresh fruits and vegetables to improve dietary quality (Watts et al., 2006).

Dietary quality was also examined by Smith et al. (1996) in the Pima and Tohona O'odham (Papago) tribes from the Gila River Indian community in Arizona. A total of 599 subjects ranging in age from 18-74 were recruited by two Pima women and 575 of that group participated and completed a 24 hour recall and quantitative food frequency (QFF) assessment. Interviews were conducted with Pima women who were trained by a research dietitian. Smith et al. noted that more Pima women were overweight and severely overweight compared to Pima men in all age groups. Pima participants between the ages of 35-54 had the highest prevalence rates of overweight (72.4% men, 86.8% women) and severely overweight (55.9% men, 62.3% women) (Smith et al., 1996).

Smith et al. (1996) reported that most of the participants (86%) consumed meals at home and rarely went out to eat at restaurants or fast food places. Pima men consumed a higher amount of calories, protein, carbohydrates, fat, fiber and alcohol in their diet than Pima women. However, Pima women consumed more protein, fat and carbohydrates as a percentage of their caloric intake whereas men consumed more alcohol as a percentage of their caloric intake. It was also found that 30% of participants

did not meet the recommended dietary allowance (RDA) for Vitamin A and 46% did not meet the RDA for Vitamin D. Using a 24 hour recall and QFF in Pima men and women helped researchers understand and assess the foods that are usually eaten in the Pima diet (Smith et al., 1996).

The high rates of overweight and obesity in the Pima population may be associated with changes in traditional diet and increased incidence of sedentary behaviors. Smith et al. (1996) reported that Pimas were once an agricultural community that relied on farming and hunting methods for food acquisition. Yet, the Pima have reported consuming a mostly westernized diet of eggs, bacon, sausage and potatoes for breakfast; southwest foods such as tacos, tamales, chili stew, menudo, beans and tortillas; hamburger and pork chops; and biscuit dough used to make “frybread”, “lazy bread” and “quick bread”. The major fruits and vegetables consumed included traditional melons and squash, but participants in the older age groups also consumed traditional desserts such as wild spinach, tepary beans, mesquite bean pudding, berry pudding and cactus bud stew. Participants in this study also reported consuming foods from the commodity foods package from the Food Distribution Program on Indian Reservations that includes canned meat, vegetables and fruit, cereals, cheese, fruit juice, dry and canned milk and egg mix. Because the 24 hour recall and QFF were useful in determining intake, more studies need to be conducted on a large scale in Native American communities to assess dietary quality utilizing different survey methods (Smith et al., 1996).

Dietary surveys such as the 24 hour food recall and Food Frequency Questionnaire (FFQ) should include culturally specific foods to the population being

surveyed due to variation in food patterns. DeGonzague et al. (1999) conducted a study in the Mille Lacs Band of Ojibwe in Minnesota and Lac Courte Oreilles Band of Ojibwe in Wisconsin to compare dietary quality, use of traditional foods, food collection methods and body mass index. Interviews were conducted using a 24 hour recall, FFQ and sociocultural questionnaire by Ojibwe people from the community that were trained by a dietitian. Community members helped develop the FFQ to ensure that it included 68 plants, animals and fish that were part of the Ojibwe diet. A total of 104 participants completed the interviews with 51 participants from the Mille Lacs band and 53 participants from the La Courte Oreilles Band (DeGonzague et al., 1999).

Participants from the Lac Courte Oreilles Band reported a higher use of commodity foods (81%) compared to the Mille Lacs Band (37%) which could be explained by the extended commodity food package in that community that included fresh meat and margarine along with nutrition classes. A high percentage of participants from both communities fished (63% - Mille Lacs Band, 49% - Lac Courte Oreilles Band). DeGonzague et al. (1999) noted that there was a statistically significant difference in the number of participants who gathered wild plants as rates were higher in the Lac Courte Oreilles Band at 60% compared to 37% for the Mille Lacs Band. In terms of body weight, overweight was reported in 47% of participants after data for body mass index was collected in both communities with a BMI of 27.3 or higher for women and BMI of 27.8 or higher for men (DeGonzague et al., 1999).

Both Ojibwe communities met recommended dietary allowances (RDAs) for adequate total energy intake with a mean intake of 2,489 kcal/day in men and 1,837 kcal/day in women. This data coincides with NHANES III data indicating mean energy

intakes for men at 2,464 kcal/day and 1,708 kcal/day in women. DeGonzague et al. (1999) did not report any statistically significant differences in dietary intake between communities or gender (DeGonzague et al., 1999).

Traditional foods such as deer, wild rice and maple syrup were reportedly the major sources of protein, iron, zinc, folate and sucrose in the Ojibwe diet. Because there was a preference for traditional foods and hunting/gathering was practiced in many of the Ojibwe households, future health interventions should include these foods and behaviors as part of the health curriculum for this tribe. Also, the high prevalence rates of overweight in each community demonstrate a need for nutrition interventions that can increase use of traditional foods and healthier food choices (DeGonzague et al. 1999).

As health disparities continue to rise in the Native American population, there are also environmental and dietary changes that have taken place and vary between age groups, tribes and geographic locations. Johnston (2007) conducted a study with 150 women from the Blackfeet tribe living on the reservation in Montana ranging in ages from 18-93 years. Johnston and three trained Blackfeet women completed the interviews between November 1995- July 1996 using a 24 hour food recall and food list to generate data about how dietary practices have changed over time between age groups.

Participants named foods that were eaten regularly during their childhood for the food list, and then they listed foods they currently consumed on the 24 hour recall. Johnston chose to categorize mealtimes as “breakfast and morning”, “lunch and afternoon” and “dinner and evening” because some participants ate those meals at different times of day. The women were also stratified by age according to the following age groups: 18-29, 30-49, 50-69 and 70 and over (Johnston, 2007).



Blackfeet women reported a higher consumption of meat for breakfast in their childhood with the majority of meat choices being bacon and salt pork, and the oldest group reported the highest intake of meat. Meat as a breakfast item decreased when it was reported in their current diet, and bacon was the most common item. The youngest group reported the highest consumption of meat in the current breakfast, and the oldest group reported the lowest consumption of meat for their current breakfast. Women in all age groups reported eating cereal for breakfast in their childhoods with oatmeal, cornmeal, rolled wheat, cream of wheat, farina and boiled rice being the main cereals mentioned. When cereal was reported in their current diets, most of the cereal being consumed changed from hot cereals to cold cereals. There was also an increase in the consumption of white bread in the current diet compared to the childhood diets while the number of women eating hotcakes decreased substantially in all age groups, especially the oldest group. Most of the women consistently ate eggs for breakfast, but egg consumption was highest in the current diet of the 30-49 and 70 and over age groups. Fruit consumption was always low in the childhood and present diet for breakfast, but there was an increase in fruit across all ages except the youngest age group in the present diet (Johnston, 2007).

The main meal for Blackfeet women in the oldest age group was the mid-day meal as their pattern of meat, potatoes, vegetables and bread was highest for that meal during their childhood. The main types of meat eaten during childhood mid-day meal were beef, elk, dried meat and pork chops. Women from the older group commented that meat during childhood was a costly item, and a typical meal would include fried potatoes, bannock bread and a vegetable for the mid-day meal. Soup was eaten more frequently

during the mid-day meal in childhood. Fruit consumption was still low for the mid-day meal during childhood for all age groups, and it was mostly eaten in the form of dried or canned fruit. Wild berries and cherries such as huckleberries, sarvisberries and chokecherries were named as traditional foods (Johnston, 2007).

Participants in the study by Johnson (2007) followed similar consumption patterns for foods eaten in childhood for the mid-day meal compared to the mid-day meal in their current diets. Sandwiches in the form of meat sandwiches increased in the youngest age group, and less homemade bread was reported for the bread category in the current diet for mid-day meal. There was a decrease in the consumption of soups in all age categories for the mid-day meal in the current diet. The youngest women reported eating more potatoes during the mid-day meal in their current diet while the rate in the oldest group decreased considerably for potatoes. Blackfeet women in the youngest group also reported the lowest consumption of other vegetables and fruits in their current diet for the mid-day meal. Fruit consumption increased in all age groups except the youngest group for the mid-day meal current diet, but women in the 50-69 age group reported eating more fresh fruit than other groups (Johnston, 2007).

Johnston reported that consumption patterns among all age groups in Blackfeet women were the most similar for the evening meal in childhood. Beef was the main meat cited by all women, and wild game meats were reported more often in the 50-69 age group for the evening meal in childhood. Vegetables mentioned by all women for the evening meal included carrots, rutabaga, green beans, corn, beets, spinach, peas and salad depending on seasonal availability. Canning fruits and vegetables and gardening were more prevalent in the childhood time period for participants and decreased uses of those

practices were evident in the current time period for all participants. The youngest women also mentioned a higher consumption of “junk foods” and “fast foods” for their childhood evening meal (Johnston, 2007).

Wild game meats were not eaten as much in the current evening meal compared to childhood for Blackfeet women in all age groups. Meats that were commonly eaten included red meat and processed meats with a few participants mentioning chicken and turkey for the evening meal in the current diet. Stews, soups, non-meat starch dishes and mixed meat dishes are still common in all age groups in the current diet for the evening meal. The consumption of white bread, fruit and fast foods increased for the evening meal in the current diet for all age groups while homemade cooking methods declined (Johnston, 2007).

Dietary factors that may be linked to a higher risk of chronic disease in Blackfeet women due to current dietary choices include a high intake of red meat and low intake of vegetables and whole grains. Johnston stated that women in the 50-69 age groups that had made positive changes to their diet could be explored further to promote improved intake in the other age groups because the older women are considered role models in their community. Many traditional foods practices were still carried on in all age groups even though there was an increased preference for fast and convenience foods. A traditional soup containing tomatoes, a root vegetable and potatoes or rice is a healthy option that is still practiced by Blackfeet women of all ages along with boiling meat. A focus on dietary patterns in different age groups over time in the Native American

population can help researchers see how the changes in dietary intake patterns may contribute to the increased incidence of health disparities in this population (Johnston, 2007).

### Interventions to Reduce Behavioral Risk Factors Associated with Overweight and Chronic Diseases Prevalent in NA/AN Women

The leading causes of death in NA/AN women from 1989-1991 were mostly preventable chronic diseases such as cardiovascular disease, diabetes and cerebrovascular disease. Data collection that is specific to each tribe and region is needed to target behavioral risk factors that may lead to health problems associated with overweight and the onset of chronic disease (Guiliano et al., 1998). A study by Guiliano et al. (1998) examined behavioral risk factors in 559 NA women ages 18 and over living on the Hopi reservation in Arizona within 12 Hopi villages (Hano/Tewa, Walpi, Sichomovi, Polacca, Mishongnovi Shungopavi, Shipaulovi, Kykotsmovi, Oraibi, Hotevilla, Bacavi and Moenkopi) (Guiliano et al., 1998).

Researchers implemented a cross-sectional survey that included questions from the standard BRFSS survey and questions derived from community input to cover chronic disease risk factors such as smoking, alcohol use, body mass index and healthy behaviors (Guiliano et al., 1998). Surveys were administered by NA women who lived on the Hopi reservation and were trained in survey protocol, but interviewers did not administer surveys in their home village or villages where they had relatives to minimize

researcher bias. This research was part of the “Healthy Hopi Women Project” which looked at issues related to chronic disease risk factors (Guiliano et al., 1998).

Guiliano et al. (1998) reported that 535 of the women surveyed were Hopi and the remaining 24 identified themselves as another NA tribe that was not Hopi and participants ranged in age from 18-89 years. Participants from the Hopi reservation in the study by Guiliano et al. (1998) who were identified as smokers (5%) was five to six times lower than the 1991-92 BRFSS rate of American Indian women who reported smoking at 28.7%. The rates reported for alcohol use in the study by Guiliano et al. for NA women on the Hopi reservation were 23.1% which was similar to other tribes in Arizona such as the Navajo (30%) and the Pima/Maricopa/Papago (30.5%) (Guiliano et al., 1998).

As rates for overweight and obesity may vary considerably between tribes, Guiliano et al. (1998) reported that 27% of Hopi women were overweight and 32.3% were obese compared to an overweight rate of 29.9% and obesity rate of 50.3% in Pima/Maricopa/Papago women. Health behaviors such as physical activity and eating a healthy diet along with healthy behaviors that follow traditional Hopi practices were reported more frequently as age in the Hopi women increased with the highest rates being reported in women 65-89 years old. Behavioral risk factors for chronic disease such as smoking, alcohol use and body mass index were found to be higher in the younger age groups for Hopi women. These results suggest a need for health interventions that focus on prevention in behavioral risk factors in the younger Hopi population. Furthermore, because data may vary considerably according to tribal affiliation and geographic region in the United States, it is necessary to collect formative data from each tribe to

individualize health interventions that address each tribal community's specific health needs (Guiliano et al., 1998).

Another study conducted by Thompson et al. (2008) examined behavioral risk factors and chronic disease risk in NA women. Physical activity was reported to be lower in NA women and the diets of NA men and women were also high in fat, included drinks with added sugars and many fast foods. To address these issues, Thompson et al. (2008) implemented a community intervention in 200 NA women living in a southwest city with an intervention and control group. Data was gathered at baseline, 6 months, 12 months and 18 months between 2002-2006. Participants in the intervention group attended five group sessions that lasted 2-2.5 hours where they were taught by NA health educators about nutrition, physical activity, goals and social support (Thompson et al., 2008).

