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American Indians' Perceptions of Obesity and Its Effects on Healthy Lifestyles

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This is to certify that the doctoral dissertation by

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Walden University
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Abstract

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Abstract

A disproportionate number of American Indians are overweight or obese and have a higher risk of other health concerns compared to the general United States population. Researchers conducting anthropometric studies have found that American Indians have higher body mass indices and worse health than most of the general United States population. There is, however, a gap in the literature regarding American Indians' perceptions, beliefs, opinions, and attitudes of obesity and its effects on their health. The purpose of this qualitative study was to determine whether American Indians view obesity as a major health concern. Focus groups and key-informant interviews were the instruments used to obtain this information. The study sample consisted of 30 participants from a local American Indian reservation. Data was coded manually using in vivo coding and focused coding, frequency counts, and cluster coding to generate themes. Results conveyed that participants did not consider obesity as a major concern on the reservation. Issues like the presence of poverty, drugs, and alcohol, combined with the absence of community leadership, community support, and parental education were more of a concern to the study participants. Participants were also concerned with culture and identity changes. This study contributed to positive social change by identifying perceptions put forth by participants regarding obesity and its accompanying risk factors. This study contributed to the missing knowledge of culture-specific perceptions regarding obesity. Study findings about risk factors for obesity among the study population may help public health practitioners create effective public health prevention programs, which may help to slow the decline in American Indian health.

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Dedication

First and foremost, I thank God for the strength, endurance, patience, and perseverance to push forward and complete this journey. I would not be here without Him.

Second, to my parents, Bruce A. and Cheryl K. Foster, this is for you. I hope I have made you proud. I am so blessed to have parents like you. Your unconditional love, support, prayers, and understanding have helped me to push through. I know I do not say it enough but know that I love you more than you will ever know.

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Chapter 1: Introduction to the Study

Introduction

Between the years 2011-2014, more than one-third (36.5%) of adults (roughly 78 million people) in the United States were considered obese (Center for Disease Control and Prevention [CDC], 2016b; Ogden, Carroll, Fryar, & Flegal, 2015; Ogden, Carroll, Kit, & Flegal, 2012). By 2030, experts project that this number will increase to 51% (Finkelstein et al., 2012; Ogden, Carroll, Kit, & Flegal, 2014; Ruhm, 2007). Researchers have also found that minority groups in the United States, especially American Indians, have a higher prevalence of obesity than the general population (Buijsse, Simmons, Griffin, & Schulze, 2011; Cowie et al., 2009; Grundy, 2006; Howard et al., 2006). Even though data is limited on American Indians, researchers view obesity as a significant problem within this population (Curran et al., 2005; Schulz et al., 2006; Wetly, 1991).

Among smaller populations, many of the risk factors contributing to obesity may be unknown. In this study, the researcher investigated possible risk factors for obesity and whether obesity is an identifiable concern among study participants. The researcher identified participants' perceptions, attitudes, beliefs, and opinions regarding obesity and whether obesity is an identifiable concern among study participants. This information may help inform population-based prevention efforts designed to combat obesity on this reservation. Due to the protection of participants' identity and the identity of the reservation, the researcher does not use any information that would potentially recognize the study population. This agreement is in accordance with the tribal research permission granting agency's policies of the reservation under study.

In this chapter, the researcher introduces the topic of the study and provides an overview of the study. After presenting the problem statement, the researcher discusses the purpose and nature of the study followed by the research questions. The conceptual framework for the study and key definitions are then presented followed by a discussion of the assumptions, scope and delimitations, and limitations of the study. The researcher then considers how the study may further existing knowledge on obesity risk factors and potentially result in positive social change. The researcher concludes the chapter with a summary of key points.

Background of the Study

That obesity is now considered not only an epidemic but a disease because of its detrimental effect on health and overall quality of life confirms that it is a major public health concern in the 21st century (CDC, 2013b; Flegal, Carroll, Kit, & Ogden, 2012). One in five adult deaths in the United States is now attributed to being overweight or obese; this is a much larger number than previously reported (Masters et al., 2013). Within the past three to four decades the prevalence of obesity has more than doubled (CDC, 2016a; Halpern, 2007; Go et al., 2013). While the occurrence of obesity is exponentially increasing in the general United States population, there is a disproportionately higher incidence of it among minorities, especially American Indians (CDC, 2016c). Researchers and clinicians normally obtain obesity estimates from the National Health and Nutrition Examination Surveys (NHANES), which is an annual survey conducted by the CDC to monitor the health of individuals in the United States (CDC, 2017). However, these surveys do not include American Indians living on

reservations (CDC, 2017a Story et al., 2003). Because of this, estimates of obesity among American Indians may not be complete or accurate (Story et al., 2003).

According to researchers, American Indians did not have a high prevalence of obesity until the last half of the 20th century (Story et al., 1999). During the 1980s, strong efforts were made by health professionals to obtain more knowledge about American Indians' overall health (Welty et al., 1995). Results of this research showed that American Indians had a higher prevalence of obesity compared to all other ethnic groups in the United States (Lee et al., 1995; Welty et al., 1995). More recent research is consistent with these findings. According to the 2011 and 2012 National Health Interview Survey, which is an annual cross-sectional survey that provides estimates of a variety of health concerns among United States citizens, 42.3% of American Indians over the age of 18 years are considered obese, compared to 28% of non-Hispanic Whites and 36% of non-Hispanic Blacks (Blackwell, Lucas, & Clarke, 2014; Schiller, Lucas, & Peregoy, 2012). According to Schiller et al. (2012), American Indians are 1.6 times more likely to be diagnosed with obesity compared to other ethnic groups in the United States. The reasoning for the disparity in obesity rates is not quite understood because obesity is very complex and can be influenced by many factors including lack of physical activity, poor eating habits, technology, genetics, gender, age, alcohol and tobacco use, socioeconomic status (SES), and the environment (Mead, 2008; Morland, Diez, & Wing, 2006).

Although there is no specific reason why obesity is so high among American Indians, experts have attributed the increase to several factors. These include the

increased availability of commodity foods and limited access to supermarkets and fresh foods on reservations, the proliferation of fast food restaurants and gas stations on reservations, increased food intake and a rise in sedentary lifestyles, and income levels that reach near-poverty or below-poverty levels (Gittelsohn & Rowan, 2011; Larson, Story, & Nelson, 2009; Mead, 2008; Morland, Diez, & Wing, 2006; Popkin, Duffey, & Gordon-Larsen, 2005; Welty, 1991).

Because of the high prevalence of obesity among American Indian populations, public health professionals are trying to create cultural programs that address obesity in a way that encompasses all factors that may influence it (Kersh & Morone, 2002). Although Broussard et al. (1995) suggested that American Indians may have a genetic trait that predisposes them to obesity, other researchers offer different reasons. Pine (1984), for example, suggested that losing family unity and traditions could also affect the likelihood of becoming obese among American Indians. Additionally, Schulz et al. (2006) found that, regardless of full heritage, people living in environments where traditions are not followed have a higher prevalence of obesity compared to those living in environments in which cultural customs are followed. Some researchers have also shown that overall health, family connection, immediate needs, and happiness are more important than physical activity or nutrition to American Indians (Adams, Harvey, & Brown, 2008).

Some culture-specific prevention programs have been successful in alleviating obesity in American Indians. In 2006, the Indian Health Service (IHS) identified five diabetes/obesity prevention programs as being successful. They were

- the Trimdown Program in Albuquerque, New Mexico (a 6-week intervention that focused on incorporating better nutrition and physical activity choices into daily living),
- the Lifestyle Balance Program in Gallup, New Mexico (a 22-week inclusive program that focused on diabetes mellitus (DM) prevention curriculum where participants met weekly with a coach to discuss problem identification, problem solving, and tools for positive thinking),
- the Lionel R. John Health Center's Seneca Health Trail Blazers in New York (a program which offered weekly support sessions to participants managing DM),
- the Red Lake Band of Chippewa Indians' Weight Management Program in Minnesota (a community-based program that met biweekly for 6-8 weeks and had lifestyle change and group support as its focus), and
- the Fresno Native American Health Centers' Greatest Loser Program in Fresno, California (a 10-week program that focused on behavior modification along with spiritual and mental health approaches for Native Americans who live in an urban setting; IHS, 2006).

There is evidence that programs such as these, in which healthy nutrition and increased physical activity are emphasized and cultural norms and culturally-specific behaviors are recognized, can lead to a decrease in health issues among participants (Baum & Posluszny, 1999; Daniels, 2006). There is, however, a gap in the literature of personal views American Indians have on obesity and its relation to unhealthy lifestyles. This

study was needed to help fill that gap based on conversations with American Indians in which they could provide their personal perceptions and opinions regarding obesity.

Problem Statement

According to the CDC (2016c), 42.3% of American Indians over the age of 18 years are obese, which is 1.6 times higher than that of non-Hispanic Whites. Because national health and nutrition surveys do not often include American Indians, the actual prevalence of obesity experienced by this group may not be known (Broussard et al., 1991; Story et al., 2003). American Indians, compared to other ethnic groups in the United States, have a higher risk of other health conditions such as hypertension, DM, asthma, cancer, and cardiovascular disease (CVD), which is the leading cause of death among this population (Kochanek, Xu, Murphy, Miniño, & Kung, 2011).

Experts view obesity as a key contributor to these diseases (Hurt, R. T., Kulisek, C., Buchanan, L. A., & McClave, S. A. (2010). For this reason and because American Indians are at a higher risk for obesity, it is important to examine the phenomenon of obesity in this population. Because the exact cause of obesity is unclear and very complex, public health professionals and others have concluded that there is not one specific factor that causes this disease. Instead, they have concluded that obesity is influenced by a combination of biological, behavioral, and environmental elements (Cohen, Finch, Bower, & Sastry, 2006).

Quantitative researchers have studied behavioral factors associated with obesity among other United States minority group but there is a lack of research on culture-specific factors related to obesity perceptions, attitudes, beliefs, and opinions among

American Indians. The purpose of this study was to fill this gap in the literature by conducting a qualitative study in which the focus was on the perceptions that American Indians have regarding obesity and its corresponding influences on a healthy lifestyle. Because there is little research on personal beliefs surrounding obesity, the researcher aimed to contribute new knowledge that can be used to develop health education and promotion programs.

Purpose of the Study

The purpose of this qualitative study was to identify perceptions, beliefs, opinions, and attitudes about obesity and its effects on a healthy lifestyle among an American Indian community. Quantitative researchers have found that obesity is rising among American Indians (see Story et al., 1999; Story et al., 2003). However, these researchers have not fully captured the personal insight that this population may have on obesity. To address this gap in research, principles of ethnographic research and community participatory strategies were applied to determine culture-specific interpretations of obesity among this study population. The researcher also wanted to determine whether the members of this study population were concerned that obesity affects their overall health.

Research Questions

The research questions that were used to guide this study are:

RQ1. How do American Indians perceive a healthy weight or body mass index?

RQ2. How do American Indians perceive being overweight or obese?

RQ3. How do American Indians perceive obesity as an influence, if any, on healthy lifestyles?

RQ4. How do culturally-driven beliefs contribute to behaviors that relate to being overweight or obese?

Conceptual Framework

This investigative researcher used a social ecological perspective to examine obesity perceptions, attitudes, beliefs, and opinions and their relation to possible behavioral influences among a local group of American Indians. The social ecological model (SEM) identifies not only individuals' views and experiences but also incorporates the influences that their surroundings may have on them throughout their development (Kazak, 1989). In the 1970s, Urie Bronfenbrenner introduced his ecological model in reaction to limited research that was being conducted, at that time, by developmental psychologists regarding children. He hypothesized that the whole ecological system should be considered when trying to understand human development (Bronfenbrenner, 1994). Since then, the SEM has become a distinct model, which has been used in studies on disease prevention, health promotion, and public health and applied to a variety of disciplines including biology, education, and sociology (Richards, Gauvin, & Raine, 2011). Because it entails considering all possible factors at a broader level and not just at the individual level, applying the SEM could offer insight into many public health concerns, including obesity (Baranowski et al., 2003). A further explanation of this theory is discussed in detail in Chapter 2.

In this study, the SEM was used to examine obesity holistically, not just anthropometrically, by exploring personal perceptions about obesity at a variety of levels to see what factors, if any, influenced participants' obesity perceptions. There is a need for further research on the topic of obesity, especially on individual opinions. This unique approach helped identify possible influences, barriers, and cultural factors that may be associated with obesity. Identifying these perceptions from American Indian people themselves is a first step in addressing the obesity issue. The SEM acknowledges the relationship between an individual's health and their external environment and promotes collaboration among disciplines in developing culture-specific strategies that will endorse healthy lifestyles.

Nature of the Study

The intent of this study was to understand personal perceptions, attitudes, beliefs, and opinions related to obesity and its effect on healthy lifestyles among the people of a Northern Great Plains reservation. The nature of this study was qualitative with an ethnographic emphasis. Qualitative research is consistent with offering an understanding of how American Indians perceive health and wellness as well as obesity and overweight. An ethnographic approach also better revealed people's perceptions of their health, attitudes, and behaviors associated with healthy living, which is the primary focus of this research. Focus groups and key-informant interviews were conducted among members of the reservation. The methodology used for this study is discussed in detail in Chapter 3.

Definitions

For this study, certain terms and definitions were used in order to identify themes and issues pertinent to this investigation. These terms and definitions include:

American Indian: People with origins that can be traced to the original inhabitants from North, Central, and South America excluding the Inuit, Aleut, and Eskimo people (Humes, Jones, & Ramirez, 2011; Office of Management and Budget, n.d.).

Attitudes: Personal beliefs, feelings, or behavioral inclinations towards a specific object, group, event, or symbol (Hogg & Vaughan, 2005).

Belief: A personal opinion or idea that is thought to be true (Baker, 1988).

Bias: A personal outlook or perspective on a topic with an unwillingness to consider alternative points of view (Wilcox, 2011).

Body mass index (BMI): A way to measure a person's body fat based on height and weight (Himes, 1991; National Heart, Lung, and Blood Institute [NHLBI], 1998; World Health Organization [WHO], 1995)

Chronic disease: A recurring health concern that is persistent and lasts months or years instead of days or weeks (Thrall, 2005).

Coding: An interpretive technique used in qualitative research in which the researcher organizes and sorts data, often giving segments of data a code to summarize what is happening within the data (Saldaña, 2013).

Culture: A commonality among a societal group in behaviors, beliefs, languages, actions, and customs (Wolcott, 1987).

Ethnography: A scientific approach to identifying and analyzing social and cultural meanings in various settings (Schensul, Schensul, & LeCompte, 1999).

Fieldwork: The process of gathering desired information through observations, interviews, and other materials in order to create a portrait of the culture-sharing group (Hammersley & Atkinson, 1995).

Focus groups: A relaxed discussion among a group of people on a specific topic (Wilkinson, 2004).

Key informants: People who provide personal insight on a topic and also assist the researcher in finding further information and other useful contacts (Creswell, 1998).

Obese: An extremely excessive amount of weight in relation to height compared to a standard of healthy weight, BMI of 30.0 kg/m^2 or above (CDC, 2016a).

Obesity: A medical condition in which the addition of body fat leads to a negative effect on life and, possibly, reduced life expectancy (Haslam & James, 2005).

Overweight: An increased weight in relation to height when compared to a standard of healthy weight in which BMI is 25.0-29.9 kg/m^2 (CDC, 2016a).

Potential transferability: The ability to apply results from one type of research method to another situation (Bridges, 1993).

Qualitative research: An approach to data inquiry in which a researcher tells a story by capturing and communicating personal experiences in a natural setting (Patton, 2002).

Social change: A substantial change in behavior patterns and cultural values/norms over time (Haferkamp & Smelser, 1992).

Social ecological model: An approach to studying the relationship between a human and the surroundings in which he or she lives and is involved in (Kazak, 1989).

Theme: A clear common idea that is central to a story (Kirszner & Mandell, 1994).

Assumptions

The researcher assumed that for this study, participants' willingness to volunteer would not bias results and that all answers provided would be honest, truthful, and to the best of their knowledge. Also, the researcher assumed that participants would not intentionally mislead the researcher. Thirdly, the researcher assumed that valuable and useful information would be obtained by asking/recording simple but important questions regarding obesity from a culture that is disproportionately affected by this chronic disease. With this information, the researcher assumed that there would be a better understanding of personal perceptions of obesity that in turn could lead to more cultural-appropriate interventions and prevention programs.

Scope and Delimitations

The scope of this study was limited to a reservation setting in the Northern Great Plains region of the United States. The study population and sample included males and females 18 years and older who were of American Indian heritage and a member of the reservation. Other ethnic groups were excluded from this study because the researcher was specifically interested in American Indian adults on the reservation. Youth under 18 years were excluded from this study because extensive research is being done elsewhere on childhood obesity in the general United States population and among American

Indians (Franks et al., 2010; Ogden et al., 2010; Styne, 2010). Other ethnic groups were also excluded because they have a better representation on national surveys, like the NHANES, whereas American Indians do not. Because ethnography was used for this study, potential transferability of results to similar groups or situations is possible due to the detailed and specific nature of this approach, even though the results are not generalizable based on one population.

Limitations

There were four distinct limitations to this study. First, qualitative research in general has limitations. Unlike quantitative research, qualitative research uses the researcher as the instrument of data collection, which can be easily influenced by individual opinions that could lead to bias within the data collection process (Creswell, 2007). Because the researcher is the instrument of data collection, participants could be uncomfortable or intimidated by the presence of the researcher, which could skew the true feelings the participants may exhibit (Anderson, 2010). Secondly, qualitative research, in general, is more time consuming and rigorous, which could affect the outcome of the study if the researcher has not planned accordingly. Third, the general nature of focus groups and key-informant interviews could potentially introduce recall bias, which is a type of error that occurs when a participant recalls an event from the past that may not be accurate (Hassan, 2006). Lastly, generalizability of the findings is limited because this study was not conducted randomly and was conducted on a specific population of American Indians in a remote setting.

To address these limitations, efforts were made by the researcher to provide a pleasant atmosphere and attitude while conducting the focus groups and key-informant interviews. The researcher was respectful towards participants' willingness or unwillingness to answer questions, was completely honest with participants, and kept an open-mind during data collection to avoid personal bias. The researcher also fully complied with the tribal research review board checklist that guides any research that is conducted on the reservation, which will be discussed in further detail in Chapter 3.

Significance of the Study

This study was significant for several reasons. Obesity research among American Indian populations is significant to the health of those who are enduring the effects of obesity. This research also provides information to local health care and government health agencies that serve this population. This study was significant because participants identified possible behavioral risk factors that are associated with other health conditions that typically accompany obesity. This study's findings also provided key information to clinicians, counselors, public health professionals, and other health care advocates in developing proper intervention strategies for weight control and healthy behaviors among American Indians. Also, this study allowed American Indian adults the opportunity to communicate their own personal views on obesity. Lastly, this study was significant because this information obtained contributed to positive social change among this population, as described below.

This study contributed to positive social change by identifying barriers, concerns, and perceptions put forth by adult American Indians regarding obesity and its

accompanying risk factors. By identifying these factors, a further decline in American Indian health could be avoided or at least managed to create effective public health prevention programs (Dornhorst & Merrin; 1994). Based on the findings from this study, agencies from all disciplines that provide American Indians with care have key information for educating community members, staff, and employees on how to improve quality of care, in general, for American Indians. Because obesity can lead to poor quality of life, it is important that this public health epidemic be addressed. Also, the social change implications from this research further provided knowledge and helped fill the gap regarding obesity among American Indians. This information aided in reducing any negative idiosyncrasies so others can understand that obesity is not a health concern that people can simply get rid of. Obesity is easily influenced by many factors including, but not limited to cognitive decision-making, genetics, culture, access to resources, and behaviors.

Summary

In this chapter, the researcher introduced the topic of obesity and how it has become a serious health challenge in the United States and among American Indians. Following this introduction was background information about obesity where a brief discussion of past studies was undertaken by the researcher. Next, the researcher discussed the problem statement, study purpose, nature of the study, and research questions this study addressed as to why obesity in American Indians should be and is considered a problem. Next, the conceptual framework that guided this study was discussed by the researcher followed by a list of operational terms with their

corresponding definitions. The researcher concluded the chapter with the assumptions, scope, and limitations of the study, study significance, and social change implications. Chapters 2 and 3 discuss the literature related to this study's topic along with the methodology chosen for this study, respectively.

Chapter 2 provides a review of the literature associated with obesity for both the general United States population and for American Indians. Topics also discussed in Chapter 2 include what obesity is, how obesity is defined, how obesity is measured, recent prevalence of obesity, how costly obesity is becoming, and how much of a public health challenge obesity is. The researcher concluded Chapter 2 with a series of possible influences on obesity, chronic diseases that are related to obesity, how obesity is affecting American Indians, what approaches are being undertaken to combat obesity, and lastly the conceptual framework that guided this study. Chapter 3 reviews the study methodology and includes the research design, research questions, study sample, procedures, instrumentations, forms of data collections, data analysis, and concludes with a discussion of protecting the participants.

Chapter 2: Literature Review

Introduction

Chapter 2 provides readers with an in-depth understanding of obesity and its impact on American Indians, with a focus on a reservation in the Northern Great Plains region of the United States. The analysis includes an exploration participants' opinions, beliefs, perceptions, and attitudes towards obesity.

The researcher begins this chapter discussing the literature search strategy and management of literature. This is followed by an introduction to obesity, how it has changed over the past four decades, and how it is now considered a public health epidemic. Next is a section in which the researcher discusses potential influences on obesity including biological, behavioral, and environmental factors. Chronic diseases, like DM, hypertension, CVD, cancer, and asthma, are also discussed in relation to obesity. The researcher continues with an overview of how American Indians are affected by obesity. Public health approaches at the national level and for American Indians are also examined. The researcher also provides more information on the conceptual framework used to guide this investigation. The researcher concludes the chapter with a summary of key points.

Literature Search Strategy

The literature search strategy used by the researcher was directed towards, but not limited to, American Indian opinions, beliefs, perceptions, and attitudes towards obesity, studies that focused on non-American Indian cultures and minorities, and epidemiological research pertaining to obesity. Related articles and data were found

using Thoreau database from Walden University. The researcher also used several search engines and organization websites including the Centers for Disease Control and Prevention (CDC), Google, Google Scholar, National Institute of Health (NIH), National Center for Health Statistics (NCHS), United States Department of Agriculture, Institute of Medicine, United States Health and Human Services, World Health Organization (WHO), and Mayo Clinic. Keywords such as *obesity*, *overweight*, *obese healthy weight*, *healthy lifestyle*, *hypertension*, *diabetes*, *cardiovascular disease*, *Native Americans*, *American Indians*, *childhood*, *adulthood*, *perceptions about healthy weight*, *beliefs*, *attitudes*, *body mass index (BMI)*, *body image*, *physical activity*, *public health approaches related to overweight*, and *community based health interventions* were used in combination or singularly during research searches. The search criteria included studies written in English with no limit on publication years. To manage the literature, the researcher grouped articles into the following topics: (a) explanations and definitions of obesity, (b) influential factors on obesity, (c) culture and obesity, (d) chronic diseases, (e) obesity and American Indians, (f) the reservation, (g) public health approaches related to obesity, and (h) theory.

Conceptual Framework: The Social Ecological Model

A theory is considered a precise, clear picture used to explain why and how certain relationships lead to certain outcomes (Wacker, 1998). Considered the "cornerstone of scientific endeavours" (p. 564), theories are used to allow a researcher to ask a specific question, propose possible answers to that question (hypotheses), create and conduct a study to test those possible answers, discuss the outcomes of the study, and

use those outcomes to create and implement further inquiry (Carpiano & Daley, 2005). Though underestimated by many, theory has a crucial role in research. Theory helps guide research, but the two are reliant on each other to help understand why certain outcomes are the way they are. Without a solid theoretical framework, the research process may be weak thus leading to a lack of useful information (Udo-Akang, 2012). Public health theories are useful tools to create prevention programs, the main goal of public health, which can address the rise in chronic diseases within populations (Koller, 2013). For the purpose of this study, the Social Ecological Model (SEM) was applied to examine the relationship between obesity perceptions, attitudes, opinions, and beliefs and what factors may be of influence on these perceptions, attitudes, opinions, and beliefs.

The SEM was first introduced in the 1970s by Urie Bronfenbrenner when he hypothesized that the complete ecological system, as a whole, should be considered when trying to understand human development (Bronfenbrenner, 1994). The SEM takes a broader approach to observe the relationship between the individual and their environment, which includes: family, peers, communities, work or school, economics, cultural norms, societal influences, and exposure to the physical environment (Fielding, Teutsch, & Breslow, 2010). The SEM is comprised of five main subsystems: microsystem, mesosystem, exosystem, macrosystem, and chronosystem. The first and inner most system of the SEM is the microsystem and closest to the individual. This system is where the individual is most influenced by direct contact with immediate surroundings or people including family, friends, neighborhoods, school, or a place of employment (Berk, 2000). The mesosystem is the second system that moves the

individual from direct contact to a connection between two different systems. This system focuses on being in relation with each other at all levels and expanding these relations to include other adults beyond the immediate families, i.e. a friend at church, a co-worker, or a neighbor (Swick & Williams, 2006). The third system, the exosystem, is the system that the individual does not directly partake in but can be affected by and includes politics, economics, education, government, industry, and religion (Crosby, Salazar, & DiClemente, 2011). The fourth system is the macrosystem where the individual can be influenced by culture, beliefs, customs, and laws. This system can largely influence how the individual proceeds with their relations and can impact all other systems (Hess & Schultz, 2008). The last system of the SEM is the chronosystem. This system focuses more on the dimension of time and how it may relate to the individual's environment. Factors within this system can be external, the timing of a parent's death, internal, the physiological changes that occur with aging, or can be influenced by a history of family relationships, how the individual got along with his or her parents may affect how he or she gets along with a spouse or friend (Bronfenbrenner, 1979).

Though populations are the focus of public health, rather than individuals, the individuals in these populations are influenced by the above factors, which can help form their behavior (Koller, 2013). Since Bronfenbrenner first applied his SEM to health development, it has become a distinctive model in disease prevention, health promotion, public health, and many other disciplines (i.e. biology, education, sociology) (Richards, Gauvin, & Raine, 2011). Before the SEM, and even still now, the focus for prevention and promotion was on the individual and their own choices and behaviors instead of

considering the external/internal influences around them (McLeroy, Bibeau, Steckler, & Glanz, 1988).

By encompassing all possible influences at a broader level, instead of just at the individual level, the SEM could offer inquiry into many public health issues, including obesity (Baranowski, Cullen, Nicklas, Thompson, & Baranowski, 2003). Baranowski et al. (2003) goes on to say that obesity is not necessarily the choice of the individual; many external/internal factors can contribute, including the lack of availability of healthy foods, food consumption patterns at home, family and workplace settings, inappropriate physical environments, the lack of policy changes, and lack of encouragements. Cassel (2010) applied the SEM in his study to determine the varying factors that have caused obesity rates to increase in Samoans. Results showed a multitude of factors that have influenced the Samoans including political changes, socioeconomic changes, Samoan jurisdiction changes, and cultural/biological subtleties; all of which are at various levels and can influence obesity (Cassel, 2010). Townsend and Foster (2011) also applied the SEM to their study in which they sought to determine whether various levels of students' ecology affected the choice of food they chose to eat at school. Results showed that outside of school the students' personal factors were associated with dietary intake choices whereas, in school, the students' social environment and interaction with others were associated with dietary intake choices. Also, found via the SEM was that policies and rules influenced unhealthy eating while the school community influenced healthier eating (Townsend & Foster, 2011). Using the SEM incorporates not only the broader perspective of a certain health issue, but also includes the ongoing relationships between

the individual and the environment in which they live, which could help create interventions at multiple levels (Richard, Gauvin, Ducharme, Leblanc, & Trudel, 2012).

Obesity: Past to Present

Obesity Defined

Obesity is defined simply as having too much body fat (Bouchard, 2007; Mayo Clinic, 2015). Although obesity has a simple definition, it is a complex health concern because it increases the risk of many other diseases and health problems including DM, high blood pressure, CVD, and in extreme cases, death (CDC, 2013; Malnick & Knobler, 2006; Mayo Clinic, 2015). There is not a complete understanding as to why the United States has reached such high prevalence of obesity, but often weight gain and obesity are related to individual choices and the environment surrounding individuals (Brownell et al., 2010; United States Department of Agriculture Economic Research Service [USDAERS], 2013). Brownell et al. (2010) elaborates on this notion by stating that not only do people need to be responsible and disciplined to combat obesity, they also should have safe conditions and an environment that supports healthy choices. Regardless of the reasons, the prevalence of obesity is reaching record levels.

Body Mass Index (BMI) Defined

To understand obesity, it is important to understand how it is measured. Defined as a person's weight in kilograms divided by their height in meters squared, BMI was first endorsed in 1985 by the National Institute of Health Consensus Conference as a guideline to categorize levels of obesity (Flegal, Carroll, Kuczmarski, & Johnson, 1998). Based on these guidelines, overweight is defined as having a BMI of 25.0-29.0 kg/m^2

while obese is defined as having a BMI of 30.0 kg/m^2 or above (Kuczmarski & Flegal, 2000).

As obesity becomes more and more prevalent in the United States, clinicians have divided the obese category into subclasses in which Class I obese is 30.0-34.9 kg/m^2, Class II obese is 35.0-39.9 kg/m^2, and Class III obese is 40.0 kg/m^2 and above (Flegal, 1998; Kuczmarski & Flegal, 2000; WHO, 2006). Many professionals consider BMI to be a reliable "indicator of body fatness" for most people and is used frequently to aid in screening for additional health problems (Freedman & Sherry, 2009). Table 1 is the BMI chart used by the CDC (2015). It is important to remember that even though BMI is considered reliable, the methods by which BMI is calculated does not consider age, sex, or race nor is it the only way to obtain body fatness measurements. The two most common BMI systems used by health professionals are from the CDC and WHO. The CDC (2015) uses four categories when classifying BMI: underweight (a BMI below 18.5), normal (a BMI between 18.5-24.9), overweight (a BMI between 25.0-29.9), and obese (a BMI greater than 30.0). The WHO (2006) uses seven categories when classifying BMI: severe thinness (a BMI below 16.00), underweight (a BMI below 18.50), normal (a BMI between 18.50-24.99), overweight (a BMI between 25.00-29.99), obese class I (a BMI between 30.00-34.99), obese class II (a BMI between 35.00-39.99), and obese class III (a BMI greater than 40).

Prevalence of Obesity

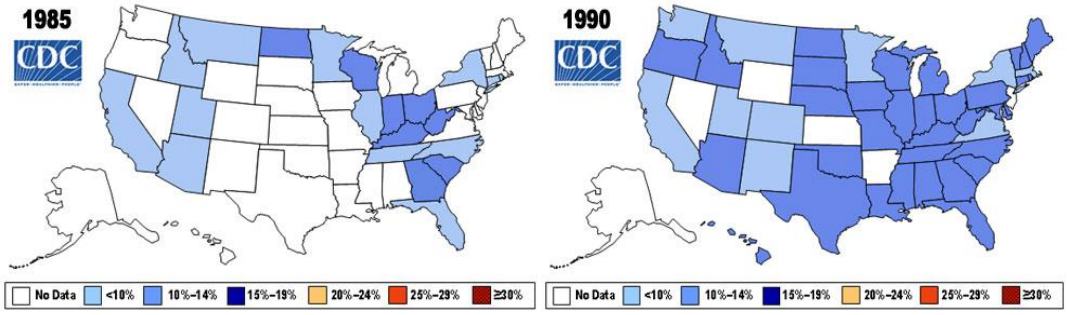
Before the 1970s, the prevalence of obesity in the United States was not very high. It was at that time during the 1970s that health professionals noticed a steady

increase in obesity prevalence (Finkelstein et al., 2012; Ruhm, 2007). Flegal, Carroll, Ogden, and Curtin (2010) stated that the first statistically significant increase in obesity was during the mid-1970s where both sexes and all ages were affected. Flegal et al. (1998) performed a cross-sectional study of National Health Examination Surveys I, II, and III covering the years 1960-1962, 1971-1974, 1976-1980, and 1988-1994. They found that the first significant increase in obesity prevalence occurred between the years 1976-1980. During this time, the average BMI of individuals in the United States reached 30.0 kg/m^2 or more. In a later study, Flegal et al. (2010) found that the prevalence of obesity in the United States reached 30% for the years 1999-2008, which was an all-time high at the time.

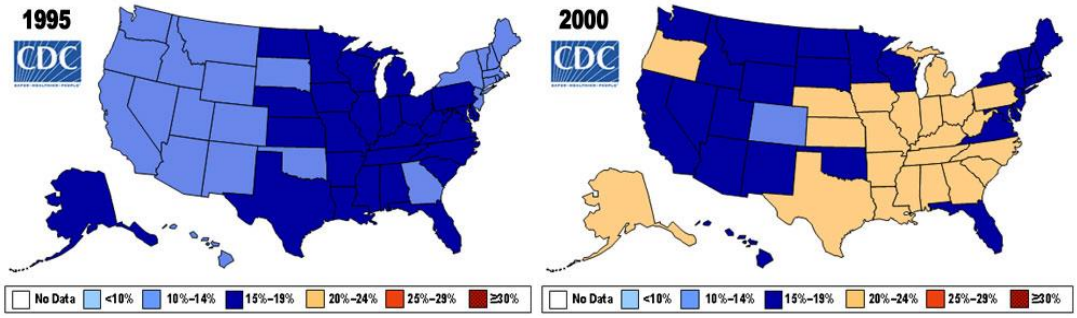
More recent researchers have shown for the years 2009-2010 that the prevalence of obesity in the Unites States reached a new high of 35.7%, that is over 78 million adults in the United States are now considered obese (Ogden, Carroll, Kit, & Flegal, 2012). Future projections of obesity prevalence are estimated to be even higher reaching 38% by 2020 and a staggering 51% by 2030 (Finkelstein et al., 2012; Ruhm, 2007). These studies were analyzed using self-reported answers where race and ethnicity were categorized into the following groups: non-Hispanic White, non-Hispanic Black, Mexican-American (i.e. Hispanic), and other; because of this, there is no data specific for American Indians. The prevalence of obesity among American Indians is discussed in a later section. Reading that the prevalence of obesity is staggering but seeing a visual of these numbers is eye-opening.

Geographic Risk of Obesity: A Visual

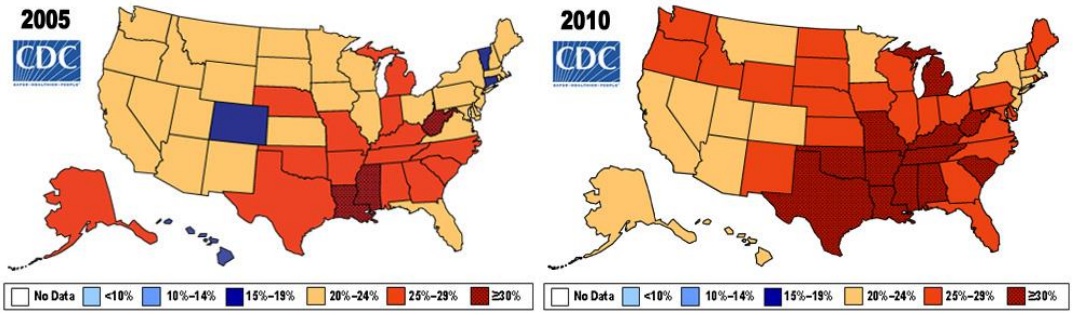
As stated above, the prevalence of obesity has increased within the last four decades. Figures 1-8 provide a visual of this increase from the years 1985-2015, obtained from the Behavioral Risk Factor Surveillance System (BRFSS) that the CDC uses to gather its data (CDC, 2016b). As the figures show, as the years have gone by, new colors have been added to compensate for the increasing obesity prevalence. Figure 8 is the most recent self-reported data in the United States. Figure 9 shows the obesity prevalence by county for the year 2007; (CDC, 2016b).



Figures 1 and 2. Prevalence of obesity in the US for the years 1985 and 1990. Adapted from the "Centers for Disease Control and Prevention." Copyright 2016 by the Centers for Disease Control and Prevention.



Figures 3 and 4. Prevalence of obesity in the US for the years 1995 and 2000. Adapted from the "Centers for Disease Control and Prevention." Copyright 2016 by the Centers for Disease Control and Prevention.



Figures 5 and 6. Prevalence of obesity in the US for the years 2005 and 2010. Adapted from the "Centers for Disease Control and Prevention." Copyright 2016 by the Centers for Disease Control and Prevention.

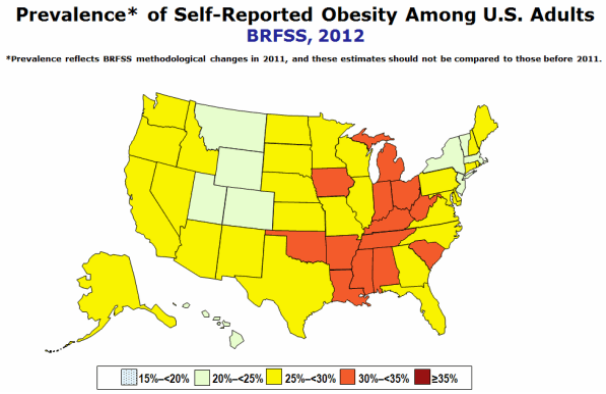


Figure 7. Prevalence of obesity in the US for the year 2012. Adapted from the "Centers for Disease Control and Prevention." Copyright 2016 by the Centers for Disease Control and Prevention.

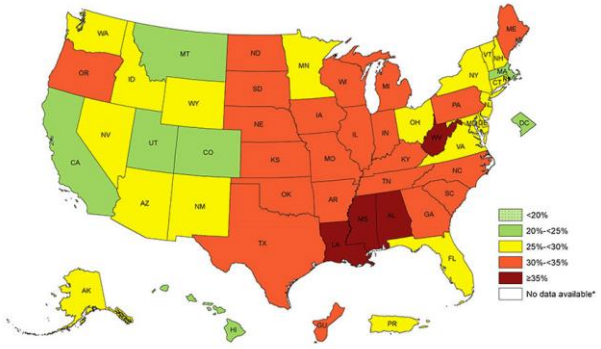


Figure 8. Prevalence of obesity in the US for the year 2015. Adapted from the "Centers for Disease Control and Prevention." Copyright 2016 by the Centers for Disease Control and Prevention.

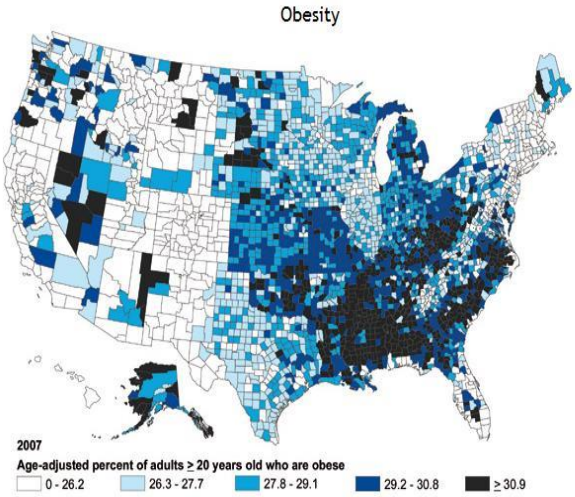


Figure 9. Prevalence of obesity in the US by county for the year 2007. Adapted from the "Centers for Disease Control and Prevention." Copyright 2016 by the Centers for Disease Control and Prevention.

The figures above clearly show how bad obesity has gotten in the United States. With the increase of obesity also comes an increase of costs associated with the effects obesity has.

Obesity is Costly

Obesity affects millions of people in the United States. Because of this, the costs of treating obesity and its related health problems have escalated dramatically reaching billions of dollars a year (Cawley & Meyerhoefer, 2012; Harvard School of Public Health [HSPH], 2017a). Cawley and Meyerhoefer (2012) and the HSPH (2017a) further stated that in 2005 it was estimated that $190 billion dollars were spent on obesity-related health concerns, a huge jump from the $99.2 billion dollars spent in 1995 reported by Wolf and Colditz (1998) and an even larger jump from the $39.3 billion dollars spent in 1986 reported by Colditz (1992). Furthermore, Finkelstein, Trogdon, Cohen, and Dietz (2009) reported that people with obesity had medical spending costs that were $1,429 greater than their normal-weight counterparts in 2006. Between the years 1998-2006, the annual

medical spending due to obesity in the United States rose from 6.5 percent to 9.1 percent causing future predictions to estimate that if obesity continues to rise the way it has been, annual medical costs could increase additionally by $48-$66 billion dollars by 2030 (Finkelstein et al., 2009; HSPH, 2017a). The effects of obesity are becoming costly, as seen by the researchers above, but obesity can also take a toll on a person's life expectancy (Peeters et al., 2003).

Fontaine, Redden, Wang, Westfall, and Allison (2003) explained that there have been efforts put forth by public health professionals to deliver messages describing the magnitude of the effects obesity can have on a person's life. There is information on how expensive obesity is and statistics showing death rates due to obesity, but little information discussing how obesity affects the years of life lost (YLL) a person can lose due to obesity. YLL is the difference in years' people are expected to live if they were not obese compared to those that were obese (Finkelstein, Brown, Wrage, Allaire, & Hoerger, 2010; Fontaine et al., 2003). Olshansky et al. (2005) further stated that life expectancy will begin to decline in the United States because of obesity. In addition to this, Peeters et al. (2003) found in their study that men and women who were 40 years old and obese (BMI greater than or equal to 30 kg/m^2) lost 5.8 and 7.1 years of life, respectively, compared to men and women who were considered normal weight. Moreover, Finkelstein et al. (2010) found in their study of 18-year-olds that YLL only became significant once a BMI greater than 40 kg/m^2 was reached, otherwise for lower BMIs there was not much significance or association in YLL. Because obesity affects quality of life, it is associated with many other health determinants and statistically

continues to rise, becoming a major health concern for public health professionals (Jia & Lubetkin, 2010).

A Public Health Epidemic

With more than 33% of the United States population considered obese, obesity is now being called an epidemic affecting all ethnic groups, ages, and both genders (CDC, 2013b; Flegal, Carroll, Kit, & Ogden, 2012). Obesity was first considered an epidemic at the beginning of the 21st century due to the dramatic increases in prevalence and reports of estimated obesity-related deaths between 280,000-400,000 (Allison, Fontaine, Manson, Stevens, & Vanltallie, 1999; Mokdad, Marks, Stroup, & Gerberding, 2004). There are many contributing factors to the obesity epidemic. One of the biggest factors is how people eat today compared to how people ate fifty years ago. There are more processed foods, more fast foods, vending machines, snack foods, higher calorie foods, and less cooking at home (National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity, 2011; Swinburn, Sacks, & Ravussin, 2009). Chou, Grossman, and Saffer (2004) found in their study that higher body weight was associated with eating out at restaurants because it was cheaper and quicker. Additionally, Satia, Galanko, and Siega-Riz (2004) conducted a cross-sectional study on 658 African-Americans aged 20-70 years living in North Carolina regarding how often they ate out. The self-reported data was analyzed resulting in those participants who ate out the most were already obese, physically inactive, young, and unmarried, concluding that eating out often and consuming higher amounts of calories and fat led to weight gain (Satia et al., 2004). In addition, Jeffery, Baxter, McGuire, and

Linde (2006) conducted a telephone survey of 1,033 Minnesotans regarding eating at fast food restaurants to see its effect on obesity and whether the location of the restaurant was an influence. Results showed that BMI increased as well as eating high-fat diets in those participants who ate out more. Results also showed that those who had families or worked outside the home tended to eat out more, though location of the restaurant did not have an influence on increased BMI (Jeffery et al., 2006). How a person eats is not the only factor that can cause obesity, physical inactivity can also play a role.

The National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity, and Obesity (2011) and Popkin, Adair, and Ng (2012) stated that along with changes in eating habits over the years, technology and physical inactivity have also changed in the United States. In the last 50 years, watching television has become the most common form of leisure activity in the United States with an average of 4-5 hours being watched daily by adults (Robinson & Godbey, 2005). Several researchers have shown that excessive television watching can lead to physical inactivity, poorer food choices, and overall poorer health. Hu et al. (2001) and Hu, Li, Colditz, Willett, and Manson (2003) conducted two similar studies in which each looked for an association between television watching and its relationship to type 2 DM and obesity in men and women, respectively. Results from the first study showed that there was a positive association between hours of television watched and an onset of obesity and type 2 DM (Hu et al., 2001). The second study included a six-year follow-up on 50,277 women participating in the Nurses' Health Study from 11 states. Results showed during the 6 years, 7.5% of women who had a BMI of less than 30 m/kg^2 at baseline

became obese and 1,515 new cases of type 2 DM occurred, all being positively associated with increased hours of watching television (Hu et al., 2003). Similarly, Meyer et al. (2008) performed a study using data from the Atherosclerosis Risk in Communities Study assessing the relationship between hours of television watched to diet, physical activity, and BMI. At baseline, the study had 15,574 participants and at the end of 6 years there were 12,678 participants remaining. Results showed after the six years, hours of television watching increased and was strongly associated with a higher risk of becoming overweight and obese. Those who watched more television had poorer diets with an increase of salty and sweet foods and a decrease of fruits and vegetables. Physical activity was less likely in those who watched substantial amounts of television (Meyer et al., 2008). On the other hand, Zimmerman and Bell (2010) suggested that television is not necessarily to blame for increased BMI, but rather the commercials viewed on television are to blame because they are a major influence, especially on children. Changes in eating habits and physical activity in the past 50 years are only part of the possible influences that can contribute to obesity affecting all populations.

Obesity is not only an epidemic among the general United States population, but even more so among American Indians. Wilson, Gilliland, Moore, and Acton (2007) conducted a study on data available from the IHS annual cliental assessment for the years 1995-2004 to determine how extreme obesity was in this population. Results showed that the prevalence was high at all three classes of obesity in 2004: Class I, 28.9%; Class II, 20.4%; and Class III, 20.3%. In 1995, the Class II level was at 16.7%, and the Class III level was at 11.5%, substantially lower compared to 2004. BMI also increased from 32.1

kg/m^2 to 34.4 kg/m^2 over the 10-year period, indicating that obesity is indeed a problem for American Indians (Wilson, et al., 2007). The following section will further discuss possible factors that contribute to the onset of obesity.

Potential Influences on Obesity

The precise cause of obesity is not clearly understood, though there is a consensus among researchers and health professionals that there is not one specific factor that causes it (Cohen, Finch, Bower, & Sastry, 2006). With no sign of the obesity epidemic slowing down, experts continue to debate how much genetics plays a role in obesity compared to environmental factors (Hill, Wyatt, Reed, & Peters, 2003). Many times, people who are obese are accused of making bad personal choices or lacking willpower but acknowledging that the environment plays a critical role in the obesity epidemic and that individuals do not always have complete control over their weight is a critical step in addressing this issue (Poston II & Foreyt, 1999). The amount of physical activity undertaken daily has dramatically decreased with the onset of industrialization, advances in technology, and the proliferation of fast and processed foods (Giles-Corti, Macintyre, Clarkson, Pikora, & Donovan, 2003). In combination with genetics, environmental factors cause obesity to be a complex disorder and a pressing public health issue (Faith & Kral, 2006). The following sections discuss biological, behavioral, and environmental influences on obesity; there are possibly other factors that may be of influence on obesity but for this study, only those factors discussed below are pertinent.