The inclusion criteria for participants in the study by Thompson et al. (2008) were between 18-40 years of age, not being pregnant, residence in urban area for 2 years and not having diabetes. Baseline data showed no statistical differences in the intervention and control groups for age, body mass index, family history of diabetes, history of gestational diabetes, education, number of children, number working outside the home and motivational level as defined by the stages of change. The vegetable intake was significantly different between the groups using ANOVA analyses ( $p=.02$ ) as the intervention group consistently had a higher mean intake than the control group with mean values of 2.90 vs 2.73 at baseline, 3.21 vs 2.86 at 6 months, 2.81 vs 2.68 at 12 months and 3.17 vs 2.83 at 18 months. The intervention and control group both showed significant decreases in total caloric intake, total fat consumed and saturated fat intake with each visit from baseline to 18 months. Fruit intake was also significantly higher

( $p=.002$ ) in the intervention group compared to the control group over time as rates were 1.03 vs 1.12 at baseline, 1.27 vs 1.17 at 6 months, 1.23 vs 1.08 at 12 months and 1.31 vs 1.12 at 18 months (Thompson et al., 2008).

Researchers in the study by Thompson et al. (2008) also noted that there was a trend in the data that was not statistically significant but nearing significance as the rates of BMI decreased in the intervention group over time from a baseline mean of 29.5 to an 18 month mean of 29.4 compared to the control baseline mean of 29.2 that increased to 29.6 (Thompson et al., 2008). Improved lipids of both groups may reflect the improved dietary changes within each group coupled with reduction in sedentary behaviors which can be protective in reducing diabetes risk. The intervention group experienced statistically significant improvements in fruit and vegetable intake that was maintained over the course of the study. Therefore, community based interventions that promote preventative behaviors in the NA/AN population may help to reduce the risk of diabetes by targeting specific behavioral changes associated with chronic diseases (Thompson et al., 2008).

#### Physical Activity Behaviors Among Native American Women

In a study by Fahrenwald et al. (2006), it was noted that women did not participate in physical activity as much as men, and NA/AN reported less physical activity when compared to whites (Fahrenwald et al., 2006). It has been estimated that at least half of all women are physically inactive and sedentary behaviors are higher in women from minority populations (Henderson et al., 2003). NA/AN mothers may be more at risk as a population for having sedentary lifestyles (Fahrenwald et al., 2006). As

such, studies examining the perceived benefits and barriers to physical activity in NA/AN women would be beneficial in developing physical activity interventions to increase physical activity in this population (Fahrenwald et al., 2006).

Using a purposive sample of 30 low-income Native American women enrolled in the WIC Program from the Pine Ridge Reservation in South Dakota, Fahrenwald et al. (2006) examined the relationship between current stage of change as defined by the Transtheoretical Model (TTM) and physical activity behaviors. The TTM incorporates 5 stages of change that assess the motivational level for behavior change, namely, precontemplation, contemplation, preparation, action and maintenance. A health intervention should determine which of the 5 stages of change a participant is currently at to match their program to an individual's motivational level according to the TTM (Fahrenwald et al., 2006).

Participants were stratified using the Stage of Exercise Adoption (SEA) tool where 6 women were matched to each of the 5 stages of change based on their current motivational level for physical activity (N=30) (Fahrenwald et al., 2006). Results indicated that physical activity behaviors increased in participants who were at a higher level within the stages of change model. Thus, participants who were in the precontemplation stage reported less physical activity than participants in the action and maintenance stages. These findings support a need for physical activity interventions in NA/AN women to determine each participant's motivational level and readiness to change to help them progress through the five stages of change. Physical activity interventions can use behavioral strategies to help women overcome perceived barriers to physical activity. Participants who are having a difficult time overcoming personal



barriers to change may be able to make small achievable goals each week to increase physical activity (Fahrenwald et al., 2006).

Fahrenwald et al. (2006) also found positive relationships between the individual's stage of change and self efficacy ( $r_s = -.60, p < .01$ ), pros ( $r_s = .62, p < .01$ ), cons ( $r_s = -.58, p < .01$ ) and decisional balance ( $r_s = .59, p < .01$ ). Participants in the action and maintenance stages scored higher on self-efficacy, pros to physical activity and decisional balance, and they scored lower on cons to physical activity. Participants in the precontemplation stage had lower scores in self-efficacy, pros to physical activity and decisional balance and higher scores in cons to physical activity than those participants categorized in the action and maintenance stages (Fahrenwald et al., 2006).

Researchers in this study identified the top pros for physical activity as feeling better about self (mean 3.89), less tension (mean 3.99), more energy (mean 3.09) and less stress (mean 3.59). Additionally, the top two cons to physical activity were too little time (mean 4.02) and feeling too tired (mean 3.29). This study supported the theory that readiness to change as defined by the stages of change in the TTM is related to the actual behaviors of an individual. Therefore, the TTM may be of use in future physical activity interventions to develop effective behavioral changes that would coincide with the current stage of change of the participant (Fahrenwald et al., 2006).

### Social Marketing Interventions

Social marketing can be used to promote disease prevention in a designated target population as part of a public health program (Maibach et al., 2006; Sabogal et al., 1996) and can be used to develop health messages in a segment of a population group after

health needs are assessed. The increasing diversity within America has made it important to understand cultural values within different population groups, and social marketing techniques can be used to understand and define cultural values for diverse groups (Sabogal et al., 1996).

A study by Wright et al. (1997) examined attitudes towards cultural beliefs related to breastfeeding and perceived barriers to breastfeeding in postpartum Navajo women living in the Shiprock, New Mexico area. The initial phase of the project began with 35 ethnographic interviews with Navajo women ranging in age from late adolescence to mid-70s to understand cultural breastfeeding practices. Postpartum Navajo women (n=250) were interviewed to find demographic factors related to infant feeding practices using a structured open-ended questionnaire. Women in this study reported problems with work or school (30%) and nursing problems (45%) as impeding breastfeeding practices (Wright et al., 1997).

Community empowerment and social marketing concepts were then used to develop the Navajo Breastfeeding Intervention Program (NBIP) to improve the rates of breastfeeding (Wright et al., 1997). Researchers in the study by Wright et al. (1997) used social marketing strategies to understand how cultural beliefs relate to the perceived advantages and disadvantages of breastfeeding. This study noted an improvement in breastfeeding rates with the mean age for using formula increasing from 12 days to 48 days ( $p < .0001$ ). Therefore, social marketing strategies were identified as effective for developing a culturally appropriate health intervention in this study (Wright et al., 1997).

Another study by Bachar et al. (2006) found that social marketing techniques could help reduce type 2 diabetes and obesity in the Eastern Band of Cherokee Indians

(ECBI) around the Qualla Boundary in western North Carolina. Bachar et al. also reported disparate prevalence rates of obesity for the Eastern Band of Cherokee Indians compared to men and women of all other races in North Carolina. In 2003, 45.7% of EBCI men were classified as obese as compared to 23.5% of men of other races in North Carolina and 47.9% of EBCI women as compared to 23.6% of women of other races in North Carolina. Diabetes prevalence rates among EBCI men and women were three times the rate of the general population of North Carolina at 23.8% versus 7.15% in 2003 (Bachar et al., 2006).

The Centers for Disease Control provided funding for the Cherokee Choices/Reach 2010 Program for the EBCI to help reduce health disparities in diabetes and obesity. The Cherokee Choices Program utilized information gained from the Cherokee community to foster positive health changes at the community and individual levels while incorporating Native American values such as spirituality and family support. The intervention was designed to address school mentoring, workplace wellness for adults and health awareness in the church with a focus on diabetes and obesity prevention (Bachar et al., 2006). Diabetes prevention was seen as a major issue that needed to be addressed due to “fatalistic” perceptions within the community that diabetes was “inevitable” and not preventable as there was a high prevalence of people that had either developed diabetes or knew someone with diabetes. As a result, a social marketing strategy using television advertisements and a seven part television documentary with interviews discussing diabetes were created to support the elementary school mentoring program, worksite wellness program and church wellness program that were targeted in the intervention (Bachar et al., 2006).

Participants in the Cherokee Choices/REACH 2010 focus groups reported that they did not feel alone in dealing with diabetes when hearing about other people's experiences with diabetes in the focus groups. Interviews were conducted with participants who had just been diagnosed with diabetes or had years of experience with the disease along with participants that did not have diabetes but had family members with it. Participants were able to give valuable input to their community on how they personally dealt with the hardships they experienced with diabetes to improve their health. The focus of the television commercials to promote the series featured tribal members participating in healthy behaviors that could prevent diabetes and resonated with themes developed from the focus groups including family, spirituality and tradition (Bachar et al., 2006).

Bachar et al. (2006) found that social marketing concepts could help define cultural beliefs about diabetes in the EBCI through understanding health perceptions revealed in focus groups. Participants in this study (Bacher et al., 2006) were united in the focus groups by the shared experience of dealing with type 2 diabetes. The school mentoring program saw improvements in children who spent time with mentors before and after school in school interest (71.8%), learning (82.1%), and social interactions (66.7%). The ECBI has their own elementary school where the school mentoring program was carried out by four community mentors that emphasized the importance of diabetes prevention through proper nutrition and regular physical activity to students during class hours, recess and after school. Lesson plans developed by the community mentors in the school program covered self-esteem, cultural pride, conflict resolution, emotional health, and health information (Bachar et al., 2006).

The workplace wellness program in this study also saw improvements in exercise and dietary behaviors with 88% finishing the program, 56% meeting program goals and 94% willing to participate again. Teamwork between the healthcare workers in the local clinic were combined with Cherokee Choices staff to collect baseline data on clinical measures and personal interviews to determine nutrition and exercise habits. Teams from different tribal offices in the ECBI community competed for prizes by attending health classes and meeting goals related to dietary and exercise changes. Classes for the workplace wellness program included information on cooking, exercise, grocery store tours, nutrition assessments and counseling and stress management techniques. Community needs were considered when developing health messages for this population and resulted in improvements in attitudes related to diabetes prevention in the community (Bacher et al., 2006).

The VERB campaign developed by the Centers for Disease Control was designed to promote healthy lifestyles in “tweens” between the ages of 9-13. The VERB campaign utilized social marketing principles to target specific audience groups. Formative research was gathered using ethnographic techniques. Interviews were completed with 16 participants in Pierre, South Dakota and Albuquerque, New Mexico to understand important issues related to health and physical activity in the Native American youth population. Poverty was a major issue reported by youth, parents and influencers in the communities for Native American youth. Parents of Native American youth stated that they were “stressed” due to socioeconomic factors. Another important issue was low-self esteem and cultural identity confusion on the part of Native American youth. Native American cultural values, mistrust of government and geographical location were also

cited as factors that need to be considered when developing health messages for this population (Huhman et al., 2008).

The formative assessment phase of the VERB campaign included focus groups and individual interviews conducted with Native American youth and parents between August 2002 through September 2004 in seven different locations throughout the United States. Common themes were found to create culturally appropriate health messages for promoting physical activity and healthy behaviors in Native American youth and parents. Themes for motivational and culturally appropriate messages included the following components: displaying action in the message, utilizing cultural elements, avoiding stereotypes, involving family, using color, images of nature, concise messages and variety (Huhman et al., 2008; Asbury, Wong, Price & Nolin, 2008).

A study by Van Duhn et al. (2007) used social marketing concepts to guide health message development for increasing physical activity in the African-American, Hispanic, Hmong and Native Hawaiian populations. Social marketing principles were used in this study to identify and develop messages that would appeal to each audience by understanding perceived benefits and barriers to the desired health behavior. Participants in the study expressed a preference for cultural activities to promote increased physical activity and culturally appropriate messages from the media. Van Duhn et al. also found that all populations under study would rather have group-based activities and felt that physical activity should be a regular part of everyday life instead of a planned activity. It was also noted in the study by Van Duhn et al. that social support was a motivating factor for all of the population groups. Participants also recommended that physical activity could be promoted with increased access to safe and convenient areas (Van Duhn et al.,

2007). The use of focus groups with a social marketing framework helped Van Duhn and colleagues understand perceived benefits and barriers to develop culturally appropriate health messages for increasing physical activity in four target population groups (Van Duhn et al., 2007).

There is a great amount of diversity that exists between NA/AN tribal communities as NA/AN living in different geographic areas have unique sets of traditions, values and beliefs which are not always included in the development of health interventions (IHS, 2003). Social marketing may help improve participation rates in a culturally diverse population because it allows researchers to focus health education on the perceived health needs of the target audience. Formative research that gathers critical information on the values and beliefs of a specific population through their perceptions can help define a culturally appropriate health belief model (Stellefson & Eddy, 2008; Sabogal et al., 1996).