Biological Influences

Biological influences are those that have a genetic relationship and often predispose a person to certain health challenges, to an extent, including obesity (Herrera, Keildson, & Lindgren, 2011). Genetics, gender, and age cannot be decided or avoided, but at times they may influence the chances of becoming obese.

Genetics and obesity.

A person's genetic makeup can be influential on whether they become obese, but that does not mean that being obese is a person's destiny. There is little information known regarding what genes specifically contribute to obesity and a person's gene-environment interaction, but researchers are continuing to shed light on many factors that might be responsible (CDC, 2013a; HSPH, 2017c). The CDC (2011c) and Choquet and Meyre (2011) stated that even though genes do play a role in the development of obesity, in some cases, they cannot be blamed for the obesity epidemic because genetic changes in human populations occur too slowly. Walley, Blakemore, and Froguel (2006) found in their study that obesity is highly heritable when compared to other complex traits such as high blood pressure and depression. Adding to this, Parks et al. (2013) supported this idea by stating that estimates for heritable obesity in humans range from 50%-90% based on human genome-wide association studies. Furthermore, according to Bouchard (2010) and the CDC (2010a), individuals may be predisposed to weight gain if there is a family history of obesity, but rarely are there circumstances where mutated genes cause severe obesity at young ages. With that being said, recent researchers have found a rare mutated gene that prevented burning of fat in animals and this same mutated gene was found in a

group of obese people (Sifferlin, 2013). Also, reported by Sifferlin (2013), was the finding of a separate gene that has been linked to an increased craving for high-fat foods. Genetics may have an influence on whether one becomes obese but according to the CDC (2010a) and Farooqi and O'Rahilly (2007), it can be prevented or at least managed with healthy lifestyle behaviors for any population.

Like the general United States population, American Indians are faced with genetic predispositions that could cause them to be genetically resistance to insulin, thus leading to obesity (Busatta, 2011). Because American Indians do not partake in national surveys, data is limited. However, the Pima Indians have been studied often by researchers as they are some of the most obese people in the world with over 90% of men and women surpassing the average United States BMI (Knowler, Pettitt, Bennett, & Williams, 1983; Knowler et al., 1991). Ravussin, Valencia, Esparza, Bennett, and Schulz (1994) conducted a study comparing Pima Indians living in northern Mexico and Pima Indians living in Arizona. Results of the study showed that the Mexican Pima Indians weighed less, had smaller BMIs, and lower cholesterol levels compared to the Arizona Pima Indians, possibly because the Mexican Pima Indians live a more traditional lifestyle instead of a Westernized one (Ravussin, et al., 1994). Studies like this help support the idea that environmental factors are of greater influence than genetics. Pima Indians are known for their detailed medical records and information from decades ago showed that obesity and DM were rare; indicating that deviating away from their naturalistic life and traditional cultures and towards a more modernized way of living has affected their

health immensely (Knowler et al., 1983; Schulz et al., 2006). Genetics is only one factor of many influencing obesity; age is another.

Age and obesity.

As with genetics, age may also influence the likelihood of becoming obese. Chapman (2010) discussed that 71% of Americans 60 years and older are overweight while 60% are obese, a 12% prevalence increase compared to the late 1980s and early 1990s. Chapman (2010) further explained that reasons for the increase in obesity among older people is because they have a change in appetite, not as much food intake compared to when they were younger, less energy use, and less body composition. Regardless of the increasing obesity prevalence among older people, there is debate and controversy as to whether obesity and aging really do have a relationship (Stevens et al., 1998).

In the 1940s and 1950s weight goals for adults were first provided by the Metropolitan Life Insurance Company via two tables, the Ideal Weight Table and the Desirable Weight Table, that had a variety of ranges for heights and weights using small, medium, and large body frames (Andres, Elahi, Tobin, Muller, and Brant, 1985). In the early-1980s a third table, the Height-Weight Table, was instituted with proper weight goals for adults but had modified weight ranges compared to the earlier tables (Andres et al., 1985). The 1990s brought the Dietary Guidelines for Americans put forth by the Department of Agriculture, which showed heavier weight ranges for people 35 years and older that sparked controversy, suggesting more studies should be undertaken to clarify the obesity-age relationship (Stevens et al., 1998).

The 21st-century saw the onset of obesity becoming an epidemic with a prevalence reaching record numbers in all age groups, suggesting that the obesity-mortality relationship is not as strong as some thought (Masters, Powers, & Link, 2013. Masters et al. (2013) proposed the idea that the obesity-mortality relationship might diminish with age instead of increasing; leading some to wonder if this relationship is more a "moral panic than a public health crisis" (p.431). Childers and Allison (2010) mentioned that obesity has been considered a disease for centuries and this specific relationship is causal, i.e. obesity is a cause that leads to many effects. Fontaine, Redden, Wang, Westfall, and Allison (2003) found in their study that younger people had a higher risk of years of life lost due to obesity compared to older people. As seen above, the debate over whether obesity is influenced by age is ongoing.

American Indians both young and old are experiencing high prevalence of obesity (Story et al., 2003). Studies have been conducted on both American Indian adults and children. The Strong Heart Study, a study following American Indians tribes in Arizona, Oklahoma, North Dakota, and South Dakota, found that adults 45-74 years of age had the highest prevalence of obesity compared to other age groups (Welty, Lee, Yeh, Cowan, Go, & Fabsitz, 1995). Knowler et al. (1991) studied Pima Indians in Arizona finding that men and women aged 20-64 years had the highest prevalence compared to others.

One of the largest systems that monitor health disparities in children of all ethnical groups is the Pediatric Nutrition Surveillance System (PedNSS) conducted by the CDC. In 2008, the prevalence of obesity in American Indian children aged 2-5 years was 20.2%, a 2.5% increase from 2003, substantially higher than other ethnic groups

(Polhamus, Dalenius, Mackintosh, Smith, & Grummer-Strawn, 2009). Overall, there may be differences in opinions as to whether obesity is influenced by age, but regardless of these opinions, all age groups are being affected by obesity. Obesity also affects both genders.

Gender and obesity.

Little research has been conducted to find out if obesity is gender-oriented specifically or if other factors, i.e. age or genetics, along with gender increase the chances of becoming obese (Borders, Rorner, & Cardarelli, 2006). Wang and Beydoun (2007) found in their study for the years 2001-2002, 68.8% of men and 61.6% of women were overweight and obese. Additionally, Ogden et al. (2012) reported that for the years 1999-2000, 27.5% of men and 33.4% of women were obese compared to 35.5% of men and 35.8% of women for the years 2009-2010. More recently researchers have shown that for Americans 20 years and older, approximately 46.9% of men and 53.1% of women are obese (Go et al., 2013). Regardless of the prevalence of obesity, women had a higher risk in becoming obese or overweight because their biological makeup affects the way fat is distributed throughout their body (Kanter & Caballero, 2012).

Like the general United States population, studies on American Indians linking gender and obesity are limited. Hodge, Cantrell, and Kim (2011) conducted a cross-sectional study of 457 American Indian adults on 13 reservations throughout California. Basic data was collected including socio-demographics, BMI, overall health status, and any current health problems. Analysis of the data showed that most of the females were either obese (37.3%) or morbidly obese (11.6%) while men were found to be only

overweight (38%), indicating that obesity is more prominent in women (Hodge et al., 2011). Genetics, age, and gender are predisposed factors that can influence obesity; behavioral factors are, at times, a personal choice (Borders et al., 2006).

Behavioral Influences

A behavior is something that a person does; these actions are usually in response to an external or internal stimulation (Levitis, Lidicker Jr., & Freund, 2009). Brownell et al. (2010) explained that obesity is considered, by some, a personal responsibility and because of this, people's behaviors could strongly influence whether they become obese. The following sections discuss behaviors that may contribute to obesity.

Physical inactivity and obesity.

Physical inactivity is a major risk factor contributing to obesity that can be modified in a person's life (HSPH, 2017e; Warburton, Nicol, & Bredin, 2006). Manson, Skerrett, Greenland, and VanItallie (2004) wrote: "excess weight and a sedentary lifestyle have long been regarded as self-inflicted conditions with largely personal consequences" (p.1). Accordingly, 25% of American's reported not meeting recommendations of 30 minutes of exercise on most days of the week while roughly 33% reported not having any physical activity at all (Manson et al., 2004). Hu et al. (2004), in their study of 116,564 physically inactive women between the ages of 30-55 years, found that there was a 52% increase in mortality, a two-fold increase of CVD, and a 29% increase in cancer-related deaths compared to physically active women over a 24-year follow-up. Additionally, McTierman et al. (2007) found in their 12-month randomized control study of 102 men and 100 women that moderate to vigorous exercising resulted in significance weight loss.

In a more recent study, Lee et al. (2012) found that physical inactivity accounted for 5.3 million of the 57 million deaths worldwide, which is 9% of premature deaths. Lee et al. (2012) continued by stating that premature deaths could be decreased to 1.3 million if physical inactivity was cut by 25%. Staying active not only allows a person to maintain a healthy weight, it also helps reduce the risk of other health consequences including DM, CVD, high blood pressure, cancer, and stress (CDC, 2014a; Jakicic, 2009).

There is a limited amount of research describing physical activity levels in American Indians, but the research that is available shows that American Indians do not partake in large amounts of physical activity (Storti et al., 2009). Adding to this, Schoenborn, Adams, Barnes, Vickerie, and Schiller (2004) reported that 5 out of 10 American Indian adults are physically inactive with 26.4% not meeting recommendations put forth by the Surgeon General. Stolarczyk et al. (1999) found in their study of 514 American Indians that 77% did not meet the recommended 30 minutes of physical activity most days of the week; although, 67% fell within the high activity category. Fischer et al. (1999) conducted a study on 1,344 Chippewa and Menominee Indians in Minnesota and Wisconsin via a questionnaire to determine physical activity patterns. Results showed that 33% of women and 21% of men reported no physical activity but 90% of those who worked outside the home reported walking 20 minutes or more (Fischer et al., 1999). More recently, Steele, Cardinez, Richardson, Tom-Orme, and Shaw (2008) analyzed aggregated data from 2000-2006 obtained from BRFSS comparing a variety of health factors between American Indians and non-Hispanic Whites; American Indians had a much higher prevalence of physical inactivity compared to non-

Hispanic Whites, 31% vs. 21.5%, respectively (Steele et al., 2008). Observed from the above research, American Indians seldom participate in physical activity, but neither does most of the general United States population (Storti et al., 2009). Whether getting enough physical activity is an individual choice or not, it is becoming more common to live sedentary lives, which can result in higher levels of obesity. Eating patterns can also affect the risk of becoming obese.

Eating patterns and obesity.

Obesity is considered a precursor to serious health problems including high blood pressure, cancer, and CVD, all of which can be reduced with proper eating habits (Ma et al., 2003). With current overconsumption of fats, sugars, and calories in the United States, how people eat is becoming a major health concern, especially with obesity at its highest rates ever (Shelley, 2012; USDAERC, 2013b). Newby et al. (2003) performed a study where 459 healthy men and women were divided into five different eating pattern groups: 1) healthy eating patterns, 2) white bread eating patterns, 3) alcohol patterns, 4) sweets eating patterns, and 5) meat/potato eating patterns. Results from this study showed that those in the meat/potato group had a greater increase in BMI, those in the white bread group had higher changes in waist circumference, and those in the healthy eating group had little or no change in either category, showing that healthy eating patterns help control BMI and waist circumference (Newby et al., 2003).

In a different study, Schulze, Fung, Manson, Willett, and Hu (2006) followed 51,670 women aged 26-46 years between the years 1991-1999 where a Western pattern diet, which consisted of high dietary intake of red meats, processed meats, refined grains,

and sweets/desserts, and a prudent pattern diet, which consisted of fruits/vegetables, whole grains, fish, poultry, and salad dressing, were used. Body weight was measured in 1991, again in 1995, and finally in 1999 wherein it was determined that those following the Western pattern diet had a significant increase in weight gain compared to those who followed the prudent diet, 17.6 pounds vs. 8.3 pounds, respectively (Schulze et al., 2006). Additionally, Paradis, Pérusse, and Vohl (2009) performed a cross-sectional study on 664 participants aged 18-55 years where a 91-question questionnaire was used to gather dietary pattern data on the participants. Results showed that two dietary patterns were found, a Western pattern and a prudent pattern, where those following the Western dietary pattern had gained more weight, had higher BMIs, higher fat, and a higher ratio of waist-to-hip measurements (Paradis et al., 2009).

American Indians are not exempt from the high-calorie foods that exist today, though there is limited research discussing the direct health implications of eating patterns on obesity. Once relying on all natural foods from the land that were considered gifts from the Creator, American Indians are now, too, faced with foods packed with fat and sodium (Story, Strauss, Gilbert, & Broussard, 2000). Having turned away from traditional foods that had spiritual meaning, American Indians have now turned to buying foods from convenience stores and fast food restaurants (Story et al., 2000). Halpern (2007) stated that reasons American Indians do not eat traditional foods is because they are working, do not have time, no one to hunt for them, lack of transportation, live away from the reservation, or there is a reduced amount of game for hunting. Because of the

many dietary changes American Indians have faced in the last century, their overall health has taken a toll (deGonzague, Receveur, Wedll, & Kuhnlein, 1999).

deGonzague et al. (1999) stated that the loss of social communication has affected the use of traditional foods because the teachings from Elders to younger generations has been reduced. In their study of 104 tribal members, deGonzague et al. (1999) found that the use of traditional foods is, at times, not recognized by non-Native health care providers; 50% of their participants stated that they hunted, fished, and gathered. Parker, Pinto, Kennedy, Phelps, and Hermann (2007) recruited 64 women from four ethnic groups (African-American, Hispanic, American Indian, and White) to participate in focus groups that discussed coping techniques in times of food shortages. American Indians were less likely to report food shortages, felt commodity foods were useful in times of shortage because something is better than nothing, were apt to have a variation of food consumption throughout the month, used convenience stores when shopping for snacks or treats, reported eating at fast food restaurants very often, did not use the food guide pyramid, did not take a grocery list shopping because they bought the same foods all the time, and felt food stamps were very important because they rely on them to buy groceries (Parker et al., 2007). Some eating patterns, as seen above, can cause caloric intake to increase and lead to obesity, but there are many other factors that can contribute, including alcohol (HSPH, 2017b; Newby, Muller, Hallfrisch, Andres, & Tucker, 2004).

Alcohol use and obesity.

Alcohol use and obesity do not have a clear relationship, but they do have associations with each other and are often more common in people who are already

overweight or obese (Gatineau & Mathrani, 2012). Gatineau and Mathrani (2012) discussed that alcohol is responsible for 10% of caloric intake consumed by adults, which can increase appetite thus leading to overeating. However, Cready and Kyle (2013) explained that people who drink are not as affected by obesity because they tend to be malnourished, having replaced some of their food calories with alcohol calories. Gatineau and Mathrani (2012) found that obesity and overweight affect those who binge drink and drink very heavily compared to those who drink moderately. In a study by Wannamethee and Shaper (2003), results showed that men who drank heavily over a five-year period and those who began drinking heavy during the five-year period all had higher rates of BMI compared to those who drank moderately. Furthermore, Gatineau and Mathrani (2012) described a study where women who had a family history of alcohol use had an almost 50% higher chance of becoming obese compared to those without a family dependence on alcohol. There was a gap in the literature on alcohol's direct association with increased obesity prevalence in American Indians, because of this, there is not enough information for discussion. As seen with the above research, alcohol's relationship to obesity is somewhat inconsistent but does show some associations. Another relationship that is not quite understood is that of smoking and obesity.

Smoking and obesity.

Like the relationship between alcohol use and obesity, smoking's relationship to obesity is not completely understood. Gruber and Frakes (2005) found that, before the 1990s, the United States had double the smokers than obese people but since then the roles have reversed. Researchers have also shown that weight is lower for those who

smoke but higher for those who have quit smoking, possibly because nicotine is known to increase energy expenditure, which in turn could reduce a person's appetite (Chiolero, Faeh, Paccaud, & Cornuz, 2008; Flegal, 2007; Mackay, Gray, & Pell, 2013). Moreover, Flegal (2007) stated that with all the efforts put forth by public health professionals to reduce smoking prevalence, this could inadvertently increase the prevalence of obesity. Chiolero et al. (2008) further explained that a common misconception among both smokers and non-smokers is "smoking is an efficient way to control body weight" (p. 801), take away that control and body weight increases. Additionally, Mackay et al. (2013) found in their study when cessation occurred for smokers, the weight gain occurred largely within the first year. Because weight gain occurs after cessation has stopped, many people get discouraged from quitting, and even times will relapse and return to smoking just to keep the weight off (Chiolero et al., 2008). In contrast to Flegal's (2007) findings, Gruber & Frakes (2005) found that even though there is weight gain when smoking cessation stops, there is, however, no direct link between weight gain and smoking. As with alcohol, there is a gap in the literature relating smoking's effect on obesity prevalence among American Indians. Perhaps environmental influences are better understood.

Environmental Influences

Environmental influences are considered natural conditions that surround a person and can either have a positive or negative impact on a person's overall well-being (Papas et al., 2007). There can be many different environmental influences that can affect the

chances of obesity, two that are discussed for this study are socioeconomic factors and community safety.

Socioeconomic factors and obesity.

Limited access to healthy foods is more common than one would think; more than 35 million people in the United States during 2002 did not have access to nutritious foods (Beaulac, Kristjansson, & Cummins, 2009; Institute of Medicine (IOM), 2004). In the past four decades, the variety and choices of foods have become numerous, with the choice to eat what we want and how much of what we want strongly influencing the likelihood of gaining weight (HSPH, 2017d; Mozaffarian, Hao, Rimm, Willett, & Hu, 2011). The food environment that we now live in has made it complicated to eat healthy (HSPH, 2017d; Lovasi, Hutson, Guerra, & Neckerman, 2009). This is especially true for those in lower SES, which includes American Indians. American Indians are more vulnerable to obesity because they have the challenge of limited access to healthier foods that can be found in grocery stores or at farmers' markets, they have a harder time getting physical activity due to lack of resources, they follow a feast or famine cycle when food is present and absent, they are more susceptible to high levels of stress due to financial burdens, they are more exposed to foods that are unhealthy and cheaper, and they have limited access to healthcare (French, Story, & Jeffery, 2001; McLaren, 2007; Pickett, Kelly, Brunner, Lobstein, & Wilkinson, 2005; Shavers, 2007). With the above being said, Chang and Lauderdale (2005) found in their study that black women with middle incomes and black men with higher incomes had a higher prevalence of obesity thus refuting the idea that those living in poverty have the highest risk of increased obesity.

Low-income neighborhoods are often faced with foods that are high-calorie and low-quality found only at convenience stores because supermarkets have moved elsewhere or because there is a lack of transportation to get to these grocery stores (Cummins & Macintyre, 2006; IOM, 2004). Accordingly, there are approximately 2 million households in America that live further than a mile away from the supermarket and do not have a form of transportation to get there, which is called a food desert because of the limited access (Cummins & Macintyre, 2006; HSPH, 2017d). Fast food restaurants are also taking the place of grocery stores in low-income neighborhoods, another source of very high-calorie foods, but there is not a consensus among researchers whether there is a true link between increased obesity and living by fast food restaurants (Drewnowski & Spector, 2004; Drewnowski & Darmon, 2005; HSPH, 2017d; Jeffery et al., 2006; Reitzel et al., 2013). To address the obesity issue, food environments need to be changed providing more opportunities for healthy eating, which includes efforts in families, schools, and community settings (Cummins & Macintyre, 2006; Keener, Goodman, Lowry, Zaro, & Kettel Khan, 2009; RWJF, 2013). Some ideas suggested by Keener et al. (2009) to accomplish food environment changes included: increasing availability and variety of vegetables and fruits, agencies can set and apply nutrition standards that comply with national guidelines for America, increase the number of supermarkets and bus routes allowing access to those supermarkets, provide discount grocery stores for those with lower family incomes, push for governments to provide incentives to food retailers for offering healthier food choices, and provide more farmers' markets.

Minority populations, including American Indians, are often considered lower SES and usually have a higher prevalence of obesity compared to the general United States population (Kumanyika, 1994). In 2009, the CDC (2012b) conducted The Racial and Ethnic Approaches to Community Health across the United States (REACH U.S.) Risk Factor Survey in 28 communities within 17 states. Roughly 900 people from each community provided self-reported information via mailed questionnaires, telephone interviews, or face-to-face interviews that were then compared to the BRFSS (2012b). The prevalence of obesity among African-Americans, Hispanic-Americans, Asian/Pacific Islander Americans, American Indians and the comparison population went as follows, respectively: 29.3% of men/44.7% of women, 32.0% of men/36.8& of women, 10.3% of men/6.7% of women, 46.2% of men/45.5% of women, and 28.6% of men/26.0% of women (CDC, 2014b). As seen above, American Indians have a higher prevalence of obesity compared to the other groups, further discussion of American Indian obesity prevalence is in a later section.

Burke et al. (1992) performed an assessment of 2,801 African-American and White women and found that the African-American women consistently had higher BMIs, triceps skinfold thickness, and subscapular skinfold thickness. Similarly, in a study by Robert and Reither (2004) results showed that African-American women had a BMI score that was at least three points higher compared to non-African-American women. Shai et al. (2006) performed a 20-year prospective cohort study on 78,419 healthy women who were White (75,584), African-American (1,421), Asian (801), or Hispanic (613) and found that all ethnic groups had an increase in BMI, but Asians had

the lowest weight gain while African-Americans had the highest weight gain. As with the general United States population, many factors can contribute to the high obesity prevalence in minority groups (Caprio et al., 2008). As seen above, SES is only one major contributing factor to the higher prevalence of obesity, living in unsafe communities could be another.

Community safety and obesity.

Violence and unsafe neighborhoods play a role in how individuals behave, where they work, where they live, where the shop, and whether they can get physical activity (Farley et al., 2007; RWJF, 2011). Because of the influence violence and fear play on daily choices, inadvertently a person's health can be influenced as well, including their weight (Keener et al., 2009; Loukaitou-Sideris & Eck, 2007). There are previous research findings to support the idea that violence and fear have actual links to health conditions, including obesity, DM, and asthma because of the inability to get the recommended amount of daily physical activity (RWJF, 2011; Roman, Knight, Chalfin, & Popkin, 2009). Fish, Ettner, Ang, and Brown (2010) found in their study of 2,255 adults from Los Angeles that those who felt their neighborhoods were not safe had a higher BMI compared to those who felt their neighborhood was safe. Harrison, Gemmell, and Heller (2006) also found in their study that feeling unsafe contributed to less physical activity.

Burdette, Wadden, and Whitaker (2006) found in their study of 2,445 women living in 20 large United States cities that BMI increased from 37% where women felt the safest to 46% where women felt less safe. In a similar study, Johnson et al. (2009)

provided 392 mothers living in Baltimore a self-administered questionnaire wherein they were asked perceptions about their own safety and that of personal experiences with neighborhood crime. Results of the study showed that those mothers who were exposed to violence more often were twice as likely to have worse health, smoked more, did not exercise, and had trouble sleeping, compared to those with less exposure to violence (Johnson, et al., 2009). Interestingly, Powell-Wiley et al. (2013) refute the above claims by stating that, in their study, there was not a correlation between increasing BMI and violence perceptions, rather, the correlation was with unfavorable physical environment perceptions. The association between violence and its influence on obesity prevalence in American Indians is not clearly understood nor is it supported by research, because of this gap in the literature there will not be a discussion. Obesity is a major health concern for all populations regardless of where they live, and it is also a major risk factor for other chronic diseases.

Obesity: A Common Risk Factor for Chronic Diseases

A chronic disease is defined as a condition that includes chronic illnesses and impairments that are expected to last a year or longer and progress slowly, they decrease normal daily activities, and they require ongoing medical attention (Anderson, 2010; Friedman, Jiang, & Elixhauser, 2008-2009; Warshaw, 2006; WHO, 2017). In 2012 almost half of United States adults had more than one chronic disease, which is roughly 117 million people (Ward, Schiller, & Goodman, 2014). In 2010 seven of the top ten leading causes of death were chronic diseases; heart disease and cancer accounted for 48% of total deaths combined (Hoyert & Xu, 2012). Examples of chronic disease include

DM, CVD, hypertension (high blood pressure), cancer, and asthma, all of which will be discussed below for the purpose of this study. With current trends of chronic disease prevalence on the rise, the United States is recognizing that efforts need to be made for prevention, treatment, and public health programs for these diseases, especially obesity because that alone can lead to many other lifelong diseases (Goodman, Posner, Huang, Parekh, & Koh, 2013).

Diabetes Mellitus (DM)

Diabetes Mellitus prevalence has increased by 33% within the last ten years and as mentioned earlier, obesity has increased by well over 60% in the last three-four decades (Sears, 2013). Because of the dramatic increases in both DM and obesity, professionals are calling them a dual epidemic, coined "diabesity" (Yaturu, 2011, p. 79). A person is diagnosed with DM every three seconds and of the people who are diagnosed with DM, 80-90% are also considered obese (Diabetic Care Services, 2013; Torgerson, Hauptman, Boldrin, & Sjöström, 2004). This does not specifically mean there is a set-in-stone link between DM and obesity as their relationship is complex, but they do have strong associations with each other (Hussain, Hydrie, Claussen, & Asghar, 2010). Wang, Rimm, Stampfer, Willett, and Hu (2005) found in their study of 27,270 men that after a 13-year follow-up, 884 new cases of DM were reported, mostly in those who were older, physically inactive, and who had higher BMIs and waist circumference. Rana, Li, Manson, and Hu (2007) performed a study where they assessed 68,907 healthy female nurses over a 16-year follow-up period and found 4,030 new cases of DM wherein DM gradually increased along with increasing BMIs, especially in those women whose BMI

was >40 kg/m^2. Luft et al. (2013) found in their 9-year-case-cohort study of 1,121 middle-aged Americans that participants who were obese had a 6-fold higher chance of developing DM compared to those who were not obese.

Like obesity, DM can worsen with sedentary lifestyles and unhealthy eating; those who have DM are more likely to be obese compared to their non-diabetic counterparts (Beller, 2000). For example, Basu, Yoffe, Hills, and Lustig (2013) found in their study that increased caloric intake of sugar along with sugar availability not only contributes to increasing DM rates but also accelerates these rates with prolonged exposure leading to DM. Regardless of the specific factors leading to DM, at times people are not aware they even have DM, leading some to call DM a silent killer because it does not have specific symptoms (Sears, 2013). Like the general United States population, DM and obesity are dramatically increasing in American Indians (CDC, 2011b).

Indian Health Service (IHS) (2012a) reported that as of 2009 14.2% of American Indians have DM. The National Center for Health Statistics (2011) reported that American Indians are 1.6 times more likely to die due to DM compared to the general United States population. One of the biggest studies done on American Indians was The Strong Heart Study, which was introduced in the late 1980s to evaluate the overall health of American Indians. This study included 13 American Indian tribes within three areas of the country (Phoenix, AZ, southwestern Oklahoma, areas of North/South Dakota) and consisted of three phases: 1) mortality surveys, 2) morbidity surveys, and 3) a clinical examination of 4,500 tribal members aged 45-74 years (Lee et al., 1990). Many sub-

studies have been conducted, including those on DM. Lee et al. (1995) conducted a second interview and examination of the remaining 3,638 Strong Heart Study participants to determine the incidence of DM from the original study conducted four years prior. Results showed that of the 1,664 participants who did not have DM at baseline, 326 acquired it. Results also showed that BMI was a strong predictor for developing DM, indicating a positive relationship between obesity and DM (Lee et al., 1995).

In a similar study conducted in 2002, Lee et al. analyzed data from the Strong Heart Study to estimate prevalence rates of DM and possible risk factors. Results showed that DM affected more women than men with the highest prevalence found in the Arizona participants. Also found was those participants between the ages of 45-54 years had higher prevalence of obesity; the rates of DM and obesity steadily increased in both sexes. Interestingly, this study showed that DM increased with the amount of American Indian heritage, i.e. those who are closer to being full-blood had higher prevalence of DM (Lee et al., 2002). DM is only one of the many chronic diseases obesity can influence; another is hypertension, all known as high blood pressure.

Hypertension (High Blood Pressure)

The relationship between obesity and hypertension has been ongoing since the mid-1900s where cross-sectional studies of that time were first conducted to identify the possible relationship between these two chronic diseases (Kannel, Brand, Skinner Jr., Dawber, & McNamara, 1967). Kannel et al. (1967) conducted one of these cross-sectional studies, called the Framingham Study, on a large adult population of 5,127 men and women aged 30-62 years who were followed for more than 12 years. Results of this

study showed that as weight increased in participants during the observation period, so did the prevalence of hypertension (Kannel et al., 1967). Since then the prevalence of hypertension has dramatically increased affecting more than 65 million people in the United States between 2005-2006 (Egan, Zhao, & Axon, 2010). More recent studies on this relationship are like the findings of Kannel et al. (1967). In 2002 Wilson, D'Agostino, Sullivan, Parise, and Kannel conducted a study that was a 44-year follow up to the Framingham Study in which comparable results were found. Hypertension was accountable in 34% of men and 62% of women who had a BMI greater than 25 kg/m^2 (Wilson et al., 2002). Bays, Chapman, and Grandy (2007) compared two national surveys, the SHIELD survey and the National Health and Nutrition Examination Surveys, to determine if hypertension and BMI were related. Results of the two surveys showed that at all BMI levels, hypertension was present but there was a significant linear association between increasing BMIs and increasing hypertension; those who had a BMI of 40 kg/m^2 or greater had the highest prevalence of hypertension (Bays et al., 2007). Although researchers have shown a relationship between obesity and hypertension, a study by Johnson (2010) found that sugar, more specifically fructose, is the reason for increasing prevalence in hypertension, not necessarily being obese. Fructose is found in many beverages, especially soda, and is known to deplete energy within the body because it is not properly metabolized like other sugars (Johnson, 2010; Lustig, 2009). The debate over obesity's role in hypertension is still ongoing, but regardless of the cause, hypertension is a problem in the general population and especially in American Indians.

More than 33% of American Indians across the country have hypertension and over 40% are considered obese (Barnes, Adams, & Powell-Griner, 2010; Schiller et al., 2012). Hypertension is one of the key risk factors that leads to CVD in the United States in all populations, but its relationship to obesity in this population is not well studied (Howard et al., 1996). Howard et al. used the Strong Heart Study to evaluate hypertension prevalence among the baseline examination. Results showed that in contrast to other studies, obesity only had a modest influence on hypertension, age and DM were of greatest influence (Howard et al., 1996). Because hypertension is directly related to CVD and is responsible for one in six deaths, public health and clinical efforts need to be more effective at creating preventions and interventions to alleviate the rising prevalence of this "neglected disease" (IOM, 2010, p. 1). Another chronic disease highly influenced by obesity is CVD.

Cardiovascular Disease (CVD)

The direct relationship between obesity and CVD has been an ongoing debate for decades but with recent and dramatic increases in the prevalence of the two diseases, the push for a better understanding of their association has also increased (Bastard et al., 2006; Hubert, Feinleib, McNamara, & Castelli, 1983). In 1983 Hubert et al. performed a 26-year follow-up study to the Framingham Heart Study, mentioned above, in which participants were re-examined to determine the impact of obesity on CVD. Results showed that obesity was a strong predictor for CVD, especially in the younger half of the cohort; as weight increased so did the incidence of CVD throughout the 26 years (Hubert et al, 1983). Findings from Wilson et al.'s (2002) 44-year follow-up of the Framingham

Heart Study supported Hubert et al.'s (1983) findings wherein it was determined that there was a strong relationship between increasing BMIs and increasing CVD incidences. A separate study conducted by Manson et al. (1995), of 115,000 women participating in the Nurses' Health Study found that women who had a BMI greater than 29 kg/m^2 had a seven-fold greater risk of dying of CVD compared to women whose BMI was closer to 20 kg/m^2. To further support the concept of a strong association between obesity and CVD, McGee (2005) performed a 26-study meta-analysis and found results like those mentioned above. However, Gregg et al. (2005) performed an analysis of 5 National Health Examination Surveys from the years 1960-2000 to examine the trends of CVD over the 40 years in relation to BMI. Results showed that currently people with obesity have better CVD profiles compared to less obese people from 40 years ago, suggesting that other factors may be influencing the increased prevalence of obesity (Gregg et al., 2005). Like hypertension, there have been studies insinuating that extremely large amounts of sugar (fructose) are to blame for higher rates of CVD (Akinyanju, Qureshi, Salter, & Yudkin, 1968; Cohen, Teitelbaum, Balogh, & Groen, 1966; Faeh, Minehira, Schwarz, Periasamy, Park, & Tappy, 2005; Johnson, 2010; Raben, Vasilaras, Møller, Astrup, 2002). Regardless of what is the main cause for CVD, this disease is the leading cause of death in the United States for both men and women and is expected to increase roughly 10% in the coming two decades (Heidenreich et al., 2011).

CVD is also the leading cause of death among American Indians, even though in the 1960s it was rarely found in this population (Kochanek et al., 2011). Many studies have been conducted on various components of the Strong Heart Study, including CVD

prevalence and its associated risk factors. Howard et al. (1999) conducted a follow-up examination of the remaining 88% Strong Heart Study participants through examining documentation of CVD events that may have occurred from the original examination. In relation to CVD, Howard et al. (1999) found that obesity was a significant indicator for men but was inversely significant for women. Waist circumference was also measured wherein no association was found for either men or women regarding CVD. Schweigman, Eichner, Welty, and Zhang (2006) used the Strong Heart Study to determine participants' awareness of nine major risk factors for CVD. The nine factors assessed included: being very overweight, cigarette smoking, DM, family history, high blood pressure, high cholesterol, high fat diet, not exercising regularly, and worry/anxiety/stress. Results showed that those participants who had a greater percentage of American Indian heritage were less likely to know potential risk factors for being very overweight (Schweigman et al., 2006). As seen throughout this paper obesity has become an epidemic and has been found to have a direct link to higher prevalence of DM, hypertension, and CVD; it is also related to a variety of cancers (van Kruijsdijk, van der Wall, & Visseren, 2009; Renehan, Tyson, Egger, Heller, & Zwahlen, 2008).

Cancer

Cancer and obesity are considered two major health epidemics of the 21st century with the prevalence of both increasing exponentially (Vucenik & Stains, 2012). Considered the second leading cause of death in developing countries, cancer accounts for one in four deaths in the United States (Siegel, Naishadham, & Jemal, 2013; Vucenik & Stains, 2012). Research on the relationship between obesity and cancer goes back

many decades but only recently has there been a causal link shown between the two (Lichtman, 2010). Researchers have shown that obesity is highly related to the following cancers: colon, endometrium, postmenopausal breast, kidney, esophagus, pancreas, gallbladder, liver, and leukemia (Lichtman, 2010; Ross, Parker, Blair, Cerhan, & Folsom, 2004; Vucenik & Stains, 2012). Callie, Rodriguez, Walker-Thurmond, and Thun (2003) were some of the first researchers to shed a brighter light on the relationship between obesity and cancer by conducting a prospective study on a population of more than 900,000 adults in the United States. The participants were cancer-free at the start of the study and then followed for a 16-year period. Calculating the number of deaths due to cancer showed that the heaviest participants had a 52% higher death rate for men and 62% higher death rate for women compared to those with normal BMIs. The most common cancers leading to death were stomach and prostate cancers in men and breast, uterine, cervix, and ovarian cancers in women (Callie et al., 2003). Ross et al. (2004) performed a study where over 40,000 women from Iowa were sent a questionnaire asking questions on lifestyle and overall health. Results showed that 200 of the women acquired leukemia; the risk of getting leukemia increased in women who acknowledged they were overweight or obese (Ross et al., 2004). Polednak (2008) reported that in 2007 6% of cancers were related to obesity.

American Indians generally have lower rates of cancer but there is an increasing concern that obesity causes cancer mortality prevalence to rise dramatically. Compared to other United States ethnic groups, cancer survival rates are worse by at least five years for both American Indian men and women (Howlader et al., 2010; Sugarman, Dennis, &

White, 1994; van Kruijsdijk et al., 2009; Ward et al., 2004). Between the years 2000-2006 and 2006-2010 the rates of cancer had decreased in American Indians even though they had higher BMIs overall; African-American men had the highest rates of cancer for all United States ethnic groups (Edwards et al., 2013; Jemal, Siegel, Xu, & Ward, 2010). Studies have been conducted to address the relationship between obesity and cancer specifically in American Indians and have found that American Indians had lower overall incidence rates while being more obese compared to others, though this could be contributed to under-representation, small participation numbers, or lack of cancer screenings (Chlebowski et al., 2005; Edison, Becker, Wiggins, Key, & Samet, 1993). Obesity can be a major risk factor in many health problems, a more recent health concern is its effect on asthma.

Asthma

Asthma prevalence have steadily increased since the 1960s, more so in children, but recently is affecting adults at record levels (Delgado, Barranco, & Quirce, 2008; Zhang, Morrison-Carpenter, Holt, & Callahan, 2013). In 2009 roughly 8.4% of United States adults had asthma compared with 7.2% just nine years prior (Zhang et al., 2013). Though the relationship between obesity and asthma is not completely clear, it is being associated with a more western-sedentary lifestyle (Delgado et al., 2008; Guerra, Sherrill, Bobadilla, Martinez, & Barbee, 2002). Because the interest in the obesity-asthma relationship is becoming more common, studies are being conducted with the hopes of showing a correlation between increased BMI and increased asthma (Sideleva et al., 2012). Beckett, Jacobs Jr., Yu, Iribarren, and Williams (2001) performed a study on

4,547 adult African-American and White men and women over a 10-year period to gain insight as to whether asthma was associated with weight gain. Results showed during the follow-up there was a higher association of asthma with higher BMIs in women but not in men (Beckett, 2001). Similarly, Guerra et al. (2002) found in their study that 30% of their participants who had asthma were either pre-obese or obese and only significant in women. In a more recent study from 2008, Mosen, Schatz, Magid, and Camargo provided questionnaires to 1,113 members of a health care organization asking a variety of questions regarding asthma-related factors along with basic demographic information. Results showed that those who were obese were more likely to have poorer quality of life, poor control over their asthma, and have been hospitalized more due to their asthma (Mosen et al., 2008). Contrary to the above findings Pelegrino, Faganello, Sancher, Padovani, and Godoy (2007) performed a retrospective study on medical records of 200 patients from an asthma outpatient clinic in which they found no correlation between asthma and obesity.

Asthma and obesity are chronic diseases that are affecting all populations and though the direct association between the two is unclear, they are both becoming a concern for American Indians regarding morbidity and mortality (Black, Smith, Porter, Jacobsen, & Koebnick, 2012; Orell, Ferucci, Lanier, & Etzel, 2011). In 2011 14.3% of American Indians had asthma and 40.8% were considered obese, a 2.2% and 9.9% increase from 2006, respectively (Pleis & Lethbridge-Çejku, 2007; Schiller et al., 2012). There have been many studies conducted that have examined the relationship between obesity and asthma but few have been conducted among American Indians, specifically,

because smaller ethnic groups in the United States are not always included in national surveys. Orell et al. (2011) conducted a study on a non-random sample of 3,828 American Indian/Alaska Native adults that lived-in Alaska as part of the Education and Research Towards Health study. Participants initially filled out basic questionnaires and underwent a variety of medical measurements. Results showed after all statistical analysis were completed that for both men and women lifelong asthma was significantly associated with higher BMIs (Orell et al., 2011).

Childhood obesity and childhood asthma are becoming more and more prevalent with parallel increasing trends in the general United States population and in American Indians, thus causing researchers to focus more on the obesity-asthma relationship in American Indian youth (Camilo, Ribeiro, Toro, Baracat, & Filho, 2010; Noonan et al., 2010). Noonan et al. (2010) performed a cross-sectional study within 5 American Indian communities in the Northern Plains as part of the Child Health Measures Project. Participants were in grades kindergarten through 12th and had basic measures of height, weight, blood pressure, and acanthosis nigricans taken by staff of the Tribal Health and IHS. Results found that those students who were overweight or obese had a higher chance of having asthma compared to those students with normal BMIs regardless of family history of asthma occurrence and location (Noonan et al., 2010). Black et al. (2012) conducted a population-based cohort study of 681,122 youth aged 2-19 years who were part of the Kaiser Permanente Southern California Children's Health Study to determine the relationship between obesity and asthma in different United States ethnic groups. Results of the study showed that obese American Indian youth were 3.65 times

more likely to have asthma compared to their normal weight counterparts. Results also showed that American Indian youth that were overweight or slightly obese had higher odds of having current asthma compared to all other United States ethnic groups (Black et al., 2012). Though the controversy over whether asthma is related to obesity is ongoing, the fact that obesity affects American Indians at higher prevalence compared to the general United States population is not under as much debate.

Obesity in American Indians

As discussed throughout this chapter, the prevalence of obesity has reached epidemic proportions due to a variety of factors and has become a major public health concern, especially for American Indians (Curran et al., 2005). The health issues most American Indians face, regardless of their tribal heritage, can be directly related to obesity (Wetly, 1991). Broussard et al. (1995) suggested that American Indians may have a genetic trait that influences their chances of obesity when exposed to a Western lifestyle. However, even though there have been over 250 genes identified that can be associated with obesity, there has not been one gene specifically found that predicts if a person will become obese (Bishop, Middendorf, Babin, & Tilson, 2005). Regardless of factors that may be contributing to obesity among American Indians, an important consideration is that American Indians are not properly represented on national health and nutrition surveys and because of this, there could be more factors affecting this population than previously thought (Broussard et al., 1991).

Broussard et al. (1991) estimated the prevalence of obesity among American Indians using results from a special survey from 1987 that reported heights and weights.

Results showed that 33% of males 18 years and older were overweight compared to the United States male rate of 24.1% while 40.3% women 18 years and older were overweight compared to the United States female rate of 25.0% (Broussard et al., 1991). Will, Denny, Serdula, and Muneta (1999) conducted a study using a population-based survey across four study areas to find out whether BMI increased in American Indians/Alaskan Natives between the years 1985-1996. Results showed that across all four study areas BMI dramatically increased, concluding that American Indians are becoming more obese (Will et al., 1999). Schulz et al. (2006) conducted a study comparing two groups, Pima Indians living in Arizona and Pima Indians and non-Pima Indians living in Mexico, to see if environmental factors influence obesity and DM prevalence. Results between the groups showed that the Pima Indians living in Arizona had significantly higher prevalence of both diseases compared to both groups living in Mexico, even though both groups of Pima Indians were of full heritage. Obesity was 10 and 3 times more prevalent in Pima Indian men and women, respectively, in Arizona, concluding that even though the two Pima Indian groups were of similar descent having closely related genetic backgrounds, contrasting lifestyles largely influenced their health (Schulz et al., 2006). With American Indians being under-represented in national surveys, data is limited regarding the true prevalence of obesity they may be experiencing. Data is even more limited on the reservation where this study took place.

Obesity on the reservation

The reservation under study is federally recognized by the United States government and is in the Northern Great Plains region of the United States. Like other

American Indian populations, the reservation is subject to under-representation in national surveys. Because of this, there is limited data available regarding obesity's direct effect on this reservation. Although there is limited data available, according to tribal websites the reservation has local agencies that provide a wealth of services and programs to its members.

The local public health unit, located in the neighboring county, serves the reservation community and provides immunizations, flu shots, wellness programs, women's educational sessions, basic checkups, Healthy Tracks, which monitors heights and weights of children ages infant through 21 years, and provides Women, Infants, and Children (WIC) services (Public Health Educators, personal communication, February 10 & 13, 2014). The public health unit is funded partially by a local small mill levy and the rest of the funding is provided by grants (Public Health Educator, personal communication, May 14, 2014).

The Tribal Health Education Office provides sessions on how to properly choose healthy foods and prepare them, how to access proper physical activity, identify proper portion sizes, and provide a "body transformation" event that is in collaboration with the Diabetes Prevention Office, in which people can be measured for body mass while being educated on how to make healthy choices (Health Educator Assistant, personal communication, February 13, 2014).

The local diabetes office provides services to 1,400 pre-diabetic members of the reservation by offering equipment for them to use, providing diabetic shoes in collaboration with the state, and has recently started a program where people can sign up

for services and receive a free membership to the new workout facility, which has reached 412 participants within a year. The office is federally funded via grants through the IHS and to keep the program in operation, each year statistics are reported to the regional office where it is decided whether the program will continue or not (Diabetes Educator, personal communication, May 1, 2014).

The Community Health Representatives (CHR) Office offers transportation to those within the community that do not have access to doctor's appointments or dialysis treatments, some of which take place 2 hours away in a different city. There are 19 staff, 16 of which drive, and approximately 3-10 clients per day that need assistance. Each February the office conducts a health fair in which they do finger pricks to determine if DM is present along with basic screenings. This office follows a 638-contract, which is part of the Indian Self-Determination Act of 1970 where tribes have authority over what programs are run and are paid by the government (CHR Director, personal communication, May 1, 2014).

According to tribal and regional websites, the local health care facility is located on the reservation and is under guidance from the regional IHS office. The health care facility provides services to roughly 13,000 people, provides 27 beds, staffs 11 physicians, provides full dental caries, and offers both inpatient and outpatient specialties as well as psychological counseling. Within the health care facility is the IHS Diabetes Coordinator and the IHS Dietician. The Diabetes Coordinator provides services to those who have been diagnosed with DM I or II, which is roughly 1,373 people, by educating them on healthier living behaviors and collaborating with the IHS Dietician to provide

healthier food options. One of the major concerns is how to get people who have DM to educational classes because often the classes must be held in the evening, they may not have transportation, or they do not want to come. Communication is a work in progress according to the IHS Diabetes Coordinator. Funding for both the IHS Diabetes Coordinator and IHS Dietician is through IHS (Diabetic Educator & IHS Dietician, personal communication, May 1, 2014).

According to the tribal websites, there are other programs and services available on the reservation that include: tobacco prevention, wellness and fitness centers, drug and alcohol abuse, methamphetamine (meth) initiative programs, a treatment programs that educates adolescents about abstinence and contraception, and environmental programs, among others. Though data is limited specifically to this reservation and obesity, there is effort being put forth by community agencies to provide a variety of services to its members.

Fighting Obesity: A Public Health Crisis?

Obesity is now being considered the number one cause of preventable death in the United States, surpassing deaths related to tobacco use; because of this, public health professionals are striving to find approaches that reduce those factors relating to this major health crisis (Hurt et al., 2010). Efforts to prevent obesity in individuals and overall populations have been a primary goal since 1980 by public health professionals where focus was put more on reducing energy intake and increasing energy expenditure (Nestle & Jacobson, 2000). Since then, the prevalence of obesity has reached "epidemic proportions" (p. 428) now causing the focus to switch from energy intake and output to

incorporating possible environmental factors that could be of influence (Kumanyika, et al., 2008). Regardless of the focus, obesity is being considered a threat to public health and because of this, agencies at all levels are rushing to action to alleviate the onset of obesity (Campos, Saguy, Ernsberger, Oliver, & Gaesser, 2006).