An effective health intervention should consider what health issues and promotional methods will be most important to the population they are serving through collaborative efforts between healthcare workers and the community. The four basic principles of health marketing include the “4 p’s” which are product (desired health change), price (benefits and barriers associated with desired health change), promotion (communication channels that will effectively reach the target audience) and place (optimum place to conduct health intervention). Social marketing values develop innovative strategies to improve health and facilitate behavioral change through consumer based health education materials and ideas developed from the “4 p’s” (Stellefson & Eddy, 2008; Sabogal et al., 1996).

## Focus Groups as a Means of Collecting Formative Assessment Data

Focus groups methodology allows researchers to collect formative data for health interventions in a specific target population through the collective evaluation of group responses. Peer support is an important advantage of group interaction because it can increase the response rates of participants because they feel as if they are not alone in their responses. Interactions between group members allows for in-depth discussion about a topic which can provide population specific insights on a designated issue (Stewart & Shamdasani, 1990).

Loppie (2007) reported that the oral tradition of storytelling is common among Native Americans and is a means of teaching and sharing information from one generation to the next. Stories are often told by elders and are a means of relating socially important behavioral knowledge which can be used to make important life decisions. Loppie (2007) explored the perceptions towards midlife health of Mi'kmaq women in Nova Scotia, and reported that study participants preferred group interaction as a way of obtaining information for learning and healing. Therefore, participatory research utilizing a focus group may support cultural preferences for sharing knowledge through group interactions (Loppie, 2007).

Loppie (2007) found that many of the women were more willing to share their experiences with her after a rapport was established through the cultural custom of having “social activities” before or after group meetings. Loppie (2007) stated that there was a high respect for other’s opinions within the group which allowed the women to share stories and gain information from each other. The participants in the study



conducted by Loppie (2007) shared information about their communities, families and individual histories which allowed them to learn about the specific health topic and each other. Information gained from this study indicates that it is important to involve Native Americans in collecting formative data for health interventions to understand the cultural values that shape their health perceptions. This is also important because very little research has been conducted that involves Native Americans in the research process (Loppie, 2007).

Another study by Strickland (1999) examined the appropriateness of conducting focus groups within the Native American population. There were a total of 15 interviews for the papanicolauo test study, and there were 30 interviews in the pain perception study (Strickland, 1999). Both of these studies used grounded theory to code the data to further understand the hypotheses of the study. Strickland (1999) reported many cultural customs for facilitating a culturally appropriate focus group in the two Native American communities. The circle represented a connectedness amongst all participants, and it was considered appropriate to arrange participants in a circular pattern for the focus group (Strickland, 1999).

Also, the focus group moderator needed to allow extra time to carry out important cultural traditions such as a “give away”, prayer songs, storytelling and introductions. The moderator was Native American and was not a member of the tribal communities that participated in the study. It was also important to invite elders to participate in more than one focus group because they usually did not speak in the first session. Also, many of the participants arrived at a later time than when the study actually started, and this was an important consideration for the planning of the focus group. The focus group

usually lasted at least four hours instead of the usual one to two hours as there was an introductory period at the beginning of each session to establish a rapport and responses between participants generated extended discussion (Strickland, 1999).

### Gathering Indigenous Information Related to Chronic Diseases Using Focus Groups

A study by Devlin et al. (2006) examined perceptions related to diabetes education and care from four populations that were found to be at higher risk for developing diabetes using focus groups. A total of 40 participants attended 12 focus groups living in or near Minneapolis, Minnesota. Devlin et al. (2006) found the following recurring themes among participants: loss of health associated with an American lifestyle, mistrust in the medical system and importance of spirituality (Devlin et al., 2006).

Native American participants in the study by Devlin et al. felt that a return to traditional foods after being given government issued commodity foods could help them be healthier (Devlin et al., 2006). Mistrust in the medical system was addressed by Native American participants in the study when they expressed that a negative attitude from healthcare staff would make them not want to go back to see a healthcare provider. Finally, spirituality was important to Native American participants in the study by Devlin et al. (2006) because they felt that they could seek traditional spiritual healing if they were not satisfied with their doctor's treatment. (Devlin et al., 2006).

Another important theme that emerged with Native American participants regarding diabetes was the concept of "acculturation" where they felt that diabetes was associated with being a "white man's" disease that was caused by consuming westernized

foods. Devlin et al. (2006) also noted the importance of using focus groups since all four population groups displayed a preference for oral communication and support from talking with other people who had diabetes (Devlin et al., 2006). Participants from all four minority populations suggested that healthcare be delivered in a positive, realistic and spiritual context that would be culturally appropriate to each group. Also, minority groups who feel contemporary lifestyles may have caused current health problems may not want to hear standard medical advice or believe that it would be helpful for them. Therefore, a health model that integrates traditional values and beliefs is necessary to effectively reach out to minority groups that are dealing with health issues such as diabetes (Devlin et al., 2006).

Gittelsohn et al. (1998) reported that the use of focus groups in collecting extensive data in six Native American communities was effective in helping them develop and plan a culturally appropriate school intervention called Pathways to prevent obesity in NA children ages 3-5. Data was collected from the White Mountain Apache, Tohono O'odham, Gila River, Oglala Lakota, Sicangu Lakota and Navajo nations and included a school, community and behavioral risk factor component. This information was valuable in making the intervention more effective because it helped researchers understand the perceptions and behaviors surrounding health issues in each community (Gittelsohn et al., 1998).

Participants in the Pathways study were also able to share more experiences and insights with each other using a focus group format compared to using a closed ended survey or questionnaire. The discussion that follows the exploration of topics in focus groups can also present solutions that will have the advantage of being developed by the

target population and culturally specific to them. Participants may respond better to researchers who ask for their opinions on program development because people within the community will know the community better than someone who does not live there. Focus groups were led by two moderators, and at least one moderator was Native American which helped improve participation and build trust (Gittelsohn et al., 1998).

#### Methodological Issues Related to Focus Groups as a Data Collection Procedure

Some of the problems that can occur with the use of focus groups include sample size that may be too small which can result in less data from less collective interaction. Also, moderators may have not had adequate experience in leading a focus group which can hinder the conversation by limiting topics to the script without probing new issues that arise from discussion. The questions asked during a focus group session must also be open-ended and culturally appropriate to where the participants can provide valuable input as to how the topic relates to their lives (Gittelsohn et al., 1998).

Participants may be recruited from a specific segment of a population for focus group participation which may not completely represent the entire population being served. However, these problems can be overcome with input from the community during all stages of the research process to ensure cultural understanding is being considered. Participants with lower incomes may have problems finding childcare, transportation and taking time off from work to attend a focus group. Staff from the community can also be trained extensively in focus groups methods while practicing the focus group script to ensure that interviewing techniques will allow for discussion and participation (Gittelsohn et al., 1998).

## Summary

Indigenous cultures have their own set of traditional values and beliefs that are unique to each group. However, healthcare is usually delivered using westernized beliefs and practices to which people from indigenous cultures may not relate (Hurst & Nader, 2006). As many Native communities have a preference for healthcare that focuses on the importance of family and community, healthcare workers need to be aware of what cultural traditions and beliefs are most important to each tribal community. Also, Native Americans have expressed a need for healthcare that focuses on overall well-being that includes physical, spiritual and mental health as they relate to living healthfully with a disease such as diabetes. Because Native communities are experiencing increasing prevalence rates of health disparities, many tribes have asked for healthcare programs that focus on prevention and address Native American youth (Gittelsohn et al., 1998; Devlin et al., 2006; Pierre, Receveur, Macaulay & Montour, 2007).

Native Americans living within the Indian Nation within the specified jurisdictional territory under study may have different tribal and racial affiliations creating a need to understand common health beliefs and perceptions within that population regarding health behaviors associated with overweight and obesity. Our study was conducted as the formative phase to determine the health needs of the community by defining the best health product (health behavior), price (benefits and barriers related to the product), promotion (best communication channels to advertise the product) and place

(best location to learn more about the product) through the input gained from focus groups with community members (CDC, 2006).

## CHAPTER III

### METHODS

#### Sample Population

Research assistants recruited a random sample of participants via mail through a recruitment letter (Appendix A). The sample population for this study consisted of Native American women who were 19 to 45 years of age. Women were recruited from four communities within the Indian Nation within the specified jurisdictional territory who were eligible to receive Commodity Foods. Women were recruited from a list of commodity food recipients provided by the Indian Nation within the specified jurisdictional territory in this study. Initially, an incentive of \$20.00 was provided. However, after low response rates, the incentive was increased to \$45.00.

#### Ethical Procedure

The Oklahoma State University Institutional Review Board granted approval for the study (Appendix B). Participants were required to complete consent forms (Appendix C) prior to participation in the study, and they were informed that participation was voluntary. Following completion of the consent form a demographic information sheet (Appendix D) was completed and the focus group procedures began.

## Focus Group Procedures

A semi-structured script was developed based on social marketing principles. Questions were structured to identify factors related to each of the “four P’s” of marketing which included product, price, place and promotion (Weinreich, 1999). Product questions were designed to identify a desired health behavior developed for the target audience (Andreasen, 2007). Questions for product were developed to explore views of fruit and vegetable intake, body weight and physical activity. Price questions were designed to explore perceived benefits and barriers towards the identified health and nutrition behaviors (Andreasen, 2007). Promotion questions were designed to determine the most effective communication channels to reach the target audience (Andreasen, 2007). Lastly, place questions were designed to identify locations where the health intervention will occur (Andreasen, 2007).

The semi-structured script was developed and reviewed by a team of three researchers. Once the team of researchers came to agreement on the questions for the semi-structured script, it was presented to the Indian Nation’s Nutrition Services managers for review. The managers made suggestions for cultural appropriateness and the script was revised. After revision, the semi-structured script was reviewed by Supplemental Nutrition Assistance Program (SNAP) Education staff who have extensive experience working directly with the target population. The main goal of the review was to determine acceptability of questions and cultural appropriateness with respect to reference to Native Americans living in the Indian Nation within the specified jurisdictional territory under study. After review with SNAP-Ed employees, the researchers modified the semi-structured script to its final version (Appendix F).



Moderators consisted of trained female employees from the SNAP and Oklahoma State University researcher staff. Moderators and assistant moderators attended a one day training as a means of quality control. The research staff trained moderators and assistant moderators using Krueger focus group methodology procedures (Krueger, 1988). Following the training, all trainees conducted a moc focus group while the researchers observed. The researchers then assigned each individual as either a moderator or assistant moderator based on observed skills.

Each focus group discussion was led by a moderator while an assistant moderator took notes. Focus groups were held at community sites located in the Indian Nation within the specified jurisdictional territory under study. Twelve focus groups were conducted that lasted between thirty minutes to an hour. Focus group discussions were audio-recorded and transcribed verbatim by the Bureau of Social research at Oklahoma State University.

### Data Analysis

Data from the focus groups were then analyzed using thematic content analysis (Steward & Shamdasani, 1990). Focus group discussions were extensively reviewed by two researchers to identify key points and common themes for each question asked during the discussion. Common themes were analyzed and notable quotes from each focus group were identified by each researcher. Recurring themes were combined into categories with subcategories using the methodology of thematic units derived from Krippendorff (Steward & Shamdasani, 1990). Both researchers discussed the themes until

consensus was gained. A focused coding process then began whereby recurring themes were organized according to social marketing principles (Appendix G).

## CHAPTER IV

### RESULTS

Forty three Native American women living in the Indian Nation within the specified jurisdictional territory participated in this study with a mean age of 36 (Table 1). One elderly woman participated in this study who was not in the targeted age range. However, to maintain good rapport with the community, she was allowed to participate. The average demographic data (Table 1) was collected and included age, self reported height and weight and participation in public assistance programs. Most of the participants were overweight with a mean BMI of 31.4. The most commonly used public assistance programs were the Food Distribution Program on Indian Reservations - Commodities (72.1%), Special Supplemental Nutrition Program for Women, Infants, and Children (34.9%), Child Nutrition for Reduced/ Free School Lunch/ Breakfast (25.6%) and the Supplemental Nutrition Assistance Education Program (SNAP ) (23.3%).

#### Common Themes Found for Product

Participants in all 12 focus groups expressed health concerns related to chronic diseases and disease prevention (Table 2). Chronic disease concerns expressed by participants included diabetes, cardiovascular disease, hypertension, renal disease, hypercholesterolemia and gallbladder disease. Some participants discussed cancer, alcoholism, arthritis and weight management through preventative measures such as adopting positive health behaviors, increased education and awareness in the tribe.

The major health concerns with the highest frequencies across all twelve focus groups were diabetes (12), weight management in terms of prevention (9) and cardiovascular disease (5).

### Diabetes Concerns

Diabetes was the primary concern of participants in this study, and participants made references to diabetes in every focus group conducted. Participants discussed diabetes as a common experience as conveyed through discussions of family history of the disease, personal diagnosis or concern about themselves or their children contracting diabetes in the future. Participants commonly discussed diabetes as an attribute of Native American ethnicity as best conveyed by a participant in focus group 7 who stated that “...it [diabetes] is mostly in a lot of the Indians they have it real bad. I don’t know why. My grandparents have always told me all of their friends and everybody they have talked to and all of the family that has grown up or that they have been with they have all had diabetes. They have had real bad sugar diabetes.” Participants also commonly mentioned that diabetes affects Native Americans at young ages and is often ignored as conveyed by a participant in focus group 3 who stated: “Personally I have had two Native American friends that were my age or younger from the time I was 17 until just this past year that have had all the signs and symptoms of diabetes...and both of them have went into either shock or a diabetic coma because they were not paying attention to what was going on.”