A Public Health Approach

Creating specific public health intervention and policies is a slow process that does not give quick or easy answers (Dodson et al., 2009; Nestle & Jacobson, 2000). Because the obesity epidemic is very complex, professionals from all disciplines and levels, i.e. academics, healthcare, food industries, public health, are being called upon to work together as key stakeholders to fight obesity due to failed attempts by individual sectors (Blackburn & Walker, 2005). Public health professionals, especially, look for policy changes to create an appropriate strategy that can be implemented and enforced to address the many environmental factors that are contributing to obesity, many of which are beyond any one agency's control (Friedman & Schwartz, 2008). Nestle and Jacobson (2000) explained that simple changes mandated by the government could be applied to workplaces, schools, and communities to provide healthier food options and more physically demanding activities. Chan and Woo (2010) counter Nestle and Jacobson's claim by stating that effective obesity strategies need to target factors that contribute to obesity, need to have collaboration from stakeholders at all levels and not just the government, and should target barriers that affect lifestyle changes at the personal, environmental, and socioeconomic levels.

An example of simple, but not easy, changes happened in 2006 when New York City's Department of Health and Mental Hygiene initiated a bold move by restricting the use of artificial trans-fats in all its restaurants. By 2008, 99% of restaurants had implemented the new rule, which led to a dramatic decrease in artificial trans-fat use, 50% reduced to 2% (Angell et al., 2009). To see how effective this restriction was, Angell, Cobb, Curtis, Konty, and Silver (2012) performed a study where two different samples of customers from 168 randomly picked New York City restaurants were surveyed regarding their receipts and purchases; the first occurring in 2007 one year after the implementation took effect, and the second in 2009 three years after the fact. Results of the study showed that between the two years the average amount of trans-fats used dropped 2.4 grams per purchase, indicating that this type of restriction is overall effective (Angell et al., 2012). Though the above move by New York City has overall helped fight the obesity epidemic, this is only a small step that would have to be implemented throughout the country to make a substantial impact on obesity prevalence (Angell et al., 2009).

An example of a public health approach that involved a facet of stakeholders is the Taking It to the (Complete) Streets: Michigan's Road to Fight Obesity Initiative. Michigan is ranked 9th in the nation for highest rates of obesity and because of this statistic, the Michigan Department of Community Health introduced a five-year plan to reduce childhood obesity across the state. One of the first steps in this plan was to address completing the streets for adults and children alike to use for physical activities. More than 120 organizations came together for this mission and included representatives

from both private and public sectors. Thirty-eight policies were implemented due to this plan along with resolutions and ordinances for the communities. This initiative was awarded the Winning Campaign of the Year by the Alliance for Biking and Walking and has become a model for the nation (CDC, 2011d).

Obesity is different than most public health issues in that private behaviors are often the blame for weight gain, resulting in hesitated involvement from the government (Kersh & Morone, 2002). Mello, Studdert, and Brennan (2006) discussed that food industries showed backlash to the idea the government should get involved with obesity because of the freedom of choice, speech, and contract, even though 72% of their advertising is unhealthy foods directed at children. Campos et al. (2006) suggested that the obesity epidemic might be a moral crisis put forth by media attention and exaggerations instead of being an actual problem. Patterson and Johnston (2012) eluded to the above idea by stating that the debate over whether obesity is a panic or a health risk is not resolved and that current media has become obsessed with the obesity issue. Puhl, Peterson and Luedicke (2012) conducted a study of the publics' perceptions on whether public health media messages addressing obesity as a problem were helpful or hurtful. Results showed that the messages discussing health behaviors and those not using the word obese were more supported than those messages that were more critical or stigmatized (Puhl et al., 2012). In a more recent national survey conducted October 30-November 6, 2013 by the Pew Research Center, (2013) 69% of more than 2,000 United States adults surveyed felt that obesity is a major public health problem while 54% of

those surveyed felt the government should not play a crucial role in reducing the obesity crisis.

Movements addressing the obesity issue are slowly taking place throughout the country, i.e. removal of pop machines in schools, but it might be a long time before there is a nation-wide implementation regulating food intake or personal behavior (Kersh & Morone, 2002). Like the nation, policies and interventions to address obesity in the Northern Great Plains region where the reservation is located are slow but there are some successful efforts being put forth by the region. For example, according to state-health websites, there is the Healthy Coalition that motivates citizens to be healthier in mind, body, and spirit; the Hunger Free Coalition that strives to make sure no citizen goes hungry regardless of their age; and the Action for Healthy Kids program that aims to combat childhood obesity. Overall, the region has few state-level policies addressing obesity because most policies occur at the local level (State Educators, personal communication, May 15, 2014). Efforts addressing obesity in American Indians are slower in taking place and less frequent because tribal governments are often ignored or overlooked by the Federal and state Government and those off the reservation, especially in a rural state like where the reservation is located (Fleischhacker et al, 2012; (Holm, Vogeltanz-Holm, Poltavski, & McDonald, 2010).

A Public Health Approach in Indian Country

As with the general United States population, American Indians are also suffering from obesity but at much higher rates (Gittelsohn & Rowan, 2011). According to the IHS Clinical Reporting System, a system that monitors active clinical patients, 81% and

54% of patients are overweight and obese, respectively (IHS, 2011). Because of this dramatic increase in obesity prevalence, public health professionals are trying to incorporate formative research into an action-oriented strategy to develop and enforce tribally led approaches that focus specifically on promoting and accessing healthier lifestyles (Fleischhacker et al., 2012; Sallis, Story, & Lou, 2009). As discussed in previous sections, there are many factors that can contribute to obesity in all populations, but why American Indians are more affected than the general United States population by obesity and its accompanying health problems is complex and not completely clear or understood.

Researchers have shown that obesity in the American Indian populations only became a problem within the last two generations when commodity foods became more popular on reservations, supermarkets and fresh foods became scarce, fast food restaurants and gas stations became more common, increasing energy expenditure decreased while food intake increased, access became limited, income was at or near poverty level, and other environmental issues arose (Gittelsohn & Rowan, 2011; Larson et al., 2009; Mead, 2008; Morland, Diez, & Wing, 2006; Popkin et al., 2005; Story et al., 1999; Welty, 1991). In 2003, Narayan et al. conducted a pilot study of a group of Pima Indians living in Arizona to observe how certain lifestyle interventions affected the participants. The study consisted of 95 obese men and women aged 25-54 years who were divided into two groups, Action group and Pride group, and followed for one year. The Action group participated in a structured setting of physical activity and nutrition while the Pride group was unstructured and focused more on Pima history, traditions, and

culture. Of the 95 original participants, 35 chose not to be randomized and were considered the control group, who were also followed for the year. Results showed that weight gain and BMI increased in the Action group compared to the Pride group while the control group gained almost 2 pounds, on average, throughout the year. The authors concluded that following historic cultural traditions resulted in healthier outcomes and less weight gain (Narayan et al., 2003).

Efforts to address obesity in American Indians is also being directed towards children as childhood obesity in American Indians is increasing dramatically as well with prevalence ranging between 25-31% depending on age (IHS, 2011). Public health professionals think that by focusing interventions and prevention at young ages, this will help reduce future onset of adult obesity (Anderson & Whitaker, 2009; Strauss & Charles-Azure, 2010). Anderson & Whitaker (2009) conducted a cross-sectional study of 8,550 4-year-olds in which they estimated the prevalence of obesity across five major United States ethnic groups (American Indian/Alaskan Natives, Hispanic, Black-non-Hispanic, White-non-Hispanic, and Asian). Results of the study showed that regardless of where BMI cutoff points were, American Indian/Alaskan Natives had the highest prevalence of obesity compared to the other United States ethnic groups (Anderson & Whitaker, 2009). Karanja et al. (2010) conducted a community-wide intervention study on 18-24-month-olds from three tribes called the Toddler Overweight and Tooth Decay Prevention Study (TOTS) to promote breastfeeding and reduce the drinking of sugared beverages. Tribe A was assigned to a community-wide intervention group while tribes B and C were assigned to a community-wide intervention group that contained a family

component. Results showed that toddlers who were part of a community-wide intervention plus a family component had lower BMIs compared to the community-wide intervention group, indicating that breastfeeding and reducing consumption of sugared beverages can help reduce obesity prevalence, especially at a early age (Karanja et al., 2010). The challenge for public health professionals, whether for adults or children, is changing the environment, systems, and current policies to address the obesity issue. The right approach must begin within the community (Strauss & Charles-Azure, 2010.

Specific to the reservation under study, in 2012 they were chosen as part of 50 teams through the National Initiative for Children's Healthcare Quality program to participate in Collaborate for Healthy Weight, a nation-wide initiative bringing local partners together as one to battle obesity and any accompanying health injustices (National Initiative for Children's Healthcare Quality, 2012). Mentioned earlier, the reservation's Tribal Health Education Office provides programs that seek to assist members of the reservation to adopt healthier lifestyle behaviors, to use available healthcare resources, to advocate access to better healthcare, and to educate on DM and its prevention. As seen above, obesity efforts for American Indians at all levels are lacking and leaders may have "untapped potential" (p. S123) they could use to address these issues if they had the opportunity (Fleischhacker et al., 2012). The approach, or model, that public health professionals use must be of a design that will effectively look at all factors and influences affecting an individual, or a population, so that strategies can be created to intervene or prevent further health disparities (Strauss & Charles-Azure, 2010).

Summary

In summary, the researcher reviewed a large amount of information in relation to obesity and how it has become a public health concern. Within the last three to four decades the prevalence of obesity has reached an all-time high in all populations while disproportionately affecting American Indians. Obesity is now costing millions of dollars to address in the medical sector and deaths due to obesity have also increased because it is a strong indicator for many other chronic diseases including DM, hypertension, CVD, cancer, and asthma. Because obesity is such a complex disease, there is not one single factor that causes it. There are many elements that can influence the likelihood of becoming obese including biological, behavioral, and environmental elements. Public health approaches to address the obesity issue are increasing nationwide but little is available in Northern Great Plains region, especially on the reservation under study.

The literature reviewed was based on quantitative approaches, which generally does not provide informational data on perceived opinions of a topic from specific culture populations. Common themes in the literature found that American Indians are substantially more affected by obesity compared to other United States ethnic groups. Some of the studies reviewed revealed that environmental factors are often more of an influence on obesity compared to other factors like genetic make-up while other studies lean more towards personal choices being the reason. There is a continuing debate as to the root cause of the escalating obesity prevalence in all populations.

In this study, the researcher sought to gather information and identify culture-specific perceptions, attitudes, beliefs, and opinions in relation to obesity and its effect on

healthy lifestyles with grounding from the Social Ecological Model. Because the literature review did not reveal any qualitative studies that focused on personal beliefs towards obesity in American Indians, this study contributed to the missing knowledge of culture-specific perceptions in this topic area by providing personal opinions regarding obesity among the American Indians. From a public health standpoint, delaying or preventing the progression of obesity prevalence is crucial for the health of American Indians and the overall population. In Chapter 3, the researcher discussed, in detail, the methods used for addressing this gap in the literature that took place on the reservation. In-depth, open-ended key-interviews and focus groups were the chosen instrumentation to gather this information.

Chapter 3: Research Method

Introduction

The objectives of this study were to identify personal perceptions, attitudes, beliefs, and opinions among American Indians regarding obesity and to determine if cultural beliefs and behaviors contribute to the development of obesity. Obesity is more prevalent among American Indians compared to other United States ethnic groups (Blanche, 1972; CDC, 2011a; Denny, Holtzman, Goins, & Croft, 2005). Researchers have conducted numerous anthropometric studies in which they have identified the increased prevalence of obesity among American Indians; however, there are few qualitative studies addressing American Indians' personal views on the relationship between obesity and a healthy lifestyle (Gittelsohn & Rowan, 2011; Wilson, Gilliland, Moore, & Acton, 2007). This study is important because it will contribute knowledge about how American Indians view obesity. The information from this study may help health professionals, educators, and community members to develop effective approaches and prevention programs that are culturally-specific with the goal of improving population and community health.

In this chapter, the researcher introduces the research design and rationale for this study. The role of the researcher in the research process is then explained followed by a description of the study setting and a detailed discussion of the methodological approach used. This discussion includes information on participants and the participant selection process, the instruments and materials that were used during the study, and how the data were collected and analyzed. The researcher concludes the chapter with a discussion of

trustworthiness and ethical considerations that were taken to protect participants' rights and privacy. This discussion is followed by the chapter summary.

Research Design and Rationale

Qualitative inquiry involves the use of knowledge gained through personal views. The process of using qualitative inquiry along with quality interaction with participants enables a researcher to study issues in greater detail and more in-depth (Kral, Burkhardt, & Kidd, 2002; Patton, 2002; Ulin, Robinson, & Tolley, 2005). Qualitative research is conducted to help researchers for a variety of reasons, including: to understand why people act the way they do, to determine how people feel about a certain situation or event, a person or a group of people's attitudes about a situation, if and how cultures have developed specific behaviors and why, and the differences between social groups (Joubish, Ashr, Ahmed, Fatima, & Haider, 2011).

Researchers can use many approaches to gain insight about these issues. However, the choice of the best approach should be based on the research questions and scope of the study (Blumenthal & DiClemente, 2004). The focus of this study was to identify personal attitudes, beliefs, opinions, and perceptions of obesity and its effects on healthy lifestyles within a specific culture. Because the researcher wanted to understand people's beliefs and attitudes surrounding obesity ethnographic inquiry was chosen for for this study. Ethnographic inquiry, according to LeCompte and Schensul (1999), means "writing about groups of people" (p. 21), specifically about their culture.

Ethnographers focus on the shared values, beliefs, behaviors, traditions, or experiences that can be observed among members of a certain culture (Babbie, 2004;

Rossman & Rallis, 2003). They aim to "get inside" (p. 512) how a culture views the world by directly engaging with participants and the world they live in (Reeves, Kuper, & Hodges, 2008). Because the focus of this approach is on cultural perspectives and practices, the researcher is interested in analyzing the experiences of an entire group of people compared to those of individuals (LeCompte & Schensul, 2010). Ethnographic inquiry is a research approach that specifically studies populations and cultural groups where the researcher can be the primary data collector to allow the researcher to gain the "insider's view" (p. 385) about a certain topic there (LeCompte & Schensul, 2010). Ethnographic inquiry also permits the researcher to use more than one data collection methods (i.e. focus groups and key-informants) (LeCompte & Schensul, 2010). For these reasons, ethnographic inquiry was chosen as the best choice for this study.

Strongly grounded in anthropology, ethnographic inquiry has been used by researchers in many fields including sociology, nursing, health sciences, and education (Reeves et al., 2008). Warin, Turner, Moore, and Davies (2008), for example, used this approach to determine how lifestyles, values, dispositions, motherhood, and everyday experiences can impact obesity and body mass index in Australia. Sinding (2010) also used ethnographic inquiry to examine how health care disparities occur during routine health services for women who have cancer. Bacsu et al. (2012) used the approach to determine key factors that are important in supporting aging people in rural settings in Saskatchewan. Similarly, Ng et al. (2013) applied ethnographic inquiry to determine the level of coordination and organization among institutions that provide education to

children who have chronic conditions or disabilities and their families in Ontario, Canada.

Ethnographic inquiry is useful for many reasons. It is used to test hypotheses and is a reliable form of pilot testing and is particularly helpful when there is new unfamiliar information (Brewer, 2000). Ethnographic inquiry is also useful when topics of quality and efficiency are studied and is most useful when questionnaires cannot capture the subtlety of the information being elicited (Nastasi & Berg, 1999; Brewer, 2000; Smith, 2001). When examining behaviors related to health, the meaning behind peoples' perspectives within a specific culture can provide a clearer understanding about the challenges and barriers that may occur when trying to create health prevention programs (Schensul et al., 1999; LeCompte & Schensul, 2010).

Though ethnographic inquiry has many benefits, it comes with challenges for the researcher. Ethnographic inquiry is rigorous and entails building rapport and trust within the research community (Thomson, 2011). It also relies on the researcher to be the key instrument in data collection, which can lead to personal bias (Savage, 2006). Despite these challenges, the researcher concluded that ethnographic inquiry was the best approach for this study to shed light on a major health concern that disproportionately affects American Indians. Through an ethnographic approach, the researcher asked questions that provided an emic perspective about obesity and its effect on healthy lifestyles among this culture. These are the four research questions used to guide this ethnographic inquiry:

RQ1. How do American Indians perceive a healthy weight or body mass index?

RQ2. How do American Indians perceive being overweight or obese?

RQ3. How do American Indians perceive obesity as an influence, if any, on healthy lifestyles?

RQ4. How do culturally-driven beliefs contribute to behaviors that relate to being overweight or obese?

Though ethnographic inquiry is the chosen paradigm for this study, there were other commonly used qualitative approaches the researcher considered. Some of the methods that were reviewed by the researcher included case study inquiry, narrative inquiry, grounded theory inquiry, and phenomenological inquiry. The following paragraphs briefly discuss these approaches and why they were not chosen for this study.

Case study inquiry is often used to answer "how" and "why" (p. 544) questions and when the behavior of those participating cannot be manipulated (Baxter & Jack, 2008). This type of approach is also used when the researcher is seeking to understand the underlying conditions that could affect the phenomenon under study, when utilizing a natural setting is required, and when there is not a clear distinction between the phenomenon and the circumstances that can influence the setting for this event (Baxter & Jack, 2008). Case study inquiry is an approach that brings together other research methods and is considered by some researchers to be a stand-alone approach because of its flexibility, diversity, and because the design addresses a specific case (Denzin & Lincoln, 2011; Hyett, Kenny, & Dickson-Swift, 2014; Merriam, 2009).

Case study inquiry can either follow the constructivist paradigm, where researchers do not necessarily begin with a theory but develop one during the research, or

the post-positivism paradigm, where the researcher tests a theory under the assumption that any component of research can be influenced by already-developed theories (Eisenhardt, 1989; Flybjerg, 2011; Merriam, 2009; Mertens, 2005; Stake, 1995; Yin, 2012). Depending on what the researcher is looking to answer, through their research questions, will help guide the case study approach.

For example, Baxter (2006) used case study inquiry to learn types of decisions nursing students made and what factors influenced these decisions. Baxter kept in mind the setting (context) under which the students interacted: classrooms, clinics, and the overall School of Nursing itself. The findings showed that the participants felt the greatest influences on their decisions were encounters with patients, nursing staff, and clinical tutor (people who oversee students in training per the college) (Baxter, 2006). Likewise, Sheikh et al. (2009) applied a case study approach to determine barriers affecting ethnic minority recruitment into research within the United States and the United Kingdom. Like Baxter (2006), the authors needed to consider the setting in which ethnic minorities were trying to be accepted. The authors found that participants felt optimistic about including ethnic minorities into research if care was taken to engage with these communities in a culturally-appropriate way (Sheikh et al., 2009).

Overall, case study inquiry is based on a concept of reality and that truth is comparative and dependent on a person's own perspective, thus allowing the person to tell their story collaboratively to the researcher (Baxter & Jack, 2008; Crabtree & Miller, 1999). Case study inquiry is the only descriptive method that can provide the level of detail that the research is looking for. Also considered holistic, specific, and realistic,

case study inquiry focuses on a fundamental understanding of a specific system of interest (Tellis, 1997; Yin, 2009). Case study inquiry was eliminated as a possible construct for this study because this study was looking to view a culture from the viewpoint of multiple participants rather than a case-by-case perspective. A second commonly used qualitative approach is narrative inquiry.

Narrative inquiry is a qualitative method that includes the experiences of different individuals and sources wherein the researcher creates a composite picture of a specific individual(s)', or groups', experience that focuses on a certain problem or issue (LeCompte & Schensul, 2010). Narrative inquiry is strongly grounded in the idea that humans give meaning to their lives through story and by doing so, provides the researcher with knowledge from the past rather than knowledge about the past (Andrews, Squire, & Tambokou 2008). Those participating in narrative inquiry will tell their stories and experiences to the researcher in great depth hitting on key points that are of importance to the researcher, often in a chronological fashion (Patton, 2002). Narrative inquiry has long been used in disciplines such as literature, history, and anthropology but more recently is becoming popular in other disciplines because of the fruitfulness personal stories can have on many topics (Clandinin, 2006).

For example, Rich and Grey (2003) used narrative inquiry to determine the impact trauma surgery had on people who survived extreme violence. The narratives found that the victims were scared from seeing all the medical tubes coming from their bodies when they woke up from surgery, felt they were going to die, and that their feelings were different from the hospital personnel in that the they were scared while the

hospital personnel were comforting and positive (Rich & Grey, 2003). Similarly, Trahar (2009) used narrative inquiry of a graduate student to determine if institutional racism occurred within higher education in England. Interestingly, the interviewee felt there was more disrespect outside of the institution/department by strangers, i.e. a waiter at a noodle bar or a bus driver, than within the institution/department (Trahar, 2009).

Because narrative inquiry focuses on gathering and telling stories, uses a single-case approach, is considered both the method and the phenomena, and often makes the familiar unfamiliar, it was also eliminated as a possible construct for this study (Bleakley, 2005; Pinnegar & Danes, 2007). Though narrative inquiry draws on cultural discourses, it was not chosen as the appropriate approach for this study because this study was not looking for lived stories provided by participants, but rather their beliefs and opinions. Grounded theory is also commonly used for qualitative research.

Grounded theory inquiry is used when a researcher is trying to obtain a higher understanding of a social phenomenon that is "grounded" (p. 459) in data (Lingard, Albert, & Levinson, 2008). Known to generate theories, but not test them, grounded theory inquiry involves having many participants who all have experienced a certain process or action (i.e. death in the family) thus allowing the researcher to obtain data that is grounded in a theory (Mills, Bonner, & Francis, 2006). Grounded theory inquiry is based on purposeful theoretical sampling. With this type of sampling the researcher constantly compares similarities and differences between participants in relation to emerging theories when new participants are added. This concept is what provides the fruitfulness that grounded theory is known for (Starks & Trinidad, 2007). Originally

designed in sociology, grounded theory has been applied to other disciplines including nursing, education, agriculture, and other social sciences.

For example, Charmaz (2006) used grounded theory to determine how people with chronic illnesses in Northern California felt about their situation and overall health by measuring a variety of factors in relation to physical activity. Many of the participants indicated that supervisors and co-workers were very critical about their involvement at work and scrutinized their performance because of the effect their chronic illness had on work performance (Charmaz, 2006). In the same way, Sbaraini, Carter, Evans, and Blinkhom (2011) applied grounded theory inquiry to their study in Australia to determine if private dental practices provided preventative protocols to patients who had existing tooth decay. Results showed that most dental practices were not implementing the preventative protocols uniformly and that uniform adaption occurred slowly across most of the dental practices (Sbaraini et al., 2011).

Considered a method of clarification and development, grounded theory inquiry does not only focus on the results of the inquiry but also the process of analysis and development of theories (Charmaz, 2008). Because grounded theory specifically looks to create a new theory, includes many participants, and causes the researcher to strive for objectivity; it too was eliminated as a possible construct for this study (Glaser & Strauss, 2009). This study was not looking to create a new theory nor was it looking to purposefully recruit participants who have experienced a similar phenomenon; instead, it was seeking to understand an emic view of a specific culture and how culture influences

a healthy lifestyle. A fifth commonly used qualitative approach is phenomenological inquiry.