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. One participant from focus group 10 said, “I keep hearing about diabetes and

one thing when I heard about this [focus group meeting] I wanted to come and ask about it.” Another participant from focus group 7 shared her concerns for Native American children when stating that she “had me and my son checked for diabetes and we was both ok on it. But [Name]’s cousin is three years younger than him and he’s got a string high and high sugar levels. So I went and had him checked.”

Although diabetes was a common experience, participants expressed a relative uncertainty surrounding the severity as one participant from focus group 3 shared that, “...a lot of people just don’t fully comprehend how much damage that it [diabetes] can do.” Participants conveyed the need for diabetes screenings and diagnosis as shared by one individual from focus group 5 who stated: “That could be a good idea that you could give us about having more of those screenings for everything because I’m a big fan of that because that’s what caused my husband’s pre-diabetes [diagnosis] and he’s been that way for two years so they said he could not get it [diabetes] if he continues to do what he needs to do so those screenings are good.” The uncertainty was sometimes rooted in a lack of culturally sensitive information provided by health professionals as expressed by a participant from focus group 6 who shared that “I think they [health professionals] should get right to the point to diabetics, what it will do to you instead of, you know, they kind of scare you.”

### Views of How to Prevent Expressed Health Concerns

Participants in most of the focus groups mentioned lifestyle changes as a means of preventing diabetes and improving overall health. Weight management, healthy eating

and exercise were factors identified as ways to improve health among Native American families.

### Weight Management

Participants discussed weight management as means to improve health status and prevent chronic diseases such as diabetes. Although participants were generally aware that excess weight is associated with poor health outcomes, they shared that being overweight was also part of being a Native American as indicated by an individual in focus group 11 who stated, “my family, the side that is Native American, most are overweight” and another participant from focus group 12 referred to overweight among Native Americans as a social expectation when she stated that, “...now it [overweight] is getting more and more prevalent that when you look at the spaghetti westerns without a fat Indian running around. It just seems like the more time goes on the worst it gets. Now that is almost stereotypical an Indian woman is a big fat Indian woman. It is sad because it shouldn't be that way.”

Even though participants shared that being overweight is a common attribute among Native Americans, participants shared that they did not want obesity to be passed along to their children. This was reflected in a comment from a participant in focus group 3 that stated, “I see a lot...of children that are maybe not overweight but on the way to being overweight...they get into computers and books and stuff. Once they become sedentary they are going to move away from the physical activities that were keeping them from being overweight when they were younger...They are not changing their eating habits. It just carries over and they begin putting on weight. All of a sudden

they are 50, 60 pounds overweight and where did that come from.” Another participant from focus group 1 who was concerned about health risks in her children commented, “...one of my daughters has a very bad weight problem and my granddaughter is 17 and she is already overweight. And I keep telling her to stop eating the junk food. Eat the real stuff. But ya know I don’t know what carbs you are supposed to eat with what. I have not yet been referred over there to the diabetic clinic because my doctor seems to be underneath the impression that he has told me.”

Educational topics identified to prevent health problems were focused on meal planning and quick meals (5), family focused physical activity (5) and concepts of healthy eating and variety (4) in Table 3.

### Meal Planning

Quick meals, simple ingredients and healthy foods were important to most of the participants in the focus groups. There was also a preference to try to cook at home more often to decrease consumption of “fast food.” Cooking at home was considered to be a healthier option to fast food. Some participants wanted to learn more about making quick meals with common ingredients. A participant in focus group 3 stated, “There are shows like Rachel Ray’s 30 minute meals. You know it takes time to go sit in the drive-thru at McDonalds. Why not just stay home and make something that is not going to clog arteries in 20 minutes?...a big part of it is making it fun.”

Another participant from focus group 12 stated, “...I have noticed there isn’t any cookbooks coming out, new ones...we need those to teach us how to cook with commodity foods. Quick meals and things children can help you make...There was some

menus from a cookbook years ago, but there was so much other stuff in there...all of these seasonings just to make the meal but not anything you can get.”

### Healthy Eating and Physical Activity

Participants in most of the focus groups felt that “healthy eating and exercise” were healthy behaviors to address for improved health among Native Americans. Variety in cooking everyday meals was a motivational factor by some of the participants to eating healthier. A participant from focus group 8 said, “...get different ideas about how to prepare stuff...cause we’re just in a rut with it, you know, you just go in there and it’s basically the same thing over and over unless you spice it differently or something.” A participant from focus group 5 that associated a healthy diet and physical activity with improved health when asked why they felt Native Americans would want to lose weight stated, “...you can help to prevent and help to cure diabetes, just by watching what you eat and exercising more, you know to get your weight down and your high blood pressure- so many things can be taken care of. It’s a big reason that people would want to lose weight is for your health.”

Some of the participants with children also wanted to have healthier options in schools and decrease the amount of “junk foods” that are available to the children. A participant in focus group 3 stated, “...we have been taking a lot of steps towards improving the way we are. Like I said, I have been working hard to get more vegetables and fruit in everyone’s diet.” Another participant from focus group 3 that discussed incorporating healthier options for the family said, “Hide stuff. If you are making spaghetti, chop up frozen spinach and put it in the spaghetti sauce. They will never



know. You can't taste it. I do the same thing with broccoli. Cooked broccoli, I cut it up and put it in cornbread and they [family] will never know. You can't taste it. But then they are still getting that nutritional value without, what is this?" A balanced plate was also mentioned by some participants as a factor in healthy eating with "knowing how many vegetables and how many starches to have and how much" while watching portions. Portion control was an area of concern in many of the focus groups as a participant from focus group 4 commented, "It is hard to cook for one person. I don't want to waste it so I eat on it all day until I get tired of it...Then I have eaten a whole pot of spaghetti." Variety, balance, portion control and less junk food were important to focus group participants for healthy eating.

#### Common Themes Found for Price

The benefits and barriers associated with making behavioral changes to improve health were social support, personal factors, food access, improved health and access to services and programs to promote healthy lifestyles (Table 4). The major themes that were discussed in the focus groups with the highest frequencies were related to lack of support and included conflicting priorities (10) and childcare (6). Motivation (6) and feelings of success with weight loss (6) were also discussed.

#### Social support

Conflicting priorities and availability of childcare were identified as major barriers to making healthy lifestyle changes. Participants mentioned being involved with multiple "activities" and expressed being "so busy with everything." One participant

from focus group 4 stated, “I think now because everything is so fast paced we don’t really sit down like we used to. Like when I was growing up, there were eight of us too, we all sat down at 5:30 and we all had dinner. There wasn’t a bunch of cookies and ice cream. That was like a treat...because my mother didn’t work I guess she had time to do that. But now because everybody is working and going to school and nobody’s schedules are the same, it is just like grab something and go.” A participant from focus group 7 said, “...I work full-time and then I go to school in the evenings. Plus their [children] sports and all that...there’s not enough time to go and do the workouts that I used to do.” Another participant from focus group 1 stated, “Yeah because I go to school and go to work and home duties. There is not enough time. Sometimes I make time for it, usually when I don’t have to go to school.” Another participant that was working while attending school stated that she “felt tired all of the time” indicating that there may be difficulty in balancing schedules due to increased work, school and home demands.

Participants with children felt that lack of childcare was an issue that made it harder to find time to participate in health programs. A participant from focus group 1 that suggested having childcare available at health programs shared: “maybe if they [Indian Nation] offered a daycare type deal while parents can go do that [participate in program]....” Another participant from focus group 4 stated, “...I have done something [physical activity] outside with my kids and then I go to try to do it with my kids and I won’t get it done because I will totally forget it because I am stressed out on the time it takes with these two [children].”

## Personal Factors

Motivational level was an issue that could be a barrier to change as some participants discussed “not caring”. Other participants mentioned that motivation was a benefit to change when it was associated with success with weight loss. One participant from focus group 4 displayed a lack of motivation when commenting “I am not comfortable with my weight anymore...I keep saying I need to get up and walk. I think about it but I just can’t make it out that door.” Another participant from focus group 3 felt that the motivation within the community also needed to be improved upon and stated, “...probably will have to pull them [tribal community] in at gun point to get them to go...you have to be on your death bed before people will go to the doctor.”

Weight loss issues were discussed by many participants in terms of influencing positive and negative self-esteem or improving their health. A participant from focus group 4 felt improved health may be the focus of weight loss due to comments she heard throughout the tribal community and stated, “To be honest, most of them [Native Americans] that I have spoke to you know what they tell you. ‘We are Indian, we are fat and we are proud of it.’ So that [self-esteem] is not it. The only problem they have is their health. They are worried about their health. But they say this is the way God made us and this is the way we are supposed to be...”

Feelings of success with weight loss was a positive motivational factor as one participant from focus group 10 said, “...Because I did not want to go on a diet and when I did and saw the results, that is when I wanted to keep going.” Another participant from focus group 11 stated, “I know when I lost weight I started it for appearance but then I start losing weight and I feel a lot better. The more I lose the better I feel.” Negative self-

esteem associated with being overweight was mentioned by a participant in focus group 3 that said, "...you do not feel good about yourself if you are overweight. You can't run around and chase little kids. You can't go grocery shopping without getting winded. There is that aspect of it. And there is also your self- image and how you feel about yourself and how others see you. Personally I found it hard to go to class and get up and speak in front of people. I just can't imagine teaching high school and being 300 pounds..."

### Common Themes Found for Promotion

Participants mentioned a variety of promotional channels such as public figures, media outlets, printed materials, incentives, schools, indigenous contacts, family and health professionals (Table 5). Themes identified for design of programs included interactive educational structure (8), family-friendly educational structure (8), and cooking classes (5).

#### Educational Structure

Participants frequently mentioned that educational programs should be structured in a "fun" format. A participant from focus group 10 stated, "...if you got them into a big group and had someone come in and give a presentation that could make it fun and interesting and special. They could understand and see. I think they would listen for a little while..." Participants from focus group 2 discussed having fun cooking with their families as one participant stated, "...we try to play like games. We played with just bananas one time, and uh licorice. We played checkers with it."

Participants from most of the focus groups expressed an interest in education that would be “hands-on” and in a learning environment appropriate for the entire family. A participant from focus group 5 discussed a previous program and stated, “...we make crepes um at the daycare and then they got to color on them with the edible markers and stuff like that is just a lot of fun for children...I mean anything that they can have a hand on is more fun.”

Group interaction and support was also mentioned as a factor to creating a better learning environment. One participant from focus group 4 stated, “If I can do it with a bunch of people and my kids sitting there, then I can do it. I would rather learn to do it that way than learn to do something on my own and then have to deal with this.”

Another participant from focus group 3 commented, “I can see the way things are rolling there may be in the future an interactive cooking class available. And it can show you how to hide the vegetables in the food or how to make things that you can make two meals out of this and not necessarily have to cook two completely different things...I think it is easier to learn especially with food and stuff because if you do one wrong thing the whole thing is ugh. I think if people could just get in there and really learn. Learn how to use a knife. Learn how to cook things...knowing how to do things would open the doors to so many other options.” Participants also wanted health education for the family presented in a “fun” manner such as “some kind of festival”, “game” or “healthy fair.”

Physical activity was discussed by participants as being important for improving health and could be supported by accessible facilities with an interactive and family friendly format to “get the families-the kids involved”. A participant from focus group 3 said, “In a metropolitan area, there are things that you can go to like the “Mommy and

Me” class or “Gymboree” class or whatever they call it. We do not have anything even remotely close to that here. It is hard because my kids are not in daycare. They stay with my husband’s mom...I can see if there was something before preschool. Not necessarily child care but an interactive family type of situation where the parents and the children could play and do things with other families...” Childcare was an issue for many participants as mentioned in a comment from a participant in focus group 5 who stated, “I think it would be neat if they offered like daycare at the gym where like they offer courses where a mom can workout and do exercises.”

### Indigenous Communication

Learning from elders was mentioned in many of the focus groups as a way for Native American youth to learn. One participant from focus group 3 stated, “...even as young children to interact with older people I think makes a big difference in the way they see things. And hear stories and things like that.” Indigenous communication involved contacting real people, word of mouth, direct contact, peers and cultural values. A participant from focus group 11 that was discussing role models stated, “Maybe those that have changed or benefitted from changing their eating habits...I think my biggest role model would have to be other people that have done it.”

### Printed Materials and Media

Advertising in the form of “flyers” and “posters” was suggested since some participants were unaware of existing tribal programs. One participant from focus group 1 said, “...You know that Wellness Center [Indian Nation] was out there 6 months before

I even knew it existed.” Some of the participants also felt that they could get more out of handouts with how-to steps that would “show you how to do stuff.” Convenient forms of media such as “DVDs or VCR tapes” could be used to teach new skills such as cooking. Television advertisements were discussed by participants to increase awareness about the Indian Nation and their programs. A newspaper that was read by many of the participants was the local tribal newspaper and some participants suggested putting “bulletins” in there to get more attention for health programs.

### Common Themes Found for Place

Participants from the focus groups discussed their optimal learning locale as community places, tribal programs, and schools for children (Table 6). Timing was a central theme identified for program development. Major themes that had the highest frequencies were timing in the evening (7), Indian Nation Programs at the Family Life Center (3) and WIC clinics (3).

#### Timing of Programs

Timing in the afternoon was an issue for parents because “those are the ones you can’t make because children are getting out of school.” School vacations such as “summertime” was also mentioned as a good time to have programs by some of the participants that were parents since children “get bored.” Many of the participants felt that “evening classes” or “weekend” programs would be a better timing option for people with busy schedules. Work schedules may conflict with regular health program hours and

prevent some participants from being able to attend. A participant from focus group 4 felt timing was an issue and stated, "...if this class hadn't been offered at 6 o'clock I wouldn't have been able to come...it just happened to fall on the day that I didn't have to do work until 8. I really couldn't do anything during the day...Maybe things should be offered at various times and more than just once." Another participant from focus group 1 that preferred extended hours suggested, "Even the time factor to make it where people can go instead of between 8 and 5."

### Tribal Programs

Community places discussed by many of the participants included Indian Nation program locations that participants were familiar with such as the WIC Clinic, Food Distribution Center, Wellness Center and Family Life Center. One participant from focus group 2 stated, "...You know once a month or once every two months we go to the WIC office. I try to get where I can take the little classes that they have there, the little cooking things and all of that." Another participant from focus group 11 commented, "Right here. [Indian Nation Family Life Center]...I have been to the cooking class here and it is great. The food is nutritional and they tell different recipes and hand out the recipes with the nutrition guides." A participant from focus group 1 also commented, "We [Indian Nation] have lots of places to do the things. The [Indian] Nation offering to a wide variety of ages and everything."



### Community Locations

Community places were mentioned far less frequently than Indian Nation locations, but “the health department”, “library”, “websites”, “schools” and “department of human services” were also mentioned as possible sites for programs. An idea from a participant in focus group 7 suggested a local store and commented, “Like at Wal-Mart they hand out samples of different stuff and even if it’s different fruits and stuff...vegetables.” A participant in focus group 2 that suggested the library stated, “We don’t really have a computer right now...that would be one of our things to work towards because you can always check things out online.” An option for youth might be after school programs as one participant from focus group 7 stated, “...even in the after school programs...mine never went, but they would give them more nutritious stuff instead of handing them cookies and things like that.” Incorporating health programs into community locations throughout the Indian’s Nation’s jurisdictional territory could improve program participation due to participants’ familiarity and accessibility to community locations.

**Table 1. Focus Group Demographic Information (n=43)**

<b>Characteristics</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>
Age (yrs)	42	36.43	13.46
BMI	41	31.40	7.03
<b>Assistance Program</b>	<b>N</b>	<b>Frequency %</b>	
Commodities <sup>a</sup>	31	72.1	
Women, Infants and Children Program <sup>b</sup>	15	34.9	
Child Nutrition <sup>c</sup>	11	25.6	
SNAP <sup>d</sup>	10	23.3	
Head Start	2	4.7	
TANF <sup>e</sup>	2	4.7	
Social Security Income	1	2.3	

\*Participants were enrolled in a maximum of four assistance programs.

<sup>a</sup> United States Department of Agriculture, Food and Nutrition Service Food Distribution Program on Indian Reservations.

<sup>b</sup> Special Supplemental Nutrition Program for Women, Infants, and Children.

<sup>c</sup> Child Nutrition Program, Reduced/ Free School Lunch/ Breakfast

<sup>d</sup> United States Department of Agriculture, Supplemental Nutrition Assistance Program.

<sup>e</sup> United States Department of Health and Human Services, Office of Family Assistance, Temporary Assistance for Needy Families Program

<b>Table 2. Reported Health Concerns of Native American Women Living Within the Indian Nation Boundaries for the Identification of Health Product.</b>		
<b>Reported Concern</b>	<b>Frequency</b>	
	n=12	%
<b>Diabetes</b>	12	100
<b>Diseases of the heart</b>	5	42
<i>Hypertension</i>	4	33
<i>Hypercholesterolemia</i>	4	33
<b>Prevention</b>		
<i>Weight</i>	9	75
<i>Cancer</i>	4	33
<i>Gallbladder</i>	2	17
<i>Alcoholism</i>	2	17

\*A total of 12 focus groups were conducted. The frequency refers to the number of focus groups in which the theme was mentioned.

**Table 3. Native American Women’s Views of How to Prevent Health Concerns.**

Major themes	Frequency	
	n=12	%
<b>Concepts of Healthful Eating</b>		
<i>Variety</i>	4	33
<i>Balance</i>	3	25
<i>Focus on Junk Food</i>	2	17
<b>Meal Planning</b>		
<i>Quick Meals</i>	5	42
<i>General</i>	2	17
<i>Cooking Leftovers</i>	2	17
<b>Physical Activity</b>		
<i>General (get active) and family focused</i>	5	42
<b>Weight Management</b>		
<i>General-lose weight</i>	3	25

\*A total of 12 focus groups were conducted. The frequency refers to the number of focus groups in which the theme was mentioned.

**Table 4. Barriers and Benefits Identified by Native American Women Related to Price of Changing Current Health Behavior Practices.**

Major themes	Frequency	
	n=12	%
<b>Social Support</b>		
<i>Conflicting Priorities-</i>	10	83
<i>Negative-spouse, family, others</i>	5	42
<i>Childcare-</i>	6	50
<i>Marketing</i>	2	17
<b>Personal Factors</b>		
<i>Motivation-</i>	6	50
<i>Feelings of success with weight loss</i>	6	50
<i>Increased Knowledge</i>	3	25
<i>Confidence</i>	3	25
<i>Self-Esteem</i>	2	17
<i>Appearance</i>	2	17
<i>Lack of Control-</i>	1	8
<i>Depression-</i>	1	8
<i>Stress-</i>	1	8
<i>Denial-</i>	1	8
<b>Food access</b>		
<i>Cost</i>	4	33
<i>Quality</i>	2	33
<i>Availability</i>	2	17
<i>Marketing</i>	2	17
<b>Improved Health</b>		
<i>Longevity</i>	3	25
<i>General well being</i>	3	25
<i>Energy</i>	2	17
<i>Physical Strength</i>	2	17
<b>Access Issues</b>		
<i>Transportation-</i>	2	17
<i>Unsafe Environments-</i>	2	17
<i>Lack of Recreational Facilities-</i>	2	17
<i>Location of Health Facilities-</i>	1	8
<i>Ineffective Marketing for Indian</i>	1	8
<i>Nation Services-</i>		

- Indicates a barrier to improved health.

\*A total of 12 focus groups were conducted. The frequency refers to the number of focus groups in which the theme was mentioned.

<b>Table 5. Native American Women's Views of How Best to Promote Health Behavior Change.</b>		
<b>Major themes</b>	<b>Frequency</b>	
	n=12	%
<b>Educational Structure</b>		
<i>Interactive</i>	8	67
<i>Family Friendly</i>	8	67
<i>Fun</i>	7	58
<b>Educational Strategies</b>		
<i>Cooking classes</i>	5	42
<i>Games</i>	2	25
<b>Family</b>		
<i>Elders</i>	5	42
<i>Parents</i>	1	17
<b>Health Professionals</b>		
<i>Doctors</i>	2	17
<i>Nutritionists</i>	1	8
<i>Nurses</i>	1	8
<b>Incentives</b>		
<i>Free Food</i>	3	25
<b>Printed Materials</b>		
<i>Flyers</i>	2	17
<i>Commodity food cookbooks</i>	2	17

\*A total of 12 focus groups were conducted. The frequency refers to the number of focus groups in which the theme was mentioned.

<b>Table 6. Native American Women's Views of the Best Place for Health Promotion Strategies.</b>		
<b>Major themes</b>	<b>Frequency</b>	
	n=12	%
<b>Indian Nation Programs</b>		
<i>Family Life Center</i>	3	25
<i>WIC Clinics</i>	3	25
<i>Wellness Center</i>	1	8
<i>Food Distribution</i>	1	8
<i>Indian Health Service</i>	1	8
<i>Headquarters</i>	1	8
<i>General</i>	1	8
<b>Timing</b>		
<i>Evening</i>	7	58
<i>Extended Hours</i>	4	33
<i>School Vacations</i>	3	25

\*A total of 12 focus groups were conducted. The frequency refers to the number of focus groups in which the theme was mentioned.

## CHAPTER V

### SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR RESEARCH AND PRACTICE

#### Summary

Major themes derived from this qualitative study were organized using the “4 p’s” of social marketing which included product, price, promotion and place as they related to health education within our target population. Chronic disease education and prevention was the major health product identified across all focus groups with an emphasis on diabetes. Common themes that resonated among participants involved health education that focused on family education presented in an interactive and family-friendly format.

Diabetes awareness and prevalence was reported by participants in all focus groups through experience with either personal diagnosis or their social network of family and tribal community members. Diabetes prevention was perceived by many of the women as an area where education for the whole family was needed to learn more about positive dietary and physical activity behaviors. Taylor et al. reported that Native American women in their study were concerned about the prevalence of diabetes and held strong concerns about their children’s risk for developing the disease (Taylor et al., 2004). It was also reported in the study by Taylor et al. that some of the women who knew someone with diagnosed diabetes did not seek healthcare as denial was common and routine healthcare was usually postponed until physical symptoms were present. These findings suggest that culturally appropriate diabetes prevention and treatment



efforts are needed throughout tribal communities to prevent diabetes complications and increase awareness (Taylor et al., 2004).

Some participants in our study wanted information on dietary changes that would improve blood glucose control and felt that their current healthcare providers were not meeting their needs in this area. Healthier food choices in supplemental food packages that consider more traditional indigenous foods was perceived to help with diabetes control by some of the women. Consistent with findings in a study with Native Americans who were diagnosed with diabetes, Smith et al. reported that many of the participants held perceptions that treatment recommendations from their healthcare team were not “practical” and chose not to follow their advice. Devlin et al. reported that socioeconomic and cultural considerations for Native Americans should be considered by healthcare workers to build respect and trust if they want their message to be effectively communicated (Devlin et al., 2006). It was also reported in the study by Devlin et al. that Native American participants felt that a modern lifestyle was the cause of their diminished health compared to the healthier traditional food practices of the past with the absence of chronic disease.

Participants in the current study reported having multiple household responsibilities and priorities including primary caretaker in the household, students in school or working outside of the home which places time constraints on meal preparation along with physical activity. As participants were from a lower socioeconomic level, there were also issues with access to healthy foods at an affordable price, transportation to health programs and availability of childcare for women with families. Pierre et al. reported similar findings in Native Canadian mothers whose perceived barriers to

cooking healthy meals included the high cost of foods, lack of time and unfamiliarity with healthy foods and recipes. Women in the study by Pierre et al. also reported that family, community and school focused health education served as a facilitator of making healthy meals to promote the benefit of improved health (Pierre et al., 2007).

Community interaction was a common theme that participants perceived as a catalyst to making healthy diet and exercise changes to reduce their family's risk of chronic disease and health problems associated with being overweight. Health interventions that were located at key places within the tribal community at convenient times for mothers with children were identified as a way to increase participation rates. Other studies also support that Native American adults would like participate in community based health interventions that help them choose nutritious foods and be more physically active to reduce their risk of disease (Harnack et al., 1999; Thompson et al., 2002, Bachar et al., 2006).

## Conclusions

The purpose of this study was to identify health concerns and issues among Native American women who receive food stamps or commodity foods utilizing social marketing principles. Objectives for this study were centered around the "4 p's" of social marketing which explored Native American women's health perceptions of the best product, price, promotion and place to develop a culturally effective health intervention to improve health in this community (Weinreich, 1999).

The first objective of this study was to define the perceived health product which is the health conditions or behaviors considered to be the priority area of need for the

community. Participants cited chronic diseases as being major areas of concern especially in the areas of diabetes and diseases of the heart. The increased prevalence of overweight throughout the Native American population was also discussed as many of the participants felt that achieving a healthy weight through improved dietary and exercise behaviors could improve health. Diabetes was the central product as participants in all focus groups had a heightened awareness of diabetes since they either knew someone in their community or a family member that had the disease. Also, diabetes was associated with a loss of life, denial and decreased health by some participants. Many of the participants discussed the effects of a modern lifestyle with sedentary activities and a westernized diet as being a contributing factor to developing diabetes. Healthcare issues for some participants included miscommunication about care from healthcare professionals, inadequate access to healthcare services and lack of knowledge about available health services. A majority of the participants knew that nutrition and physical activity was important in health improvement, but they needed more practical information on how to incorporate those behavioral changes into their lives using resources that are readily available to them.

The second objective of this study was to determine the price of participating in a health intervention through participants' evaluation of the perceived benefits and barriers to behavioral change regarding fruit and vegetable intake, body weight and physical activity. A lower socioeconomic status was a barrier to healthy behaviors as participants described a lack of adequate facilities to exercise, transportation to health programs and available childcare. Conflicting priorities due to increased work, school and home demands also made it difficult to find time in participant's schedules to attend health

programs. Benefits to help motivate participants included positive social support from friends and family and gaining health knowledge in a setting where they could have fun. Improved health was also a motivational factor as participants discussed feeling better and having more energy after losing weight. Self-esteem issues with weight management served as both a benefit and a barrier as low self-esteem and depression could negatively affect motivational level while improved confidence and appearance helped many participants continue their weight loss efforts. Participants could benefit from health programs that offer accessible and family friendly services in a group setting where they could learn from each other and a positive healthcare team that utilized motivational counseling to improve self-esteem.