Phenomenological inquiry is an approach researchers use when they are trying to describe a certain phenomenon as precisely as possible while remaining accurate to the facts (Groenewald, 2004). Phenomenological inquiry focuses on a group of people and their lived experiences of a certain event that is common to all of them, i.e. grief, anger (Speziale & Carpenter, 2007). Analysts of this type of inquiry collect data from those who have experienced the phenomenon and create a composite picture describing the essence of the experience for all the individuals (Giorgi, 1997). Phenomenological inquiry focuses on understanding the meanings that people give to their daily experiences offering either a descriptive or interpretive view of the phenomenon (Larsson & Holmstrom, 2007). Having its roots in philosophy, phenomenological inquiry has become popular in psychology, nursing, the health sciences, and the social sciences (Orbe, 2009).

For example, Larsson and Holmstrom (2007) used phenomenological inquiry to gain a better understanding of 19 Swedish anesthesiologists' work by analyzing interview transcripts. Overall, the anesthesiologists felt that having responsibility of patients' vital functions, being alert, being watchful over the patient's body, and being ready to act in any circumstances were of most importance in doing their jobs (Larsson & Holmstrom, 2007). Similarly, Martins (2008) applied phenomenological inquiry to understand homeless peoples' experiences with health care at a free clinic for homeless people in an inner-city area. The researcher found that participants felt that their health was at risk when there are not enough resources (Martins, 2008).

Phenomenological inquiry requires the researcher to look through a different lens by removing themselves from their own experiences and prejudices and trying to experience the phenomenon as directly as possible for themselves (Martins, 2008; Patton, 2002). Phenomenological inquiry aims for in-depth complex descriptions of the phenomenon as lived, does not attempt to explain or discover causes, and takes subjective topics and creates objective conditions (Giorgi, 2005; Finlay, 2009; Orbe, 2009). With characteristics like the above, this approach was not feasible for this study because the researcher was not looking for lived experiences with any kind of phenomenon; instead this study sought to understand personal perceptions of obesity from within a specific culture.

Though case study, narrative, grounded theory, and phenomenological inquiries all have effective characteristics in qualitative research, they were not chosen as the appropriate approach because of this study's nature. Ethnographic inquiry was used for this study because it is considered the art and science of describing a culture, focuses deeply on the participants' point of view in understanding a specific way of life, and looks to identify and recognize how culture can cause or influence lifestyle behaviors (Fetterman, 2010; Neuman, 1994). Regardless of the approach the researcher chooses to use, qualitative research has a role for the researcher.

Role of the Researcher

In all forms of research, it is initially important that the researcher form a trusting relationship with participants by showing respect and demonstrating honesty, proper listening skills, professionally answering or asking relevant questions, and not showing

any judgment or personal bias (Unluer, 2012). It is important to note that the primary researcher had no relationship to or affiliation with the study participants. This helps the researcher avoid any bias but it can also be a limitation for the researcher, especially within the American Indian culture, because being an outsider may affect how information is shared among participants (Teufel-Shone & Williams, 2010). Teufel-Shone and Williams (2010) further explained that an ideal researcher should be one from the community who is trusted and familiar with the community. For this study, the researcher, who is not of American Indian heritage, attempted to limit this potential negative bias by building trust and rapport for four years with members of the reservation. The researcher worked closely with a well-known respected Elder of the community, made several visits to the reservation to make initial introductions, and attended annual Wellness Conferences on the reservation. Because of these efforts, the researcher was welcomed by members of the community.

Methodology

The following sections were the original methodology plan put forth by the researcher when developing data collection and analysis. Due to uncontrollable circumstances when the time came for the researcher to conduct data collection, there were some variations that took place that changed the steps taken to gather data. The data analysis section also has some variation. These variations are discussed in Chapter 4.

This study utilized focus groups and key-informant interviews as the methods for collecting in-depth qualitative data. Focus groups were chosen because the researcher

wanted to explore and understand American Indian beliefs and whether culture influences peoples' feelings, attitudes, and behaviors (Rabiee, 2004). Key-informant interviews were chosen because of the in-depth understanding they provided to the researcher by collecting data from those individuals who are considered to have a great deal of knowledge about a topic (Krueger & Casey, 2009). Both methods are discussed in further detail in later sections. The overall number (N) of participants initially ranged between 35 and 40 with a target N of 38; four focus groups conducted, each consisting of eight participants giving a total of 32, and six key-informant interviews.

There is no set way of determining sample size in qualitative research. A lot depends on the scope of the study, the topic, the study design used, funding, the ability of the researcher, and time constraints (Morse, 2000). A common rule of thumb in qualitative research is to have a big enough sample size to hear most of the perceptions that may be important to the study (Malterud, Siersma, & Guassora, 2015). There has been an ongoing discussion as to what a good N should be. Charmaz (2006) suggested 25 participants for smaller projects while Ritchie, Lewis, and Elam (2003) stated that keeping 50 participants or less is enough for qualitative work. Green and Thorogood (2009) further stated that by the time 20 participants have been utilized, any new information should have been obtained.

A variety of qualitative studies have been conducted among American Indians that have ranged in the N used. For example, Perry and Hoffman (2010) reached saturation with 35 participants in assessing tribal youth physical activity programming while Legha, Raleigh-Cohn, Fickenscher, and Novins (2014) had access to 76

participants in determining challenges in creating substance abuse treatments for American Indians and Alaska Natives. Strickland (1999) used almost 200 participants as her N when studying pain among two American Indian tribes in Washington. Initially for this study an N of 38 was chosen because in public health, targeting a small section of the target population is appropriate because a small sample size is useful for thick cultural description and because of accessibility to the researcher (Marshall & Rossman, 2011).

In qualitative research, participant selection is up to the researcher. Selection usually follows either the concept of probability sampling, which allows for all people within the population a chance to participate, or non-probability sampling, which relies on participation based on peoples' availability (Green & Thorogood, 2004; Schensul, Schensul, & LeCompte, 1999). The participants for this study were chosen by the researcher using the concept of non-probability convenience sampling. Non-probability convenience sampling, also known as accidental sampling, is a non-random sampling technique that relies on people who are easily accessible to the researcher (Marshall, 1996; Suen, Huang, & Lee, 2014). This technique is often used when small samples are needed and is known to save time, money, and effort for the researcher (Suen et al., 2014). Though non-probability convenience sampling does allow for quick easy access for the researcher, it is considered to be one of the weaker techniques because it is based strictly on convenience, which could result in poor results (Dattalo, 2008; Kitchenham & Pfleeger, 2002; Marshall, 1996). However, this type of sampling can be an effective technique in many different situations. The choice to use this type of sampling simply

belongs to the researcher and what type of data he or she wishes to collect (Oppong, 2013).

For this study, non-probability convenience sampling was used primarily because it did not require random selection or determination of probabilities and the study population was simply too big for the researcher to sample. Also, this type of sampling is often used in qualitative studies where the researcher's focus is trying to understand a social, or cultural, phenomenon (Small, 2009). Furthermore, non-probability convenience sampling is often used in public health when researchers are trying to reach sensitive populations. For example, Sanchez, Meacher, and Beil (2005) used this type of sampling to understand tobacco use among lesbian and bisexual women in the Bronx while Schwarcz, Spindler, Scheer, Valleroy, and Lansky (2007) used the same sampling method to assess men who have sex with men. Both studies were successful because the researchers could recruit participants who were accessible and knowledgeable on each respective topic, resulting in data that was complementary to other studies using different sampling methodologies. Another example of a study that used non-probability convenience sampling involved researching public health nurses in Taiwan and their use of ecstasy (Lu, Chang, Wu, 2007; Miller, Johnston, Dunn, Fry, & Degenhardt, 2010).

For this study, the researcher was confident with this type of sampling yielding valid data because in public health, it is appropriate to focus on small sections of certain populations and because the researcher built rapport with tribal leaders and made connections with professionals within the tribe. Also, this sample provided reliable data because the participants included tribal members who are knowledgeable.

In order for the research to be conducted on the reservation, the researcher completed the following steps. In 2012, the researcher received initial approval from the Tribal Council to conduct an obesity study on the reservation and in 2015, the researcher received an updated resolution, which is considered a tribal law. Permission was also obtained from the local Service Unit Office that is associated with the Great Plains Indian Health Institutional Review Board (IRB). The Great Plains Indian Health IRB is in Aberdeen, South Dakota and oversees American Indian research approval for the upper-Midwest region of the United States. Approval from the reservation's local research review board (RRB) was then obtained and documented in writing. The RRB is a nonprofit organization that was established on the reservation to assist in and improve research conducted within the community. The RRB is the acting body that approves potential research on the reservation (RRB Director, personal communication, May 1, 2014). The approval process from the RRB required the researcher to provide an application that covered all aspects of the research study including: the study's purpose, data collection and analysis procedures, participant selection and recruitment, if the study was funded, and how the study's findings would be useful to the RRB and the reservation (RRB Director, personal communication, February 1, 2015). In addition to the RRB approval, final approval was then obtained from the Walden University Institutional Review Board (#05-21-15-0163540) prior to conducting any research.

Focus Groups

Focus groups are a common form of qualitative data collection where a group of people are simultaneously interviewed around a specific topic with the focus being on

group interaction rather than individual responses (Blumenthal & DiClemente, 2004). Focus groups can be applied to almost any scenario, setting, or topic where a researcher is looking to describe and understand meanings of a select group and a specific topic (Liamputtong, 2009). Focus groups were appropriate for this study because they are considered a "crucial research method for eliciting information from members of groups who are normally hard to reach, including the disadvantaged or disenfranchised" (Liamputtong, 2011 p. 107). Not only do focus groups allow for peer support and reassurance, they are also considered a good approach to data collection when trying to understand culture, which is key for this study (Hyde, Howlett, Brady, & Drennan, 2005). When working with vulnerable groups about sensitive topics, researchers strongly encourage the use of focus groups because it allows the group to share their personal views along with prompting participants to describe and examine issues in their own terms among their own people (Seymour, Bellamy, Gott, Ahmedzai, & Clark, 2004).

Selection of participants and setting.

The population of interest comprised of American Indians residing on a reservation in the Northern Great Plains region of the United States. The researcher collaborated with a panel of experts, including three professors and a retired community college vice president, in choosing participants and settings for the focus groups. In communicating with the panel, the local Retirement Home and the Wellness Dome were initially chosen for the settings for the focus groups. The Retirement Home was chosen by the researcher because within this culture, Elders are highly respected and looked to for knowledge and wisdom on many topics (Grandbois & Sanders, 2009). The Wellness

Dome was initially chosen because obesity and DM have become epidemic on the reservation (Diabetes Educator, personal communication, May 1, 2014; Wellness Dome Director, personal communication, August 7, 2014).

Before contacting each facility's administrator, the researcher determined that to reduce possible gender bias among the focus groups there would be four focus groups conducted, two male focus groups and two female focus groups. Two respected male cultural experts from the community would facilitate the male focus groups to provide an honest all-male discussion (Teufel-Shone & Williams, 2010). For the all-male focus groups the researcher recruited two well-respected Elders of the community. The lead cultural expert, or Facilitator, was a retired teacher from the local community college to conduct the male focus groups. The Facilitator is well-respected among the reservation because of his community involvement efforts as a tribal member, teacher, and coach. He has many years of leading discussions and advocating for the health of American Indians. He has been thanked for his contribution to the college, to this students' education, and to the reservation. Because of these qualities and earned respect, the researcher decided he was the best choice to be Facilitator for the male focus groups. A meeting occurred wherein the researcher explained to the potential Facilitator the details of the study and his role in the focus group process. He agreed to help and was very pleased that he was asked. A second male cultural expert was also chosen by the researcher to assist the Facilitator in conducting the male focus groups by being the note taker for the sessions. This gentleman is also a respected Elder among the reservation and is a retired teacher from the local community college. The researcher had frequent

communication with both cultural experts prior to the focus group sessions. Before conducting the actual focus groups, the researcher provided the proper training to both cultural experts regarding leading focus groups, taking notes, how the audio-recorder and timer worked, details of the study, and discussed the focus group questions to ensure clarification. Written agreements to help assist in the focus groups from both cultural experts were obtained. Compensation for the Facilitator was $165 and $125 for the note taker.

After initially meeting with the male cultural experts, the researcher decided there should be an assistant helping with the female focus groups taking notes. A colleague of the researcher, a State Field Epidemiologist with a Masters in Community Health, was chosen as the researcher's assistant based on her education and experience working with communities, including American Indians. She agreed to assist and take notes while the researcher facilitated the focus groups (State Epidemiologist, personal communication, August 13, 2014). Written agreement from the researcher's colleague was obtained to assist in the female focus group. Compensation for the researcher's female assistance was $125 plus travel and meals. According to Liamputtong (2011), having a facilitator and a note-taker is critical in conducting focus groups.

Permission was granted from both administrators in writing to use the facilities and their respective residents/members. Once permission was granted, the researcher determined the best approach for recruiting participants. Two weeks prior to conducting the focus groups the researcher provided both administrators with fliers stating the purpose of the study, in simple but detailed terms, a brief statement about the researcher's

background, how the results would contribute to the reservation, the offering of an incentive and snacks/refreshments, and contact information for the administrator. For the Retirement Home, the fliers were copied and put into individual mailboxes for each resident. The Wellness Dome fliers were hung throughout the building for members to view; those interested could sign-up at the front desk of the facility. The deadline for interested residents and members was five days and they were informed to let the administrator know of their interest. In turn, at the end of the deadline, the researcher contacted each administrator regarding a potential number of possible participants. If the target number of participants was not received, the researcher asked the administrators to re-distribute the fliers again in the same fashion for an additional three days.

Inclusion criteria.

Criteria for inclusion in the focus groups were as follows. Participants had to

1. Be self-identifying as American Indian,
2. Be a member of the reservation,
3. Be 18 years of age or older,
4. Be a resident of the Retirement Home or a member of the Wellness Dome.

Sample size.

When conducting focus groups, the sample size is "crucial" (p. 42) for success (Liamputtong, 2011). There is an ongoing debate as to the appropriate size of a focus group (Peek & Fothergill, 2009). A focus group should be small enough to be manageable but large enough to be representative of the population. Dawson, Manderson, and Tallo (1993) suggest 4-12 individuals while Kitzinger (2005) suggests 4-

8 individuals. Smithson (2008) explained that groups with less than four participants will lose qualities that adequately comprise a focus group whereas groups with too many participants could be cumbersome and unmanageable. Overall, when deciding the size of a focus group, it is important for the researcher to keep the research project in mind so enough information is gathered to answer the research questions (Munday, 2006). Another crucial factor for the researcher to consider is how many focus groups to conduct (Bloor, Frankland, Thomas, & Robson 2001; Peek & Fothergill, 2009). Morgan (1997) suggested using 3-5 focus groups for each variable under investigation when the saturation theory is applied. Saturation occurs when information given by participants does not provide new understanding to the topic, this can occur within a few focus group sessions or after the sixth session (Liamputtong, 2009; Liamputtong, 2010; Morgan, 1997). There have been numerous studies conducted using focus groups with a variety of participants and a variety of groups used; the following paragraphs will briefly discuss several of these studies.

Madriz (2003), in her work with lower SES Latina and African-American women, conducted 18 focus groups each containing 5-12 participants. The use of big groups was avoided because of the difficulties in handling the discussion and keeping the conversation focused on the topic (Madriz, 2003). Similarly, Peek (2003) conducted 23 focus groups on Muslim-American students after the terrorists' attacks on September 11, 2001 happened; 11 of the focus groups were all female, 3 of the focus groups were all male, and the last focus group was mixed-gender, each ranging between 3-15 participants. Both studies used many groups with a varying number of participants.

Madriz (2003) wanted to explore her topic in greater detail that in turn led to more relevant data. Peek (2003) conducted so focus groups many because of the sensitivity of gender to the Muslim culture.

Rubin (2004) conducted two focus groups with New Zealand men aged 45-65 years about their attitudes towards Viagra in a social text. The first focus group had 6 participants from a sports club while the second focus group only had 3 participants who attended an erectile dysfunction clinic. Both focus groups yielded very different information. The first group's common theme was that the masculine image was very important and the men wanted to maintain that image by acting like they were not interested in the topic. The second group's common theme was that of sadness because they felt they were losing their masculine image because of the erectile dysfunction. Both groups provided important data regardless of the size.

Hopkins (2007) conducted focus group research with young Muslim men aged 16-25 years from Scotland in discussions of their many senses of identity, belonging, and inclusion/exclusion. Eleven focus groups were conducted each consisting of 3-12 participants. The smaller focus groups ran more smoothly and were easier to facilitate allowing all the participants to be involved and express their views and opinions. The larger focus group became a problem because participants were talking or yelling over each other because of the inequalities they had experienced leading to inaudible tape-recordings. Hopkins stated that instead of focusing on how many participants should be in each focus group, the researcher should consider other possible influences that may have a negative effect on the group dynamic (2007).

Toner (2009) used small focus groups to address substance abuse in women of color in a rural area in the southwestern United States. Three focus groups were conducted: the White group had 7 participants while the Native American and Latina group each had 2 participants. Though the smaller focus groups only had 2 participants, they were more intimate compared to the White group. The small group setting allowed the women to feel safe, comfortable, and permitted them to make jokes about themselves, their experiences, their families, and their cultures. This type of connection was not seen in the White group (Toner, 2009).

As mentioned above, a rule of thumb for conducting focus groups is to reach saturation. Saturation is used as a guiding principle for many researchers and often determines the majority of sample size (Mason, 2010). Some researchers stated that saturation may be a good concept but has many weaknesses causing some researchers to "shy away" (p. 20) from suggesting a sample size at all (Green & Thorogood, 2009; Mason, 2010). Because there are limited published guidelines to determine the proper sample size in qualitative research, the theory of saturation has come to be considered the best way conduct qualitative research and has been called the "key to excellent qualitative work" (p. 11) by some researchers (Marshall, Cardon, Poddar, & Fontenot, 2013; Morse, 1995). Regardless of opinion on whether saturation is appropriate or not in determining sample size, Patton (2002) explained:

> Qualitative inquiry is rife with ambiguities. There are purposeful strategies instead of methodological rules. There are inquiry approaches instead of statistical formulas. Qualitative inquiry seems to work best for people with a high

> tolerance for ambiguity. . .. Nowhere is this ambiguity clearer than in the matter of sample size. . .. There are no rules for sample size in qualitative inquiry. Sample size depends on what you want to know, the purpose of the inquiry, what's at stake, what will be useful, what will have credibility, and what can be done with available time and resources. (Patton, 2002, pp. 242-243)

Because there is no set number of participants required for a focus group nor is there a set number of focus groups that should be conducted, the researcher should conduct as many focus groups needed to properly answer the research question(s), careful not to make the process more complicated than it needs to be (Liamputtong, 2011). Liamputtong (2011) further explained that participants should be selected so to reflect a range of the whole study population, i.e. if the researcher wants to know about prostate cancer in men, then focus groups should be completed with men at various treatment stages of prostate cancer.

Key-Informant Interviews

Key-informants are those in the community that are considered experts and most knowledgeable about targeted topics (Schensul et al., 1999). The researcher looks to the key-informants to contribute to the development of beliefs and every day practices within the community because they are more informed than the researcher (LeCompte & Schensul, 2010). Key-informant interviews are commonly used in qualitative research because they provide information that the researcher has not or cannot experience (Patton, 2002; Seidman, 2013). This type of interview is based on a core assumption of qualitative research that the participant's views on a desired topic should be emic, that of

the participant themselves, and not of the researcher (Marshall & Rossman, 2011). Though key-informant interviews are used often in qualitative research because of their ability to obtain data quickly, caution should be taken by the researcher because the key-informant's perspectives might be limited and possibly biased (Kvale & Brinkmann, 2009; LeCompte & Schensul, 1999; Patton, 2002). Key-informant interviews were used for this study because the researcher was seeking people with experience and knowledge on the topic at hand. Also, the researcher wanted professionals who are willing to provide personal insight into perceptions of health and body mass index along with perceptions on whether obesity and cultural beliefs have an influence on health and healthy lifestyles (Bernard, 2002; Lewis & Shepard, 2006).

Selection of participants and settings.

In building trust and rapport among the reservation for over 4 years, the researcher interacted with many potential participants representing a variety of disciplines. In having this interaction, the researcher initially became interested in the following possible participants based on the position they represent within the community: 1) a tribal council member, because they are looked to as the leaders of the tribe and is there to listen to and help advocate for their people, 2) the Director of the Tribal Diabetes Office, because she works intimately with the tribal members who are pre-diabetic and strongly promotes healthier lifestyle changes, 3) a Tribal Health Educator, because she is in charge of assisting the tribal members on how to improve their health by incorporating cultural traditions and beliefs into daily living, 4) a retired Vice President of the local community college and member of the RRB, because she is a

highly respected elder of the reservation and represents education and public health, 5) a retired Health Administrator, because of his efforts in addressing poverty among the reservation along with his advocacy to address health on the reservation and 6) a free-lance journalist and media consultant for the local newspaper, because he is highly respected among the reservation for his involvement and positive interactions within the community and on the tribal council. Settings for the key-informant interviews took place on the reservation at a location that was most convenient for each interviewee.

Inclusion criteria.

Criteria for inclusion in the key-informant interviews are as follows. Participants had to

1. Be self-identifying as American Indian,
2. Be a member of the reservation,
3. Be 18 years of age or older,
4. Be in, or have been in, a professional role on the reservation.

Sample size.

When conducting key-informant interviews, sample size can range anywhere from 1 participant to as many as 10 depending on what the researcher is looking for (Polit & Beck, 2004; Smith, Flowers, & Larkin, 2009). There is no set number of how many key-informants there should be but Seidler (1974) found in researching a variety of sample sizes that 5 key-informants were needed to show reliability. More important than having the right quantity of key-informants is having quality in the information the key-informants can provide the researcher (Tongco, 2007). For this study, there were initially

6 key-informants that were going to be interviewed, which according to Smith et al. (2009), should be enough to get detailed data required of good interpretative work and to gauge a better understanding of how obesity affects healthy lifestyles in the American Indian culture.

Instrumentation Validation and Materials

This study used two primary instruments to collect data: focus group questions and key-informant interview questions. The researcher chose to use these instruments because focus groups provide participants' views, perceptions, and beliefs while key-informant interviews provide insight into the context needed by the researcher to fully understand and interpret data from the focus groups. This is important because the researcher is not a member of the reservation. Sixteen questions were used as a guide for the focus groups and 10 questions were used for the key-informant interviews, both sets of questions being constructed by the researcher. All questions were open-ended and were directed towards culture, obesity, and healthy lifestyles. The questions were used to elicit participants' perceptions, attitudes, opinions, and beliefs about obesity and its influence on healthy lifestyle and whether culture impacts these views. A small questionnaire consisting of screening criteria was also used to verify that participants meet the requirements to participate in the study.

The researcher consulted with a panel of experts, including two professors and a retired community college vice president, to develop the interview instruments used for this study. The panel of experts are of American Indian heritage and are highly respected. In consulting the panel of experts, the researcher received insight and

feedback on the appropriateness of the interview instruments. Each time the researcher generated a draft of the interview instruments, they were sent to the panel of experts via email for feedback. The researcher then applied the panel of experts' input until the interview instruments were respectful of American Indian cultures applicable to the reservation and the aim of this study.

The overall goal of the researcher was to not be of accidental influence on the answers that were provided by the participants (Smith et al., 2009). Validity of the data obtained through both the focus groups and key-informant interviews were confirmed through audio-recordings and detailed descriptions of each session (Groenewald, 2004). Having the concept of rich, in-depth, and detailed descriptions, including direct quotations from participants, helped validate if proper conclusions were drawn by the researcher (Armour, Rivaux, & Bell, 2009; Weick, 2007). Other ways the researcher validated information was through sincerity, because the research was marked by honesty; credibility, because the data collected was founded on trustworthiness of the researcher and expressed a reality that seemed true; ethics, because a researcher must consider the right and wrong of their actions in regards to the people being studied; and member checking, because it is important for the researcher to make sure the participants' interpretations of their experiences are correct and accurate (Armour et al., 2006; Balls, 2009; Conroy, 2003; Groenewald, 2004; Laverty, 2003; Lincoln & Guba, 1985; Miles & Huberman, 1994; Richardson, 2000; Weick, 2007; & Tracy, 2010).