The third objective of this study was to identify the most effective methods of communication to promote health messages that will influence behavioral change. Participants were concerned with improving the health of their entire family and felt that health education should be offered in a family friendly and interactive format to promote healthy eating and physical activity. Since many of the participants had busy schedules, participants also expressed an interest in learning how to create quick and healthy meals while on a budget. Participants with children also felt that it would be beneficial to teach the youth about healthy cooking and increasing the amount of physical activity in their lives to prevent health problems. The importance of family with an emphasis on elders was an effective way to share information as elders were seen as role models in the family and community. Promotional materials that were convenient to use and easy to understand could also help participants learn more about what health programs are being offered.

The fourth objective of this study was to identify a place to conduct health interventions and disseminate health messages. Community sites and tribal programs were ideal locations for many participants due to their convenient location and participants' familiarity with specific programs. Timing was a critical issue to program participation due to the school and work schedules of many participants. Programs offered in ideal community locations should also offer extended hours during the evening, weekends and school vacations to give families an opportunity to participate.

### Limitations

As with most qualitative studies, there is a risk of researcher bias when analyzing qualitative data. To minimize bias, two researchers were involved in the analysis process. One researcher independently coded transcripts according to identified themes and a second researcher confirmed themes until 100% agreement was reached on all common themes. Also, the population sampled may not be completely representative of the target audience. Recruiting members from a low-income community is challenging as participants from low-income communities often face difficulties with childcare, transportation or time conflicts with work that may decrease their participation rates. As such, results reported in this study may be biased towards those individuals who attended that are interested in health and nutrition as opposed to those who are not as interested.

When conducting focus groups, it can be problematic to have an adequate number of participants in the focus group for the data to be meaningful because information is built through collective interactions. Some of the smaller focus groups had fewer

interactions which resulted in less data. Some of the focus group moderators were newly trained in qualitative interviewing methods, and they could have probed more on certain questions to increase responses. Additionally, the focus group script was long and may have covered too many topics which might have decreased in-depth data on specific issues. Finally, all participants were female and it would be helpful to gain a male perspective on the discussed topics as the proposed health interventions will be family focused.

### Implications for Practice

Healthcare programs that serve the NA/AN population should implement cultural awareness training as part of employee orientation for healthcare professionals to help them understand the unique values and beliefs of this segment of the population. Also, tribal communities should be consulted when educational materials are developed to ensure that they are culturally acceptable and comprehensible. Partnerships between tribal communities and their healthcare programs could help improve the effectiveness of services offered through the identification of perceived health needs by tribal community input. Findings from this research suggest that a family-friendly and interactive educational structure that encompasses realistic strategies to improve healthy behaviors could improve participation and positively affect health behaviors in a similar population.

Integrated healthcare and coordination between all members of the healthcare team could improve health outcomes with increased referrals for patients to improve gaps in needed care. Health professionals may want to consider offering health services in a

group format to tribal communities as concerns for the health of the community may outweigh individual health concerns. Health interventions for the NA/AN population can also employ Native American staff to help facilitate communication and participation since they can offer valuable cultural insights. As findings from this study suggest that participants associate weight loss with improved health, health interventions targeting weight control might focus on the positive benefits of maintaining a healthy weight through a healthy diet and increased physical activity.

Nutritional professionals working within the NA/AN population in a community with limited resources should consider offering programs with incentives such as childcare, transportation, samples of recipes or small prizes for participation. Health education might also be more effective if delivered in a fun and family friendly setting to help build a rapport with participants and provide information that encourages family support. Cooking classes that emphasize quick meals that are nutritious and use accessible foods may also improve nutritional intake in low income families. Findings from this study suggest that motivational coaching and encouragement are important to help show participants that healthcare professionals care about them and want to help them achieve the highest level of health possible.

### Implications for Further Research

Further research can utilize social marketing principles to identify the best health product, price, promotion and place within different tribal communities to develop culturally appropriate and effective health interventions. Studies may want to explore in

further detail what socioeconomic and cultural factors affect behavioral change related to health in the NA/AN population. Also, since the NA/AN population is geographically diverse with different tribal affiliations, it is important to not apply generalized data from one tribal community to the entire NA/AN population as cultural values and beliefs differ greatly. Therefore, research should be conducted within each tribal community to help foster community empowerment and explore the perceived health needs of each community.

Further research could compare the nutritional content of a traditional NA/AN diet to current westernized dietary practices to help determine strategies that would incorporate traditional foods back into the diets of NA/AN. The progressive change in dietary and physical activity behaviors could be researched in tribal elders to gain their perceptions on how to effectively deal with acculturation issues related to living with a Native American worldview and westernized worldview at the same time. Further research on current dietary practices within each NA/AN community and their perceptions of what healthy foods are needed to develop effective nutrition interventions and educational materials. Physical activity behaviors and what motivates NA/AN to participate in them is also needed to determine the best ways to integrate physical activity into communities with limited resources or busy lives. Research is also needed on best healthcare practices in NA/AN people to develop health interventions that focus on improved health through preventative behaviors such as a healthy diet and adequate physical activity.



## References

- Adreasan, A. (2008). Social Marketing Institute. Available at: <http://www.social-marketing.org/aboutus.html>. Accessed on 10/01/07.
- Asbury, L.D., Wong, F.L., Price, S.M., & Nolin, M.J. (2008). The VERB Campaign: Applying a branding strategy in public health. *American Journal of Preventive Medicine*, 34, 6S, S183-S187.
- Bachar, J.J., Lefler, L.J., Reed, L., McCoy, T., Bailey, R., & Bell, R. (2006). Cherokee choices: A diabetes prevention program for American Indians. *Preventing Chronic Disease*, 3, 3. Available at: [http://www.cdc.gov/pcd/issues/2006/jul/05\\_0221.htm](http://www.cdc.gov/pcd/issues/2006/jul/05_0221.htm). Accessed on 7/05/07.
- Baker, E.A., Schootman, M., Barnidge, E., & Kelly C. (2006). The role of race and poverty in access to foods that enable individuals to adhere to dietary guidelines. *Preventing Chronic Disease*, 3, 3. Available at: [http://www.cdc.gov/pcd/issues/2006/jul/05\)0217.htm](http://www.cdc.gov/pcd/issues/2006/jul/05)0217.htm). Accessed on 7/10/07.
- Barnes, P.M., Adams, P.F. & Powell-Griner, E. (April 27, 2005). Health characteristics of the American Indian and Alaska Native adult population: United States, 1999-2003. *Vital and Health Statistics*, 356. Centers for Disease Control, National Center for Health Statistics. Available at: [www.cdc.gov/nchs](http://www.cdc.gov/nchs). Accessed on 7/28/08.
- Broussard, B.A., Sugarman, J.R., Bachman-Carter, K., Booth, K., Stephenson, L., Strauss, K., & Gohdes, D. (1995). Toward comprehensive obesity prevention programs in Native American communities. *Obesity Research*, 3, 2, 289s-297s.

- Campbell, J. (2008). Centers for Disease Control (CDC). Racial and Ethnic Approaches to Community Health (REACH) 2010. Available at: [http://www.cdc.gov/reach/pdf/OK\\_Dept\\_Health.pdf](http://www.cdc.gov/reach/pdf/OK_Dept_Health.pdf). Accessed on 9/01/08.
- Canales, M.K. (2004). Connective to Nativeness: The influence of women's American Indian identity on their health-care decisions. *The Canadian Journal of Nursing Research*, 36, 4, 18-44.
- Castor, M.L., Smyser, M.S., Taulii, M.M., Park, A.N., Lawson, S.A., & Forquera, R.A. (2006). A nationwide population-based study identifying health disparities between American Indians/Alaska Natives and the general populations living in select urban counties. *American Journal of Public Health*, 96, 8, 1478-1484.
- Centers for Disease Control (CDC) (2003). American Indian and Alaska Native Heart Disease and Stroke Fact Sheet. Available at: [http://www.cdc.gov/DHDSP/library/pdfs/fs\\_aian.pdf](http://www.cdc.gov/DHDSP/library/pdfs/fs_aian.pdf). Accessed on 5/4/08.
- Centers for Disease Control (CDC) (2005). Health marketing basics. Available at: <http://www.cdc.gov/healthmarketing/basics.htm>. Accessed on 10/01/07.
- Centers for Disease Control (CDC) (2007). Office of Minority Health & Health Disparities (OMHD). Available at: <http://www.cdc.gov/omhd/populations/AIAN/AIAN.htm>. Accessed on 10/18/07.
- Collins, J.L. (2008) United States Department of Health and Human Services: Racial and Ethnic Approaches to Community Health (REACH U.S.) Finding Solutions to Health Disparities 2008. Available at: <http://www.cdc.gov/reach>. Accessed on 7/10/08.

- DeGonzague, B., Receveur, O., Wedll, D., & Kuhnlein, H.V. (1999). Dietary intake and body mass index of adults in 2 Ojibwe communities. *Journal of the American Dietetic Association, 99*, 710-716.
- Devlin, H., Roberts, M., Okaya, A., & Xiong, Y.M. (2006). Our lives were healthier before: Focus groups with African American, American Indian, Hispanic/Latino, and Hmong people with diabetes. *Health Promotion Practice, 7*, 47. Available at: <http://hpp.sagepub.com/cgi/content/abstract/7/1/47>. Accessed on 7/10/07.
- Dillinger, T.L., Jett, S.C., Macri, M.J. & Grivetti, L.E. (1999). Feast or Famine? Supplemental food programs and their impacts on two American Indian communities in California. *International Journal of Food Sciences and Nutrition, 50*, 173-187.
- Evans-Campbell, T., Lindhorst, T., Huang, B., & Walters, K.L. (2006). Interpersonal violence in the lives of urban American Indian and Alaska Native Women: Implications for health, mental health, and help-seeking. *American Journal of Public Health, 96*, 8, 1416-1422.
- Fahrenwald, N.L., & Shangreaux, P. (2006). Physical activity behavior of American Indian mothers. *Orthopaedic Nursing, 25*, 1, 22-29.
- Gittelsohn, J., Evans, M., Helitzer, D., Anliker, J., Story, M., Metcalfe, L., Davis, S., & Iron Cloud, P. (1998). Formative research in a school-based obesity prevention program for Native American school children (Pathways). *Health Education Research, 13*, 2, 251-265.

- Guiliano, A., Papenfuss, M., Guernsey De Zapien, J., Tilousi, S., & Nuvayestewa, L. (1998). Prevalence of chronic disease risk and protective behaviors among American Indian women living on the Hopi reservation. *Annals of Epidemiology*, 8, 160-167.
- Harnack, L., Story, M., Holy Rock, B., Neumark-Sztainer, D., Jeffery, R., & French, S. (1999). Nutrition beliefs and weight loss practices of Lakota Indian adults. *Journal of Nutrition Education*, 31, 1, 10-15.
- Henderson, K.A., Ainsworth, B.E. (2003). A synthesis of perceptions about physical activity among older African American and American Indian women. *American Journal of Public Health*, 93, 313-317.
- Huhman, M., Berkowitz, J.M., Wong, F.L., Prosper, E., Gray, M., Prince, D., & Yuen, J. (2008). The VERB Campaign's strategy for reaching African-American, Hispanic, Asian, and American Indian children and parents. *American Journal of Preventive Medicine*, 34, 6S, S194-S209).
- Hurst, S., & Nader, P. (2006). Building community involvement in cross-cultural Indigenous health programs. *International Journal for Quality in Health Care*, 18, 4, 294-298.
- Ikeda, J.P., Murphy, S., Mitchell, R.A., Flynn, N., Mason, I.J., Lizer, A., & Lamp, C. (1998). Dietary quality of Native American women in rural California. *Journal of the American Dietetic Association*, 98, 7, 812-814.
- Indian Health Service (2003). A culture of caring. Washington, DC: U.S. Government Printing Office.

- Indian Health Service (2006). Facts on Indian health disparities. Available at:  
<http://www.http://info.ihs.gov/Files/DisparitiesFacts-Jan2006.pdf>. Accessed on  
10/18/07.
- Jackson, M.Y. (1987). Cultural challenges in nutrition education among American  
Indians. *The Diabetes Educator*, 13, 1, 47-50.
- Johnston, S.L. (2007). Plate half-empty or half-full? Dietary continuity and change  
among the Blackfeet. *Ecology of Food and Nutrition*, 46, 5, 361-376.
- Kim, C. (2000). Recruitment and retention in the Navajo Area Indian Health  
Service. *Western Journal of Medicine*, 173, 4, 240-243.
- Krueger, R.A. (1988). Focus Groups: A practical guide for applied research.  
Newbury Park: SAGE Publications, Inc.
- Loppie, C. (2007). Learning from the grandmothers: Incorporating indigenous  
principles into qualitative research. *Qualitative Health Research*, 17, 2, 276-284.
- Lutz, D.J. (1997). A guest editorial: Delivering health care to Native American  
women: The challenge continues. *Obstetrical and Gynecological Survey*, 52, 3,  
153-154.
- Maibach, E.W., Van Duyn, M.A.S., & Bloodgood, B. (2006). A marketing  
perspective on disseminating evidence-based approaches to disease prevention  
and health promotion. *Preventing Chronic Disease*, 3, 3. Available at:  
[http://www.cdc.gov/pcd/issues/2006/jul/05\\_0154.htm](http://www.cdc.gov/pcd/issues/2006/jul/05_0154.htm). Accessed on 7/10/07.

- National Institutes of Health (NIDDK) (2007). National Diabetes Education Program. The diabetes epidemic among American Indians and Alaska Natives. Available at [http://ndep.nih.gov/diabetes/pubs/FS\\_AmIndian.pdf.htm](http://ndep.nih.gov/diabetes/pubs/FS_AmIndian.pdf.htm). Accessed on 10/18/07.
- Noren, J., Kindig, D., & Sprenger, A. (1998). Challenges to Native American health care. *Public Health Reports, 113*, 22-33.
- Orloff, K.L., & Lessans, C.S. (1999). A successful health partnership: The Department of Health and Human Services/ Office of Inspector General- Indian Health Service Connection. *The Government Accountants Journal, 48*, 3, 18-25.
- Pierre, N., Receveur, O., Macaulay, A.C., & Montour, L. (2007). Identification of barriers and facilitators of healthy food choices among children aged 6 to 12 years: From the Kahnawake Schools Diabetes Prevention Project. *Ecology of Food and Nutrition, 46*, 2, 101-123.
- Polley, D.C., Spicer, M.T., Knight, A.P., & Hartley, B.L. (2005). Intrafamilial correlates of overweight and obesity in African-American and Native-American grandparents, parents, and children in rural Oklahoma. *Journal of the American Dietetic Association, 105*, 262-265.
- Raval, D., & Subramanian. (2004). Cultural values driven segmentation in social marketing. *Journal of Nonprofit & Public Sector Marketing, 12*, 2, 73-85.

- Sabogal, F., Otero-Sabogal, R., Pasick, R.J., Jenkins, C.N.H., & Perez-Stable, E.J. (1996). Printed health education materials for diverse communities: Suggestions learned from the field. *Health Education Quarterly*, 23, S123-S141.
- Sequist, T.D., Cullen, T., & Ayanian, J.Z. (2005). Information technology as a tool to improve the quality of American Indian health care. *American Journal of Public Health*, 95, 12, 2173-2178.
- Shalala, D.E., Trujillo, M.H., Hartz, G.J., D'Angelo, A.J. (1998-1999). Indian Health Service: Regional differences in Indian health. Washington, DC: U.S. Government Printing Office.
- Smith, C.J., Nelson, R.G., Hardy, S.A., Manahan, E.M., Bennett, P.H., & Knowler, W.C. (1996). Survey of the diet of Pima Indians using quantitative food frequency assessment and 24-hour recall. *Journal of the American Dietetic Association*, 96, 778-784.
- Stellefson, M., & Eddy, J.M. (2008). Health education and marketing processes: 2 related methods for achieving health behavior change. *American Journal of Health Behavior*, 32, 5, 488-496.
- Stewart, D.W., & Shamdasani, P.N. (1990) (Ed.). Focus groups: Theory and Practice Applied Social Research Methods Series (Vol. 20). Newbury Park: SAGE Publications, Inc.
- Strauss, K.F., Mokdad, A., Ballew, C., Mendlein, J.M., Will, J.C., Goldberg, H.I., White, L., & Serdula, M.K. (1997). The health of Navajo women: Findings from the Navajo health and nutrition survey, 1991-1992. *The Journal of Nutrition*, 127, 2128S-2133S.

- Strickland, C.J. (1999). Conducting focus groups cross-culturally: Experiences with Pacific Northwest Indian people. *Public Health Nursing, 16*, 3, 190-197.
- Taylor, C., Keim, K.S., Sparrer, A., Van Delinder, J., & Parker, S.P. (2004). Social and cultural barriers to diabetes prevention in Oklahoma American Indian women. *Preventing Chronic Disease, 1*, 2. Available at: [http://www.cdc.gov/pcd/issues/2004/apr/03\\_0017.htm](http://www.cdc.gov/pcd/issues/2004/apr/03_0017.htm). Accessed on 7/10/07.
- Taylor, C.A., Keim, K.S., & Gilmore, A.C. (2005). Impact of core and secondary foods on nutritional composition of diets in Native-American women. *Journal of the American Dietetic Association, 105*, 413-419.
- Taylor, C.A., Keim, K.S., Gilmore, A.C., Parker, S.P., & Van Delinder, J. (2006). Most commonly consumed foods and food perceptions in Native American women. *American Journal of Health Behavior, 30*, 6, 613-625.
- Teufel, N. (1996). Nutrient-health associations in the historic and contemporary diets of Southwest Native Americans. *Journal of Nutritional and Environmental Medicine, 6*, 2, 179-190.
- Thompson, J.L., Allen, P., Cunningham-Sabo, L., Yazzie, D.A., Curtis, M., & Davis, S.M. (2002). Environmental, policy, and cultural factors related to physical activity in sedentary American Indian women. *Women & Health, 36*, 2, 59-74.
- Thompson, J.L., Allen, P., Helitzer, D.L., Qualls, C., Whyte, A.N., Wolfe, V.K., & Herman, C.J. (2008). Reducing diabetes risk in American Indian women. *American Journal of Preventive Medicine, 34*, 3, 192-201.



United States Census Bureau (USCB) (2005). American Indian and Alaska Native Heritage Month: November 2005. Available at: [http://www.census.gov/Press-Release/www/releases/archives/facts\\_for\\_features\\_special\\_editions/005684.html](http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/005684.html). Accessed on 10/18/08.

United States Census Bureau (USCB) (2006). Oklahoma 2006 American Community Survey Data Profile Highlights. Available at: [http://factfinder.census.gov/servlet/ACSSAFFacts?\\_event=Search&geo\\_id=&geoContext=&\\_street=&\\_county=&\\_cityTown=&\\_state=04000US40&\\_zip=&lang=en&\\_sse=on&pctxt=fph&pgsl=010](http://factfinder.census.gov/servlet/ACSSAFFacts?_event=Search&geo_id=&geoContext=&_street=&_county=&_cityTown=&_state=04000US40&_zip=&lang=en&_sse=on&pctxt=fph&pgsl=010). Accessed on 9/10/08.

United States Department of Agriculture (USDA) (2008). Food Distribution Program on Indian Reservations (FDPIR) Overview. Available at: [http://www.fns.usda.gov/fdd/programs/fdpiir/about\\_fdpiir.htm](http://www.fns.usda.gov/fdd/programs/fdpiir/about_fdpiir.htm). Accessed on 11/01/08.

United States Department of Health and Human Services (USDHHS) (2003). Eliminating health disparities in the American Indian and Alaska Native community. Available at: <http://www.hhs.gov/news/press/2003pres/fsindian90803.html>. Accessed on 9/3/07.

- Van Duyn, M.A., McCrae, T., Wingrove, B.K., Henderon, K.M., Boyd, J.K., Kagawa-Singer, M., et al. (2007). Adapting evidence-based strategies to increase physical activity among African Americans, Hispanics, Hmong, and Native Hawaiians: a social marketing approach. *Preventing Chronic Disease, 4*, 4. Available at: [http://www.cdc.gov/pcd/issues/2007/oct/07\\_0025.htm](http://www.cdc.gov/pcd/issues/2007/oct/07_0025.htm). Accessed on 7/28/08.
- Watts, V., Rockett, H., Baer, H., Leppert, J., & Colditz, G. (2006). Assessing diet quality in a population of low-income pregnant women: A comparison between Native Americans and Whites. *Maternal Child Health Journal, 11*, 127-136.
- Weinreich, N.K. (1999). Hands-on social marketing: A step by step guide. Thousand Oaks: SAGE Publications, Inc.
- Wilson, C., Gilliland, S., Moore, K., Acton, K. (2007). The epidemic of extreme obesity among American Indian and Alaska Native adults with diabetes. *Preventing Chronic Disease, 4*, 1. Available at: [http://www.cdc.gov/pcd/issues/2007/jan/06\\_0025.htm](http://www.cdc.gov/pcd/issues/2007/jan/06_0025.htm). Accessed on 7/10/07.
- Wright, A.L., Naylor, A., Wester, R., Bauer, M., & Sutcliffe, E. (1997). Using cultural knowledge in the health promotion: Breastfeeding among the Navajo. *Health Education and Behavior, 24*, 5, 625-639.

APPENDIX A

RECRUITMENT LETTER

Recruitment Letter

March 17, 2006

Dear PARTICIPANT NAME,

Thank you for agreeing to participate in the group discussion on \_\_\_\_\_ at \_\_\_\_\_. The Nation Program and the Department of Nutritional Sciences at Oklahoma State University are requesting that you participate in this group discussion about factors that influence the health of Native Americans living in Nation boundaries. You were asked to take part in this study because you have received food stamps or commodity foods in the last three months.

The information you give us will be used to develop nutrition programs to benefit Native Americans who receive food stamps or commodity foods. There are no risks or benefits to you for participating in this study. Your alternative is not to participate in this study. **If you complete the group discussion, you will receive cash in the amount of \$20.00** as a special thank you for the information you provide.

Your personal information will be kept private. You will not be identified by name or description in any reports about this study. Instead, your answers will be grouped with those from other participants.

Taking part in this study is voluntary. You may choose not to take part at any time. If you have questions contact \_\_\_\_\_, Food Stamp Nutrition Education Program Manager, OK at telephone number \_\_\_\_\_ or **Dr. Stephany Parker**, Department of Nutritional Sciences, 419 HES, Oklahoma State University, at telephone number 405-744-6821. For questions about your rights as a research subject, you may contact Dr. Sue Jacobs, IRB Chair, 415 Whitehurst Hall, Oklahoma State University, Stillwater, OK 74078; at telephone number 405-744-1676.

Thank you for helping.

Sincerely,

YOUR NAME

YOUR PHONE NUMBER

APPENDIX B  
INSTITUTIONAL REVIEW BOARD FORM

Oklahoma State University Institutional Review Board

Date: Tuesday, July 17, 2007 Protocol Expires: 7/16/2008  
IRB Application No: H06880  
Proposal Title: Development of a Social Marketing Campaign for Obesity Prevention in  
Native Americans

Reviewed and  
Processed by: Ernest  
Conkington

Status Recommended by Reviewers: Approved

Principal  
Investigator(s):

Stephany Paule Tony Hunter  
418 HES PO Box 2681  
Stillwater, OK 74078 Stillwater, OK 74078

Approvals are valid for one calendar year, with each time a request for continuation must be submitted. Any modification to any aspect of protocol approved by the IRB must be submitted for approval with the sponsor's signature. The IRB office MUST be notified in writing when a project is complete. Approved projects are subject to monitoring by the IRB. Expedited and exempt projects may be reviewed by the full Institutional Review Board.

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.

Signature:

  
Sue C. Jacobs, Chair, Institutional Review Board

Tuesday, July 17, 2007  
Date

APPENDIX C  
CONSENT FORM

**CONSENT TO PARTICIPATE IN A RESEARCH STUDY  
OKLAHOMA STATE UNIVERSITY**

**PROJECT TITLE:** Development of a Social Marketing Campaign for the Nation

**INVESTIGATORS:** Stephany Parker, Assistant Professor, Department of Nutritional Sciences, Oklahoma State University

**PURPOSE:**

This study is being conducted through Oklahoma State University. The purpose is to learn from you what you think about health and nutrition so we can develop a nutrition education program appropriate for Native Americans.

**PROCEDURES:**

The project involves completion of a one page information sheet and participation in a focus group. You will complete a one page information sheet about your family. Next, you will participate in a focus group discussion about you and your family's view of health and nutrition issues. Focus groups are composed of a small number of subjects who are asked an organized set of questions in a consistent manner. The participant information sheet and focus group procedures will take approximately 1 hour.

**RISKS OF PARTICIPATION:**

There are no risks associated with this project, including stress, psychological, social, physical, or legal risk which are greater, considering probability and magnitude, than those ordinarily encountered in daily life. If, however, you begin to experience discomfort or stress in this project, you may end your participation at any time.

**BENEFITS OF PARTICIPATION:**

You may gain an appreciation and understanding of how others like you make health and nutritional decisions.

**CONFIDENTIALITY:**

All information about you will be kept confidential and will not be released. Questionnaires and record forms will have your name cut from the forms. The sign in sheet which has your name and phone number on it will be kept so that you can be contacted in the future to determine whether our impressions of what took place in the focus group were accurate. All information will be kept in a file cabinet that is accessible only to the researchers and their assistants. This information will be saved as long as it is useful; typically, such information is kept for five years after publication of the results. Results from this study may be presented at professional meetings or in publications. You will not be identified individually; we will be looking at the group as a whole.

**COMPENSATION:**

You will receive 20 dollars for your participation. You must complete the information sheet **and** the focus group to receive the 20 dollars.