Data Collection Procedures

Participants were provided an inclusion criteria information form along with an informed consent form allowing them the opportunity to agree to participate in the study (Appendices A and B). A contact information form was also provided to participants so the researcher could contact them to clarify questions on transcripts of the sessions and to provide them the opportunity to obtain a summary of the findings once analyzed (Appendix C). All forms were dispersed at the Retirement Home, Wellness Dome, and at each respective interview location after the researcher explained the introduction to the study. The purpose of the informed consent form was to explain the study and its nature along with participant expectations, a copy of the focus group questions, ensuring participant confidentiality was kept throughout the process, concerns of ethical considerations participants may have, and guaranteeing the participants that this study is strictly voluntary and they are in no way obligated to participate. An explanation was given to the participants that by participating in the respective focus group sessions or interviews, they were freely and willingly giving their consent to be part of this study; names were never used and all personal identifying information was kept confidential and in a locked safe accessible only by the researcher. Each participant received a copy of the study description. The use of audio-recording equipment was noted prior to starting the discussion; participants who did not want to be recorded were able to be excused from the study but they would have still been given their incentive for showing up. The participants were given the opportunity to ask any questions for clarification before recording begins.

Focus groups.

The four focus groups were conducted at the Retirement Home and the Wellness Dome. Two focus groups were scheduled daily for two days, each lasting 1.5-2 hours. Day 1 consisted of the female focus groups, due to the limited time of the researcher's assistant, and day two consisted of the male focus groups. The first focus group was scheduled to occur at the Wellness Dome at 9:00 a.m. and the second focus group was scheduled to occur at the Retirement Home at 1 p.m. for both days. One and a half hour prior to each session the researcher went to the local grocery store to purchase the finger foods, beverages, paper products, and utensils that were going to be provided for the participants, before arriving at the respective facilities. Upon arrival for the female focus groups, the researcher and assistant set up the area that was used for the sessions by making sure there were enough tables and chairs, both of which were checked for cleanliness. The floors and surrounding area were also checked for clutter and other random items that may be in the way. The researcher wanted to ensure a relaxed atmosphere for the participants so they feel comfortable and welcomed.

Once the area was organized, each of the following were placed around the table: a copy of the study, the inclusion criteria questionnaire, the informed consent form, the contact information form, a piece of blank paper for participants to take notes if they so wish, and a pen. The finger foods, beverages, plates, cups, napkins, and utensils were placed on a separate table to limit distraction during the session. As participants arrived for the focus groups, the researcher greeted them with a brief introduction and thanking them for coming. Preparation for the male focus groups followed the same steps as with

the female focus groups. The researcher arrived one hour prior to the start of the sessions at each facility wherein the area was prepared and all materials were set up and provided for the male Facilitator and note taker. The researcher ensured the audio-recorder was working properly but also provided a backup audio-recorder just in case. The finger foods, beverages, and accompanying paper plates, napkins, cups, and utensils were also to be set up by the researcher. The researcher then reviewed one final time with the male Facilitator and note taker the steps needed to be undertaken to conduct the male focus groups. The researcher, at this point, stayed in the facility, but out of view of the participants, in case the Facilitator had any questions during the focus groups.

All the focus group sessions followed the same steps. Once the participants had arrived, the respective Facilitator (female or male) would begin the sessions by introducing themselves and their assistants followed by an overview of the study, its purpose, its importance, and assurance of confidentiality and ethical respect. The inclusion criteria form, informed consent form, and the contact information form was explained followed by an explanation of the audio-recording devices, why they are used, and an explanation of the role the assistants play in taking notes and why note-taking is important. Participants were reminded that by participating in the focus group session they were freely and willingly giving consent to participate in the study. After all explanations were completed, there was an opportunity for participants to ask questions or leave the discussion if they so please. If there were no questions, the focus group session, timer, and audio-recording began.

Sixteen open-ended questions addressing a variety of obesity questions were used as a guide for the focus group sessions (see Appendix D). The respective Facilitator (female or male) would then initiate the questions and keep the conversation engaged by probing participants to elaborate or follow-up on responses given while the assistants wrote/typed down notes and observations that may better help the researcher during analysis. Once the session was complete or the time ran out, the participants would be given the opportunity to provide any final comments or ask any further questions. The researcher's business card was provided to each participant in case they thought of any comments or questions for the researcher later. The respective Facilitator (female or male) then personally thanked each participant by providing a $10 gift card to each of the participants showing gratitude for their time and participation. The respective Facilitator (female or male) then waited a few minutes before exiting the facilities in case any participants wanted one-on-one time for other questions or concerns. Once all participants had exited, the researcher ensured that the space utilized was cleaned and put back the way it was found. The researcher then checked the audio-recording to make sure it worked properly and discuss the notes that were taken by the assistants.

Key-informant interviews.

The key-informant interviews were conducted at a location that was most convenient for the interviewee. The six key-informant interviews were conducted over a three-day period, in which two interviews were scheduled for each day, one in the morning and one in the afternoon, each lasting approximately 1 hour. The researcher contacted each interviewee via a phone call or email to set up a day/time that would work

best for them. On each day, the researcher arrived at each location 30 minutes prior to the scheduled time to ensure that all materials needed were in order. The researcher began each interview with a brief personal introduction followed by an overview of the study, its purpose, its importance, and assurance of confidentiality and ethical respect. An explanation of the audio-recording device was given along with an explanation that periodically the researcher would be writing down notes and why. Each interviewee was reminded that by participating in the interview, they were freely and willingly giving consent to participate in the study. After all explanations were completed, there was an opportunity for the interviewee to ask questions or withdraw from the interview if they so please. If there were no questions, the interview, timer, and recording began.

Ten open-ended questions addressing a variety of obesity questions were used as a guide for each interview (see Appendix E). Once the questions were completed or the time ran out, the interviewee was given an opportunity to provide any final comments or ask any further questions. The researcher's business card was provided to each interviewee in case they thought of any comments or questions for the researcher later. The researcher thanked each interviewee for coming and offered a $10 gift card showing gratitude for their time and participation. After each interviewee left, the researcher gathered the items used and left the location wherein the researcher would make sure that the audio-recording worked.

Data Analysis

Upon completion of data collection for both the focus groups and key-informant interviews, the researcher manually coded each session. The researcher first transcribed,

verbatim, each session into a Microsoft Word document with the assistance of an Olympus® transcription kit. Formatting for each transcription was double-spaced in Times New Roman 14-point font, for easier reading, with wide right-hand margins allowing the researcher room to write codes and notes. Each transcription was broken down into smaller paragraphs with page breaks when the topic appeared to change for ease of keeping similar ideas together. Once all formatting was completed, each session was printed and the researcher used pencils, colored pens, and highlighters to make notes about similar ideas. The researcher then used a three-phase design process to analyze both the focus group data and the key-informant data, respectively.

Phase I consisted of first-cycle coding where the researcher used the splitting technique along with in vivo coding to code each transcript. The splitting technique allowed the researcher to break down, or split, the data into smaller codable sections that are more detailed from the start (Bernard, 2011). Charmaz (2008) described the splitting technique as a more trust-worthy analysis because it refrains the researcher from inputting their own "personal issues" (p. 94) into the data. In vivo coding is often used in studies that honor the participants' voice by applying a single word or short phrase to summarize key ideas within a passage in terms used directly by the participants (Corbin & Strauss, 2008; Strauss, 1987). According to Saldaña (2013), in vivo coding also provides a sense of imagery that can be viewed as a poetic reconstruction describing a participant's everyday discourse. Although there are many different coding approaches, the researcher chose to use in vivo coding for this study because a specific culture was

studied and it helped the researcher to understand the meanings and views of the participants and their actions in their own words (Charmaz, 2006).

Phase II, second-cycle coding, consisted of focus coding in combination with frequency counts and cluster coding to create smaller categories obtained from the Phase I data. Focused coding is often used with in vivo coding and allows the researcher to search for significant, or frequent, codes to help create the most "salient categories" (p. 46) by using initial codes that make the most sense (Charmaz, 2006). Also, focused coding is often used for comparability and transferability across participants' data (Richards, 2009; Saldaña, 2013). Frequency counts are used in qualitative research to identify repeated ideas within text as a quick way to determine the prevalences of "thematic responses" (p. 776) across participants (Ryan & Bernard, 2007). Cluster coding is used to group "like" (p. 147) data together, which helps the researcher identify patterns (Namey, Guest, Thairu, & Johnson, 2008). In applying frequency counts and cluster coding along with focused coding, the researcher continued the coding process of the transcripts until saturated.

Phase III initially consisted of the researcher generating main themes from the data that was clustered in Phase II and separating them by gender. The purpose of gender comparison was to determine commonalities and differences between themes across the same gender group, both for the focus groups and among the key-informants, therefore permitting the researcher to establish a better understanding of what views were shared, if any, among the participants. The resulting themes from the comparative analysis by gender were displayed in a table.

Ethical Considerations

As previously stated, participants were given an informed consent form explaining the purpose of the study, a copy of the focus group questions, and explanation as to how the outcome of the findings would be beneficial to the reservation. Participants were given the opportunity to withdraw at any time during the sessions without any negative repercussions. Participants would receive a $10.00 gift card showing appreciation for their time; this incentive was expected to compromise the voluntary nature of participation. The steps used in this study were not anticipated to cause any participant discomfort or harm. Research participants who possibly experienced distress during or after the study were directed to the Director of the RRB on the reservation, and Dr. Endicott of Walden University's IRB. The RRB is responsible for the adherence of ethical standards for all research endeavors related to the reservation. Approval to conduct this study was obtained from the RRB, the Great Plains IRB, and Walden University's IRB prior to any research. The audiotapes and notes used by the researcher and assistants were kept at the researcher's home in a locked safe cabinet. Transcriptions from the study were transcribed verbatim by the researcher and kept on private flash drives, also kept in the locked safe. Upon completion of the study and dissemination of results via a peer-reviewed journal and professional presentations, all the raw data was given back to the reservation's RRB.

Summary

In this chapter, the researcher thoroughly described the steps chosen for conducting this study. The rationale for choosing ethnographic inquiry as the appropriate

methodological approach for determining American Indian perceptions on obesity was systemically discussed along with the restatement of the research questions. Next, the researcher's role in the study was explained followed by a description of the study setting and participants. The researcher then described the steps undertaken in participant selection and settings, inclusion criterion, and sample size. Instrumentation validation and materials required for the study were then discussed by the researcher followed by a careful explanation of the study's procedures for data collection and analysis. The researcher concluded the chapter with a discussion of trustworthiness of data and ethical considerations in protecting participants' rights and confidentiality. Chapters 4 and 5 discuss the results obtained from the focus groups and key-informant interviews as well as the discussion and interpretations of the findings, respectively.

Chapter 4: Results

Introduction

The purpose of this study was to identify perceptions, beliefs, attitudes, and opinions of obesity among American Indians living on a reservation in the Northern Great Plains region of the United States. Also, the researcher wanted to examine whether obesity affects healthy lifestyles among the study population. In this chapter, the researcher presents the findings which emerged from the use of a qualitative ethnographic design. Four focus groups and five key-informant interviews were the data collection methods chosen to gather responses from 30 members of the reservation. The researcher asked questions that provided an emic perspective about obesity and its effect on healthy lifestyles which aided in answering the following research questions:

RQ1. How do American Indians perceive a healthy weight or body mass index?

RQ2. How do American Indians perceive being overweight or obese?

RQ3. How do American Indians perceive obesity as an influence, if any, on healthy lifestyles?

RQ4. How do culturally-driven beliefs contribute to behaviors that relate to being overweight or obese?

The researcher believes that educators and public health professionals, among others, can use the findings from this study to develop more effective approaches in providing culturally-specific care to a population that is disproportionately affected by obesity (see Denny, Holtzman, Goins, & Croft, 2005).

In this chapter, the researcher provides information about the characteristics of the study setting and participants along with a detailed overview of data collection and analysis procedures. The researcher then discusses steps taken to ensure data trustworthiness followed by the results and overlying themes of the focus groups and key-informant interviews. The researcher concludes the chapter with a summary and brief overview of Chapter 5.

Study Setting

The setting of this study took place on a reservation in the Northern Great Plains region of the United States. The reservation is a federally recognized reservation spanning an area of 140,000 allotted and tribal acres (United States Department of The Interior, 2014). The northern portion of the reservation is hilly and filled with deciduous trees such as birch, oak, elm, poplar, aspen, willow, and cottonwood that are used for hunting while the southern portion of the reservation consists of more barren rolling plains, which is used for farmland. The reservation's landscape is covered with sage, tiger lilies, dog rose, and many fruit bearing plants including strawberries, chokecherries, cranberries, and pukons (a certain type of hazelnut). Deer, moose, wolves, fox, rabbits, and beavers, among other wildlife, roam the hills of the reservation providing food to those who hunt while perch, walleye, and pike supply the lakes for fishing. There are many birds that take up residence on the reservation including eagles, hawks, crows, and robins. Waterfowl include ducks, Canadian geese, and pelicans (United States Department of The Interior, 2014).

Employment on the Reservation

The reservation has an unemployment rate of 69.25% with 31% of the county falling below poverty level (United States Department of the Interior, 2014). The average annual house hold income is $12,880 (United States Department of the Interior, 2014). This unemployment rate is extremely high when compared to the 3.2% rate for the state and the 9.0% rate for the United States (United States Department of the Interior, 2014). However, the reservation does offer employment opportunities for tribal members as seen in Table 1.

Table 1

Employment Opportunities on the Reservation

Business	Number of employees
Reservation Services	530
Hotel & Casino	435
School System	469
Indian Health Service	245
Community College	125
Bureau of Indian Affairs	42
Housing Authority	93
Total	1,939

Note. Retrieved from the tribal websites.

Health Services on the Reservation

According to the tribal website, the reservation also has a variety of medical and wellbeing services that provide immediate care to its members (see Table 4). The reservation does not, however, have a fully equipped hospital for more serious health conditions. Because of its remoteness, members must travel many miles to have full access to a hospital. The distance they must travel can pose a problem for many

members who do not have access to transportation. The reservation does have a taxi service and Transit system, but they are used for transportation within town. Because of this issue, the reservation has an organization, the Community Health Representatives (CHR), which is managed by IHS, to provide tribal members with transportation to medical appointments both in and out of town. The CHR is also involved with the community by participating in health fairs, where they take blood pressures and screen for DM, serve on health committees, provide elder care at the Retirement Home, and prenatal care for new mothers (IHS, n.d.). Also according to the tribal website, the reservation also provides an active judicial and law enforcement program, social programs, and youth programs.

Table 2

Healthcare Services on the Reservation

Name of healthcare service	Service description
Healthcare facilities	
Healthcare Facility	Inpatient/outpatient care, surgery, podiatry, and other acute care services
Medical Center	Inpatient/outpatient care, PT, RT, dietary, lab, comfort care, and other acute care services
Care Center	Nursing home services
Eye Clinic	Basic optical care
Chiropractic Arts Clinic	Basic chiropractic services
Indian Health Service Dental	Basic dentistry, surgery, pediatrics
Tribal Diabetes	Educational services for pre-diabetics
Dialysis Center	Dialysis care
Ambulance	Emergency services
Health and Wellbeing Services	
Substance Abuse Program	Chemical dependence treatment
Health Outreach	Counseling, health care, and prevention programs
Domestic Violence Education	Domestic violence shelter
Health Education	Education to adopt healthy lifestyles
Meth Prevention	Resources to prevent meth use
Education Program	Educating adolescents on contraception and abstinence
Suicide Prevention	Help for those having suicidal or depressive thoughts

Note. Retrieved from tribal websites.

Educational Opportunities

According to the tribal website, education is also available to the community and surrounding communities offering a variety of opportunities for students. There is a Head Start program, two K-6 elementary schools, one of which is private, two K-8 schools, one 7-12 high school, and two K-12 schools. The reservation also has a local community college, which offers a variety of associates degrees, in art and science, several nine-month certificate programs, and one Bachelor's of Science degree in teaching education.

Description of Participants

This study consisted of 30 participants, all of whom were American Indian, members of the reservation, 18 years or older, either residents of the local Retirement Home or have associated with the CHR organization, or held a professional position on the reservation. For this study, no other demographic information (education, income, marital status etc.) about the focus group participants was collected by the researcher. Participants were chosen based on convenience sampling. Table 3 displays the identification of the female focus group participants for the results. Because the male focus groups were facilitated by two male cultural experts, the researcher was not present to be able to identify the male focus group participants. When referring to a male focus group participant, the researcher will use the identification noted in Table 3.

Table 3

Participant Identification

Focus groups	Identification
Retirement Home Females (7)	F_{1A}, F_{1C}, F_{1D}, F_{1E}, F_{1F}, F_{1G}, F_{1I}
Retirement Home Males (7)	"male Retirement Home participant(s)"
CHR Males (5)	"male CHR participant(s)"
CHR Females (6)	F_{4A}, F_{4B}, F_{4C}, F_{4D}, F_{4E}, F_{4F}
Key-informants	**Identification**
Tribal Diabetes Educator	K_A
Retired Vice President	K_B
Retired Health Administrator	K_C
Health Educator	K_D
Tribal Councilman	K_E

Focus Groups

The men and women participating in the Retirement Home focus groups are considered Elders of the reservation and are looked to with high respect and knowledge. Minimum age to reside at the Retirement Home is 55 years with a disability and 62 years without a disability. There were 7 women ranging in age between 62 years to 81 years and 7 men ranging in age between 59 years to 80 years who participated.

Those participating in the CHR focus groups have utilized the CHR at some point for help with transportation to medical appointments, whether in town or out of town, or other events the CHR takes part in among the reservation. Many members of the community do not have transportation or cannot afford to take a taxi or the transit system and have no other way to get to their appointments. At times, there are some members who must travel long distances for some appointments. There were 5 men ranging in age between 45 years to 58 years and 6 women ranging in age between 41 years to 56 years who participated.

Key-Informant Interviews

There were 5 key-informant interviewees consisting of 2 males and 3 females ranging in age between 46 years to 72 years. All 5 interviewees have deep roots with their heritage each having had individual experiences that led them to their positions on the reservation. Of the 5 interviewees, 3 received their Bachelor's degrees, 1 received a Masters and PhD in Education, and the final interviewee has some college education. Each interviewee wanted to give back to their community in some way and has passion for helping their fellow members. A sixth key-informant interviewee was scheduled but was unable to participate when the time came.

Data Collection

Below are the actual steps taken by the researcher for data collection. The steps varied from the original data collection plan discussed in Chapter 3. Data collection began following final approval to conduct this qualitative study from the Walden University's IRB. Approval was also received from the Great Plains Area IRB and the RRB, the acting research review board on the reservation. Data collection took place between May and October 2015.

Focus Groups

As mentioned in Chapter 3, the researcher chose to conduct four focus groups to reduce possible gender bias; there were two female focus groups and two male focus groups. In this culture, it is recommended that the focus group facilitator be of the same gender as the focus group participants to achieve an honest discussion with no gender bias. The male focus groups were conducted by two respected Elder of the reservation to

ensure an honest all-male discussion (Teufel-Shone & Williams, 2010). The four focus groups were conducted on the reservation at the Retirement Home and at the Transportation building where conference rooms are available for use.

Recruitment.

Contact was made with the administrator of the Retirement Home two weeks prior to when the focus groups were scheduled to be conducted. The administrator was given fliers to place in the residents' mailboxes that explained what was being asked of them, who would be conducting the focus groups, why they were important, and the offering of incentives, snacks, and refreshments. A list of interested participants was generated during that two-week period that included 9 females and 11 males that was then given to the researcher with each participant's phone number. One day prior to each respective focus group the researcher called the interested participants and reminded them they signed up for the focus group and what the purpose of the focus group was, what day and time it was being held, and answered any questions they had.

The last two focus groups were scheduled to be held at the Wellness Dome, again one female group and one male group. The researcher provided the fliers to the Director to be hung up throughout the facility for members to see. Every week the researcher contacted the Wellness Dome to see if anyone had signed up for the focus groups. No one was signing up for the focus groups so after weeks of waiting, the researcher expanded the possible participant pool, via approval from Walden University's IRB, to include the CHR. As mentioned earlier, the CHR is an organization on the reservation that assists members to get to their medical appointments among participating in other

events in the community. The administrator of the CHR gave approval for the researcher to use possible participants from her organization. A list of interested people was generated that included 8 women and 5 men. Two days prior to the scheduled focus groups, each potential participant was called as a reminder of when and where the focus group would be held.

Focus group preparation.

On each respective day of the focus groups the researcher arrived one hour prior to the scheduled time for the focus group to start. The researcher arranged the tables and set up the forms and pens for each participant along with setting up the snacks and refreshments. Once this was completed, the researcher went over how to use the timer, audio-recorder, and how to take notes with the respective assistant, depending on whether it was the female or male focus group, making sure to clarify what was needed in note taking and answered questions the assistant had. For those focus groups conducted at the Retirement Home, fifteen minutes before the focus group was to start, the researcher went to the administrator and asked them to make announcement over the intercom as a reminder to those who signed. As each participant came the researcher introduced herself and her assistant, or the male focus group Facilitators, thanking them for taking the time to participate in the focus group. This continued for about 10 minutes until the researcher decided to start the focus group. A total of 7 women and 7 men participated in the focus groups at the Retirement Home. For the CHR focus groups, the researcher waited by the front door greeting participants as they came. This continued for about 10 minutes until

the researcher decided to start the focus group. A total of 6 women and 5 men participated in the focus groups.

Conducting the focus groups.

The researcher explained what the purpose of the focus group was, what will happen to the results, that the discussion would be audio-recorded, and that their opinions were unique because there has not been a study like this conducted before. The researcher then asked that each participant fill out the inclusion criteria form explaining that there were requirements to participate in the focus group discussion. Once each participant filled out the form, the researcher collected all forms and went through each one making sure all participants met the criteria. The researcher then went through the informed consent form explaining that by participating in the focus group discussion, they were there willing and that they could leave at any time. After answering any questions/clarifications the participants had, the respective assistant started the recorder and timer. The researcher left the focus group area during the male focus group sessions but stayed in the respective building in case the male Facilitator had any questions. The 16-question interview guide was used to facilitate the conversation. Each focus group session lasted between 1-1.5 hours. Before the audio-recorder was stopped, participants were asked by each respective Facilitator to provide any final comments or concerns pertaining to the study. Once the discussions were complete, the researcher thanked the participants again for taking the time to give their opinions and distributed the $10 gift card showing appreciation for the participation. After all the participants left, the researcher cleaned up the area and made sure everything was back where it was before

the focus group. Before leaving each respective location, the researcher checked to make sure the audio-recorder worked and the notes taken by the assistants were understandable. The researcher then thanked each respective administrator and left. Each session was copied to a flash drive that was locked up in-between uses and erased from the audio-recorder.