**CONTACTS:**

I understand that I may contact any of the researchers at the following addresses and phone numbers, should I desire to discuss my participation in the study and/or request information about the results of the study: Stephany Parker, Ph.D., Dept. of Nutritional Sciences, Oklahoma State University, Stillwater, OK 74078, (405) 744-6821. I may also contact Sue Jacobs, Ph.D., Institutional Review Board, 415 Whitehurst, Oklahoma State University, Stillwater, OK 74078, (405) 744-1676 with any questions concerning participant's rights.

**PARTICIPANT RIGHTS:**

I understand that my participation is voluntary, that there is no penalty for refusal to participate, and that I am free to withdraw my consent and participation in this project at any time, without penalty

**CONSENT DOCUMENTATION:**

I have been fully informed about the procedures listed here. I am aware of what I will be asked to do and the benefits of my participation. I also understand the following statements:

I affirm that I am 18 years of age or older.

I have read and fully understand this consent form. I sign it freely and voluntarily. A copy of this form will be given to me. I hereby give permission for my participation in the study.

\_\_\_\_\_  
Signature of Participant

\_\_\_\_\_  
Date

I certify that I have personally explained this document before requesting that the participant sign it.

\_\_\_\_\_  
Signature of Researcher (or authorized representative)

\_\_\_\_\_  
Date

APPENDIX D  
DEMOGRAPHIC FORM

<b>Information in grey to be filled in by Nutrition Specialist</b>		
<b>Focus group date:</b>		
<b>Focus group time:</b>		
<b>Focus group location:</b>		
<b>Date:</b>	<b>County of residence:</b>	
<b>Age (In years):</b>		
<b>Sex (Circle one): Female          Male</b>		
<b>Public Assistance Family Participates in</b>		
<p>Mark <i>all</i> that apply.</p> <p><input type="checkbox"/> WIC</p> <p><input type="checkbox"/> Food Stamps</p> <p><input type="checkbox"/> Commodities</p> <p><input type="checkbox"/> TEFAP (The Emergency Food Assistance Program)</p> <p><input type="checkbox"/> Head Start</p> <p><input type="checkbox"/> Child Nutrition (Reduced/Free School lunch/breakfast)</p> <p><input type="checkbox"/> TANF (temporary assistance to needy families)</p> <p><b>Other (Specify) _____</b></p>		
<b>Number of Individual living in your household (<i>include yourself</i>)</b>		
_____		
<b>List age of each member below. <i>Do not include your age here.</i></b>		
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
<b>Your weight:</b>	<b>Your height:</b>	

APPENDIX E  
SEMI-STRUCTURED SCRIPT FOR FOCUS GROUPS

## **Beginning the Focus Group Discussion**

The first few moments in focus group discussion are critical. In a brief time the moderator must create a thoughtful, permissive atmosphere, provide the ground rules and set the tone of the discussion. Much of the success of group interviewing can be attributed to the development of this open environment.

The recommended pattern for introducing the group discussion includes: (1) The welcome, (2) The overview and topic, (3) The ground rules and (4) The first question. Here is an example of a typical introduction:

*Good afternoon/evening and welcome to our session tonight/today. Thank you for taking the time to join our discussion of nutrition services. My name is **your name** and I represent the Nation. Assisting me is \_\_\_\_\_, also from the Nation. We want to learn about what you think of some issues affecting the health and nutrition of Native Americans in your community.*

*We have invited people who are eligible to participate in the Program to share their ideas.*

*There are no right or wrong answers we just want your opinions. Please feel free to share your point of view even if it is different from what others have said.*

*Before we begin, let me tell you a little about how a focus group works. Only one person should talk at a time, but we will not go in any specific order. We're tape-recording the session because we don't want to miss any of your comments. You may be assured of complete confidentiality.*

*Our session will last about an hour and a half to two hours. Well, let's begin. Let's find out some more about each other by going around the room one at a time. Tell us your name and where you live.*

*Now let's talk a little bit about thing you and your family do for fun.*

1. What do you and your family do for fun?
2. Do you think you and your family get enough physical activity?
  - For those who answered yes, what are some reasons that you feel you do get enough physical activity?
  - Now let's talk with those who do not feel that you and your family get enough physical activity. What are some reasons that you feel you do not get enough physical activity?
3. What physical activities would you be willing to do with your family?
  - 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.**

4. Tell me any major concerns you may have about the health of Native Americans?
5. What would you like your children to know about health?
6. What does it take for a Native American family to be healthy?
  - What if anything would you like to change about your family's health?
  - How do you think you could make those changes?
7. How would you describe the body weight of most Native American adults who you know?
8. Some Native American adults have tried to lose weight, why do you think they want to lose weight?
9. Some Native Americans are overweight but have not tried to lose weight. Why do you think they have not tried?
10. What do you think about the weight of most Native American children you know?
  - Do you think anything needs to be done about the body weight of Native American kids?
    - What do you think needs to be done?
      - How can this be done?

*Now let's talk a little about fruits and vegetables.*

11. What are your family's favorite fruits and vegetables?
12. Do you think that you and your family eat enough fruits and vegetables?

- For those of you who feel you get enough, what are some reasons you are able to get enough?
  - For those of you who do not feel you get enough fruits and vegetables, what are some reasons you are able to get enough?
13. What needs to be done to make it easier for you and your family to eat more fruits and vegetables?
14. Where do you get the fruits and vegetables that you and your family eat?
- How do you decide where you will go to get them?
  - What do you think about buying fruits and vegetables at farmers markets?
15. Are there any Native American events or occasions when you would say your family eats more vegetables and fruits?
- What are some events where you and your family might eat more fruits or vegetables?
  - Tell us about some of the foods you would eat at these events.
16. Tell me about any fruits or vegetables that you might describe as being Native American fruits or vegetables.

**Now, let's talk about how we can improve health. For these questions, I want you to think big. You can dream about what you would like to happen in the community and tell us about that.**

17. What do you think needs to be done to improve the health of Native Americans?
- How can this be done?
18. Tell us about any people who you think could have an influence on improving the health of Native Americans?
- What could they do to help improve health?
19. Who do you think Native American children will listen to?
- Why would they listen to this person?
20. What would be fun ways for Native Americans families to learn about nutrition and health information?
21. Where would be the best place for you and your family to get information about nutrition and health?
- Would you be willing to take your family to this place?
  - What time would be best to offer programs? Think about the time of day and the time of year.

*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?*

*Great. I appreciate everyone coming and sharing your opinions. As a special thank you we have .....*



APPENDIX F

DRAFT OF SCRIPT FOR FOCUS GROUPS

DRAFT

**PD=Product.** For the purposes of this assessment, the products being explored are health, body weight, physical activity and consumption of fruits and vegetables.

**PC=Price.** For this assessment, price is defined as perceived benefits(PCB) and barriers(PCBR) to the adoption of the products being explored.

**PM=Promotion .** For this assessment, promotion is defined as how we create demand for the products being explored.

**PL=Place.** For this assessment, place is defined as the channels and physical locations for promotion of the products being explored.

### **General Health Questions**

Some people are concerned about the health of Indians in your community. Is this a concern of yours? (PD)

If so, what are your major concerns about health? (PD)

If not, why do you think it is not an issue?

What do you think Indians need to know about health? (PD) What would you like your children to know about health? (PD)

How can a person be healthy? (PD)

Who or what influences your health decisions? (PM)

What if anything would you like to change about your health? (PD)

How can a family be healthy? (PD)

How important is the health of your family? (PD)

What if anything would you like to change about your family's health? (PD)

If you were to make a change in health would you rather make a change yourself or would you rather make a change for the whole family? (PD, PM)

### **Body Questions**

What do you think about the body weight of adult Indians?(PD)

Some people have said that Indians adults are too heavy and need to lose weight.

What are your thoughts on this? (PD)

Some Indians have tried to lose weight, why do you think they want to lose weight? (PC)

Have you ever tried to lose weight?

What are reasons that you (have) (haven't) tried to lose weight? (PC)

Some Indians have tried to lose weight but could not. Why do you think they couldn't lose the weight? (PCBR)

Have you ever tried to lose weight but could not? (PC)  
What are some reasons you were not able to lose weight? (PCBR)

What do you think about the weight of Native American children? (PD)

Some people have said that Indian kids are too heavy and will get diabetes. What do you think about this? (PD)

Do you think anything needs to be done about the body weight of NA kids? (PD) What do you think needs to be done? (PM) How can this be done? (PM)

### **Fruits and Vegetables**

Some people have said that Indians don't eat enough fruits and vegetable. (PD)  
What do you think about this?

How important is it for you to eat fruits and vegetables? (PD)  
What are some reasons it is or is not important? (PC)

How important is it for your children to eat fruits and vegetables. (PD)  
What are some reasons it is or is not important? (PC)

What are your family's favorite fruits and vegetables? (PD, PM)  
Do you think that you and your family eat enough fruits and vegetables? (PD)  
What are some reasons you do or do not? (PC)  
What would make it easier for you and your family to eat more fruits and vegetables? (PM)

Where do you get the fruits and vegetables that you and your family eat? (PL)  
How do you decide where you will go to get them? (PM)  
What do you think about the farmers markets and community gardens if available? (PM)

Are there any times when you would say your family eats more or less vegetables and fruits? (PM)  
When do you find that you eat the most fruits or vegetables?  
When would you say you eat the least fruits and vegetables?

### **Physical Activity**

What do you and your family do for fun? Or what types of activities do you and your family enjoy? (PD)

Some people have said that Indians do not get enough physical activity. What do you think about this?(PD)

Do you think you and your family get enough physical activity? What are some reasons that you do or do not? (PC) What physical activities would you like to do but do not? (PD)

### **Community**

What should be done in your community to improve health? (PM)

Who are important people in your community? (PM) Why are they important?

Who do you think children will listen to in your community? (PM) Why would they listen to ....?

How would you like to learn about nutrition and health information? (PM)

What would be a fun way to learn about nutrition and health information? (PM)

Where would be the best place for you and your family to get information about nutrition and health?(PL)

APPENDIX G  
ANALYSIS FORM

Focus Group # \_\_\_\_\_ Focus Group

Date: \_\_\_\_\_

<b>Target Population 1</b>	<b>Product/ Behavior</b>	<b>Notable quotes</b>
<b>Native American families</b>		

<b>Product/ Behavior 1</b>	<b>Price/Barriers</b>	<b>Notable quotes</b>

<b>Product/ Behavior 1</b>	<b>Price/Benefits</b>	<b>Notable quotes</b>

<b>Product/ Behavior 1</b>	<b>Promotion</b>	<b>Notable quotes</b>

<b>Product/ Behavior 1</b>	<b>Place</b>	<b>Notable quotes</b>

VITA

Toma Jude Hunter

Candidate for the Degree of

Master of Science

Thesis: UNDERSTANDING HEALTH AND NUTRITION PERSPECTIVES OF NATIVE AMERICAN WOMEN ELIGIBLE TO RECEIVE COMMODITY FOODS USING SOCIAL MARKETING PRINCIPLES

Major Field: Nutritional Sciences

Biographical:

Education: Graduated from Pawnee High School, Pawnee, Oklahoma in May 2000; received Bachelor of Sciences degree in Nutritional Sciences from Oklahoma State University, Stillwater, Oklahoma in July 2005. Completed the requirements for the Master of Science degree with a major in Nutritional Sciences at Oklahoma State University in May 2009.

Experience: Student Intern for Iowa Nation Youth Diabetes Prevention Camp from October 2003 through June 2004; Student Intern for Pawnee Nation Child Wellness Camp from November 2004 to May 2005; Completed the Dietetic Internship at Oklahoma State University in July 2006; Employed by Pawnee Indian Health Service as a Student Extern from June 2006 to August 2006; Employed by Oklahoma State University, Department of Nutritional Sciences as a Social Behavioral Researcher from September 2006 to September 2007; Employed by Seminole Tribe of Florida Health Clinic as a Nutritionist from October 2007 to present.

Name: Toma Jude Hunter

Date of Degree: May, 2009

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: UNDERSTANDING HEALTH AND NUTRITION PERSPECTIVES OF  
NATIVE AMERICAN WOMEN ELIGIBLE TO RECEIVE COMMODITY FOODS USING  
SOCIAL MARKETING PRINCIPLES

Pages in Study: 111

Candidate for the Degree of Master of Science

Major Field: Nutritional Sciences

Scope and Method of Study: This study explored health perceptions of 43 Native American women aged 20-78 years eligible to receive food stamp or commodity food benefits. Twelve focus groups were conducted and verbatim transcripts were analyzed to identify common themes framed using social marketing principles.

Findings and Conclusions: The major theme identified for health product was diabetes prevention. Participants indicated a preference for interactive education with an intergenerational focus when promoting health information. Participants identified specific locations within the tribal community for program implementation. Price for lack of attention to Native American values when designing health programs is lack of adherence to advice from health professionals. Findings emphasize the need to attend to Native American culture when developing health programs. Results can be used to develop and test health messages specific to Native Americans in the Indian Nation within the specified jurisdictional territory under study. Findings indicate social marketing principles should be utilized prior to developing interventions to address health concerns specific to Native American populations.

ADVISER'S APPROVAL: Dr. Stephany Parker