Key-Informant Interviews

The researcher called each of the five key-informant interviewees and scheduled the interviews over a three-day period. The Diabetes Director was interviewed on day one, day two consisted of the Retired Vice President, Retired Health Administrator, and Tribal Councilman, and day three the Health Educator was interviewed. For each of the key-informant interviews, the researcher described the purpose of the interview, why it was important, that it would be audio-recorded, and what would happen to the results. The researcher used the 10-question interview guide that was created prior to facilitate the interview. The researcher went to the offices of the Diabetes Director, Tribal Councilman, and Health Educator, respectively, to conduct the interviews. The Retired Vice President and Retired Health Administrator both were interviewed at their home. The researcher let the interviewees decide where the interviews would be held. The interviews ranged from 30-55 minutes. Each of the five interviews followed the same steps. Once the researcher was at the respective location, the introduction was done along with answering any questions. The researcher explained the informed consent form to the interviewee stating that by participating in the interview, they were giving consent but could withdraw freely at any time. Once questions were answered the

researcher started the timer and audio-recorder before initiating the interview. After the final question, the researcher asked the interviewee for any final comments before stopping the audio-recorder. The researcher then thanked each interviewee for their time and offered them a $10 gift card showing appreciation. After each interview, the researcher checked the audio-recorder to make sure it worked and then each interview was copied to a flash drive that was locked up in-between uses and erased from the audio-recorder.

Data Analysis

The researcher began data analysis by listening to each audio-recording, paying special attention to any ideas that indicated a possible theme. The researcher then transcribed each transcript, verbatim, into a Microsoft Word document so they could be studied in detail (Bailey, 2008). As the transcripts were prepared, the researcher took into consideration the pauses and non-vocalizations, including laughter, that accompanied each response and with which questions these vocalizations occurred (Bailey, 2008; Stuckey, 2014). The 5 key-informant transcripts were completed first. Upon completion, the researcher emailed each transcript to its respective interviewee providing them the opportunity to review the transcript to look for errors or to provide comments and feedback. A 5-day timeframe was given to each key-informant for review with an understanding that if no feedback or comments were generated and given back to the researcher, the researcher would move forward with the transcript as is. By the end of the 5-day timeframe, no response from any of the 5 key-informants was received by the researcher.

The focus group transcripts were then transcribed following the same steps as with the key-informant transcriptions. Once completed, the researcher called each of the 25 focus group participants asking if they were interested in reviewing their respective transcript. One phone number had been disconnected, many participants did not answer, some of the participants said they did not need to see anything, and those participants who had voicemail capability were left a voicemail explaining the purpose of the call and asked to call the researcher back. A total of six participants were interested in viewing their respective transcript. The researcher mailed hard copies to 5 of the participants and emailed a copy to the sixth participant. A 5-day timeframe was asked of the participants to provide any comments, concerns, or clarifications. The researcher provided a telephone number to be reached at for those wanting to discuss the transcripts. By the end of the 5-day timeframe, two of the male focus group participants contacted the researcher to go over their respective transcript for clarification; changes were made accordingly.

After reviewing many approved dissertations from Walden University, the researcher proceeded with analysis first by manually coding each of the nine transcripts looking for major categories or codes that encompassed key points using an in vivo approach (Basit, 2003; Glaser & Strauss, 2009). Once the initial coding was done, the researcher then grouped together similar, individual responses for each question. The researcher then extracted codes that were relevant to answering each question. The researcher also conducted word counts for each of the nine transcripts looking for major categories or codes that included 40-45 frequently-used words/phrases to determine what

was of more concern for each of the transcripts. Table 4 provides a brief overview of each research question's emerging themes.

Table 4

Emerging Themes

Research Question	Themes
How do American Indians perceive a healthy weight or body mass index?	Self-perceived appearance, healthy weight perceptions, self-acceptance
How do American Indians perceive being overweight or obese?	Poverty, boredom due to unemployment, physical inactivity
How do American Indians perceive obesity as an influence, if any, on healthy lifestyles?	Poverty, physical inactivity, unhealthy choices/behaviors, dietary habits/choices, overwhelming feeling of hopelessness, community leadership and support, parental education
How do culturally-driven beliefs contribute to behaviors that relate to being overweight or obese?	Cultural importance of food, traditional food production, convenience foods and absence of home cooking, culture change, identity shift

The following sections describe the steps taken by the researcher to ensure trustworthiness of data throughout this study.

Trustworthiness of Data

Care was taken to eliminate any threats to trustworthiness. In qualitative research, different terms are used to determine the validity of the researcher's practices and findings (Whittemore, Chase, & Mandle, 2001). Four commonly used terms in qualitative research are credibility, dependability, confirmability, and transferability, all

of which were used to warrant trustworthiness of data in this study (Morrow, 2005; Shenton, 2004).

Credibility

Credibility is one of the most crucial elements in ensuring trustworthiness in qualitative research (Lincoln & Guba, 1985). One of the ways a researcher can accomplish credibility is to spend an extended period of time with the population under study to become familiar with their culture (Shenton, 2004). In this study, the researcher spent over four years building rapport and trust among the community learning about them and their culture while meeting many, many people before data collection began. During the data collection stage, the researcher took time to discuss and talk with participants about what the purpose of the study and why it was important. The researcher ensured that the participants felt comfortable by reinforcing the concept of confidentiality explaining that all audio-recordings would not be heard by anyone else and that giving honest answers was important. The participants were aware that they were not obligated to participate and could leave at any time.

Triangulation is another step that can be utilized to support credibility. Triangulation of data methods is important because a combination of methods is used for gathering data (Patton, 2002; Shenton, 2004). The researcher used both focus groups and key-informant interviews to collect data and though both are forms of interviewing, they each have distinct characteristics resulting in individualized strengths (Brewer & Hunter, 1989). Triangulation of data sources is also important because it can enhance the range of data so a concept can have complete understanding by having a variety of groups or

people partake in giving their views (Kraft & Breitmayer, 1989). This study used a variety of disciplines for the key-informant interviews and used different groupings of people for the focus groups.

Member checking is yet another step that can be used to ensure credibility and has been considered one of the most crucial provisions that can be made to support a study's credibility (Lincoln, & Guba, 1985). Not only does member checking allow for participants to check the researcher's accuracy, but it also decreases the likelihood of misrepresentations (Krefting, 1991).

Dependability

Dependability, or consistency, is used in qualitative research to show that if techniques are repeated using the same methods and same participants, results will be similar, or consistent, each time (Shenton, 2004). Detail is important for dependability so that the researcher can replicate steps as close to the original as possible; the denser the description is, the more enhanced dependability will be (Krefting, 1991; Shenton, 2004). Triangulation is also important to support dependability. Being able to use multiple data collection techniques will help compensate weaknesses that a method may have (Field & Morse, 1985). The researcher used key-informant interviews and focus groups so to allow for easy replication.

Confirmability

Confirmability is used by qualitative researchers to ensure that the results of a study are based strictly on the experiences, ideas, opinions, etc. of the participants rather than preferences or characteristics of the researcher (Patton, 2002). Miles and Huberman

(1994) stated that a researcher must admit their reasons for choosing a specific approach over another and why those predispositions are there. Another way to support confirmability is for the researcher to have an external source, or auditor, go through the project on an ongoing basis for inspection and verification of why and how decisions were made by the researcher (Guba, 1981; Lincoln & Guba, 1985). For this study, the researcher explained why certain choices, approaches, and methods were chosen.

Transferability

Transferability demonstrates whether specific findings of one study can be applied to similar situations while keeping the original meanings and inferences (Leininger, 1994). For transferability to be determined there must be thick description so others can assess whether the findings are transferable or not (Firestone, 1993; Lincoln & Guba, 1995). To enhance transferability, thick description should include raw data examples, appropriate quotations, and excerpts showing how themes emerged from data (Houghton, Casey, Shaw, & Murphy, 2013). For this study the researcher used detailed, thick description demonstrating the importance of adequately described data so others can decide whether the results are transferable, along with quotations used by participants (Ponterotto, 2006).

Themes

The purpose of this study was to determine the perceptions American Indians have of obesity and its effects on healthy lifestyles. The research questions sought to answer whether American Indians view obesity as an influence on healthy lifestyles. Information obtained from four focus groups and five key-informant interviews led to

emerging themes from the data analysis in response to each of the four research questions. The following sections discuss the findings for each of the four research questions and their subthemes.

Research Question 1

Research question 1 addressed how American Indians perceive a healthy weight or BMI. Initially the participants were directly asked by the researcher what a healthy weight meant to them. The researcher noted that there was not a lot of discussion about either BMI or a healthy weight from most of the participants. Only a few of the participants had thoughts on the topic. The three subthemes that emerged from the discussion were self-perceived appearance, healthy weight perceptions, and self-acceptance.

Self-perceived appearance.

Regarding healthy weight and BMI, the first theme that emerged from participant responses is appearance. Only three participants acknowledged that they should weigh less whereas the rest of the participants did not engage in any discussion. F_{1D} clearly knew she should be around 120 pounds but instead weighs 140 pounds but feels "ok" at that weight. She went on to say that "I really don't want to go any further down, I am 81 years old. I don't want to get more wrinkled. I feel better at this weight." One of the male Retirement Home participants remembered being 132 pounds and how good it felt. This same male Retirement Home participant knows he is overweight stating "I can't get my pants buttoned anymore." Conversely, one of the male CHR participants was the only participant who stated that according to body mass index he should be at a certain

weight but he would "be skin and bones" at that weight he added. Though only a few participants deemed healthy weight and BMI more of how a person looks, other participants had more unique perceptions of what a healthy weight and BMI should be.

Healthy weight perceptions.

The second theme that emerged regarding healthy weight and BMI is healthy weight perceptions. Interestingly, of all the participants, only one participant gave a health-related response by stating that, to her, a healthy weight is when her "blood pressure is down." One of the male CHR participants had a unique view on healthy weight stating that being at a healthy weight means one can bend over to "tie your own shoes" and "walk 100 yards" without getting tired. This same participant went on to say that "obesity is sky-rocketing in Native country; our students, our grandchildren, a lot of them, are so obese already as young children. You got to force yourself and care about what a healthy weight is." In contrary to this comment, a second male CHR participants felt that a healthy weight is a "personal choice" while a third male CHR participant stated that "obesity is a learned behavior. If you see a fat person and they look jolly and happy, by God you want to be a fat person too, jolly and happy." On the other hand, F_{1G} candidly stated that "weight scares me" because her family has a lot of health problems including heart conditions and DM. F_{4C} added that it is "important to take care of yourself" because DM runs on both sides of her family and she wants to be around for her kids. F_{4C} continued, "it's always mind over matter; you have to be disciplined." Although there was not a lot of discussion from participants on their thoughts of being a

healthy weight, some of the participants candidly stated that accepting oneself is more important than being a certain weight.

Self-acceptance.

The final theme that emerged from research question 1 is self-acceptance. F_{1G} and F_{4B} both stated that being a healthy weight meant they "feel good" whereas F_{4A} and F_{4F} both stated, "being happy" with their lives and being "mentally stable" is what matters, not necessarily being a certain weight. K_A supported these thoughts adding that a healthy weight is "what you see about yourself." Similarly, one of the male CHR participants felt a healthy weight is the "way you look at yourself." He continued:

> You got to feel comfortable in your own skin, if you're not, you got problems. I'm obese but I'm very comfortable the way I look and the way I feel about myself. I don't look obese, I am obese. I'm gaining weight all the time. I sit on my duff all the time in front of that computer. That's my choice, that's what I've decided to do with the rest of my life.

The researcher proceeded to ask the participants whether a healthy weight consisted of being a certain pant size; four of the female participants said "no" while F_{1E} added that they are "too old for that, everything went south." Though research question 1 did not have a lot of participant discussion, the overall message conveyed by participants was that people need to be accepting of themselves rather than being concerned about a weight or pant size. Research question 2 attempted to expand on these views by inquiring about overweight and obesity perceptions.

Research Question 2

Research question 2 investigated how participants perceived being overweight or obese. Like research question 1, participants were directly asked how they viewed being overweight or obese. Three subthemes that emerged were poverty, boredom due to unemployment, and physical inactivity.

Poverty.

The first theme that emerged from research question 2 was poverty. A few of the participants did not view being overweight or obese as a sign of prosperity but rather a "sign of poverty." One of the male CHR participants felt that people are overweight or obese due to poverty. This same participant continued, "poor people are forced to eat grease and bologna and lard so poor people, they're more sickly. Being forced to eat things that fill them up, not being able to afford good healthy salads." Unfortunately, the impoverished are limited and must feed their family with what they have, which is often "flour and grease," or other cheap foods like chips, whereas the wealthier people can afford to eat healthy foods. F_{4A} and F_{4C} stated that those who live in poverty are more affected by obesity because they cannot afford healthy foods to eat because it is "expensive to eat healthy." Likewise, F_{1E} firmly believes overweight and obesity are related to not having money to buy healthy foods. She stated: "it comes down to the money again, you are right back to the money. They don't have enough money to buy fresh fruit, a good cut of meat. Got to buy the greasy hamburger, it's hard." However, F_{4B} stated she thinks that the middle-class people are more affected because those in poverty "have food stamps to live on and can buy whatever they want" whereas the

middle class "have the hard time buying things because they only have enough money to buy certain amount of food and to pay their bills." Though some participants indicated that not having money to eat healthier could cause a person to be overweight or obese, other participants think boredom could play a role as well.

Boredom due to unemployment.

The second theme that emerged was boredom due to unemployment. Contrary to the above thoughts, some participants did not think being overweight or obese is related to poverty. F_{1E} felt that being overweight or obese is a sign of "eating too much" while F_{1I} thinks people are "just bored" so all they do is eat. F_{1D} further added to these thoughts stating there are a lot of people in the community who are out of work and "do not do anything while some just won't work." Furthermore, one of the male Retirement Home participants stated that "being obese is spending money on food and you get fat" because they have that extra money to buy "better cuts of meat" or have better food options whereas most people of the community do not have that option. Although participants have different views on how a person eats can relate to being overweight or obese, there is a consensus that being physically inactive can relate to being overweight or obese.

Physical inactivity.

The final theme that emerged from research question 2 was physical inactivity. Multiple male Retirement Home participants discussed how they were always active growing up regardless of what they ate. Whether it was "fishing, hunting, doing chores on the farm," or just playing outside for fun, the male Retirement Home participants agreed they were always doing something. "They get too lazy now, they're not doing

hard work" stated one of the male Retirement Home participants. There was no "sitting in front of TVs or playing games on the computer." Their parents made sure they were not just sitting around.

One of the male Retirement Home participants felt that the parents influence whether children get enough physical activity. "The parents here, a lot of them, give them computers and stuff, they live on those computers" adding that activities like that are "why they're obese." Adding to this, one of the male CHR participants firmly stated that it is important to "incorporate movement" into their lives. He continued to say that because "so many of the young people are obese among the reservation," it is crucial for parents and grandparents to make those kids "get out and move." F_{4F} added to this statement by saying that kids today "won't go outside, they don't want to be outside" because they would rather be inside in front of a TV playing their video games. "Everyone's sitting at a desk now, even the children with their iPads watching cartoons," stated one of the male CHR participants. Clearly participants believe that poverty and being inactive contributes to being overweight or obese. Other participants added the perspective that even though times have changed, there are some people who "care how they look."

Three of the key-informants had comments regarding healthy weight. K_A felt that people today "are more aware that if you're obese that your chances of being unhealthy are greater." She added that when she was growing up when people were overweight, that is all they were, overweight in that "you don't look nice." K_C added to this stating that when he was young he would see slim people that looked nice but now "even the

younger girls are all chunky and I don't know if it's because of the food that we get but seems like they don't really have much pride in what they look like." He added that the reservation used to be the "place to go to get a girlfriend" but even now "the boys are the same way, they're all chunky things." Conversely, K_E pointed out that there are a lot of people "that really care about their personality, their bodies; they take pride in them." He added that there is a lot of "high-maintenance women" among the community that are nice and fit with their hair done but there "are a lot of overweight kids" in the generation coming up. Research question 2 identified that eating unhealthy, sometimes eating too healthy, eating out of boredom, and being physically inactive can contribute to being overweight or obese. Research question 3 inquired further whether obesity was perceived as an effect on healthy lifestyles.

Research Question 3

Research question 3 explored if the participants perceived obesity as an influence on healthy lifestyles. As with the other research questions, the researcher used the interview guides to ask a variety of questions. Before the questions were asked, the participants were directly asked what the words "healthy lifestyle" meant to them, Table 5 provides some examples of participants' responses.

Table 5

Participant Responses

Response	Participant
Walking, exercising, and eating right. Mental-type exercises.	F_{1G}
No smoking.	F_{1I}
Staying fit, exercising, eating right.	Male Retirement Home participant
Going to see your doctor.	Male Retirement Home participant
Food in moderation and exercise.	Male CHR participant
Mental stability. Mind, body, spirit.	Male CHR participant
Mentally and emotionally a person needs to be healthy as well.	F_{4A}
Exercising, eating right.	F_{4B}
Not doing drugs or alcohol.	F_{4D}
Being happy with one's life.	F_{4F}

Unexpectedly, obesity was not given as a direct answer to whether it is an influence on healthy lifestyles. What were given by the participants were opinions of other behaviors, limitations, and choices that could all relate to obesity, therefore being of influence on healthy lifestyles. The seven subthemes that emerged from the participants' responses were poverty, physical inactivity, unhealthy choices/behaviors, dietary habits/choices, overwhelming feeling of hopelessness, community leadership and support, and parental education.

Poverty.

The first theme that emerged from research question 3 was poverty. When asked about unhealthy contributors that could affect healthy lifestyles, diet was mentioned by most of the participants. Those living at the Retirement Home described the meals they get for lunch during the week. F_{1C} and F_{1G} both felt that the food they are served is "bad

for us" because most of it is processed, which can affect those who "have high blood pressure and DM". The Retirement Home is on a fixed income and because of this, the residents are basically getting the same type of food as meals on wheels. The male Retirement Home participants felt the food they get is "balanced" with "fruit, vegetables, and salads." On the weekends, the residents are on their own for meals so they can make what they want or go out to eat. Examples of food they make, as stated by three of the female Retirement Home participants, included pizza, meatloaf, and chicken and dumplings. One of the male Retirement Home participants takes "leftovers from Friday's meal" and makes them last throughout the weekend while another male Retirement Home participant likes to "go out to eat." Another male Retirement Home participant stated that it does not matter where they eat because "the carbs and stuff is bad for you," especially if they are diabetic. Both Retirement Home groups stated that if they could have food stamps, they would be able to "buy healthier foods like fruit." Although, there are people among the community who grow apples and bring them to the Retirement Home for the residents to take because "fruit is expensive" and would have to be bought at the store otherwise (F_{1D}). F_{1E} stated that being approved for food stamps is based on income thus disqualifying many of the residents at the Retirement Home. Instead, they get commodity foods, or government rations, which are not healthy, according to both Retirement Home groups.

One of the male Retirement Home participant strongly felt that going to the commodity warehouse for groceries is a good way to "kill yourself and that's what I think the government thinks about us." Supporting these thoughts, K_C and K_D added that

commodity foods have been endured over the years by their people. K_C stated that the commodity foods "that the government provides" is not healthy and is mostly starchy foods, which a lot of families rely on. K_D expanded on this sentiment by explaining that the government had to find a way to "feed" her people once the buffalo went extinct so they provided commodity foods. She stated:

> Our government rations were not healthy food at all. They were high in fat, saturated fat, they were high in sodium, they weren't very appealing at all. High in fructose corn syrup, which we know contributes to a lot of diseases. So, it was survival food, we had to survive, in order to survive we had to eat these commodities, which were not healthy. We do have better foods in our commodities today than we did ten years ago, we have fresh fruits versus the canned fruits.

Commodity foods, or food rations, are provided to eligible families that are low income American Indian, those households that are non-American Indian but live on a reservation, those living in approved areas, or those living in Oklahoma where at least one of the family members is affiliated with a federally-recognized tribe (United States Department of Agriculture, 2015). This program is through the United States Department of Agriculture's Food Distribution Program on Indian Reservations, which serves approximately 276 tribes across the nation (United States Department of Agriculture, 2015).

On the contrary to the above comments, the CHR participants, who are not on a fixed income like those living at the Retirement Home; have a better opportunity to buy

healthier foods. Some of the foods these participants eat on a regular basis include: lean hamburgers and hotdogs to grill, yogurt, homemade pancakes, fruit, boiled potatoes, omelets and fried potatoes, eggs, oatmeal, and French toast. One of the male CHR participants mentioned how the "foods have changed" and that growing up there were no processed foods and the meat was lean. This same participant told of a story when he was a young boy away at boarding school for 3.5 years; he craved deer meat and was not able to have any at boarding school. When he came home after those 3.5 years, one of the first things he did was walk to his uncle's place in the hills for some deer meat. Adding to this, a second male CHR participant felt the modern diet has affected them, who are "naturally slim people," because "flour is used for everything, the lard, that vegetable oil. All the processed foods stay with you longer; we can't process them very well." Because of all the processed foods, F_{4C} stated that she cooks all her meals mostly "from scratch," no boxed meals, because of her kids and she wants her kids to be healthy. As seen from earlier perceptions, not everyone can afford healthy foods to eat on a regular basis.

In discussing diet, two of the major contributors to eating unhealthy is affordability and accessibility. More than one participant mentioned that people cannot afford to buy healthy foods. F_{1G} and F_{4C} stated that it "costs money" to eat healthy and those who have a job can buy healthier foods because they have an income. Moreover, K_B believes that poverty causes "a lot of obesity in our community" because families cannot afford fruits and vegetables so are eating unhealthy foods. She added that families are forced to buy items like macaroni, potatoes, and greasy hamburger that "are filling

but at the same time not better, they're contributing to this obesity. I think when young people get a few bucks they're buying a lot of chips." In her opinion, K_B thinks there is just not enough good cooking in the homes, "they're cooking whatever they can find and afford and like I said, pasta and things that are probably not as good for the kids as could be." She also stated the schools would be a good place to serve healthier meals but it is almost as if they "promote this unhealthy lifestyle." Consequently, K_B proceeded to tell of a time when she volunteered for a program for preschoolers where the tiny kids were being fed a lot of "frozen foods" instead of having a cooked meal. "I remember the pizza pieces they would give those kids, great big slices of pizza and if the child wanted two pieces, as long as they ate everything on their plate they could have a second one."

Adding to these insights, two of the male Retirement Home participants stated that many people cannot afford to eat healthy because if "they do not have money, they do not eat." Similarly, F_{1E} and one of the male Retirement Home participants added that being able to buy a "better cut of meat or the fresh fruit" all depends on the money; if a person does not have money, they are forced to buy the greasy unhealthy hamburger, which is the "worst food for you" concluded one of the male CHR participants. In agreement with these opinions, K_A not only felt that money is a lot of the reason why people within her community do not eat healthy, but so is lack of "access" to healthy food choices. She stated that because small town grocery stores set their prices so high, people "do not have an option" of going elsewhere for groceries because the bigger towns are anywhere from 40-90 minutes away and "most people do not have access to transportation." Continuing, K_A truly believes that "there is a prejudice" with the smaller

town grocery stores that are “next to a reservation” because they prices are “ridiculous.” She stated that she can drive the distance to a bigger town where groceries are cheaper because she has a “beautiful job, a trustable car.” As discussed in this section, many of the participants perceived poverty as a big contributor to unhealthy lifestyles. Lack of physical activity was also conveyed by participants as being a contributor.

Physical inactivity.

The second theme that emerged from research question 3 was physical inactivity. Physical inactivity was mentioned by many of the participants as a contributing factor to unhealthy lifestyles. For those participants living at the Retirement Home, there is a limited amount of activities for them to partake in. F_{1C} disappointedly said that they “used to have music” for the residents but they stopped doing that. The reason for this was unclear to the researcher but funding was mentioned as a possible cause. Subsequently, F_{1D} and one of the male Retirement Home participants both mentioned that there are treadmills present at the Retirement Home but “you can’t use them cause certain people got the keys,” F_{1D} explained. This same male Retirement Home participant added that supposedly the keys to operate the treadmills are “being stolen” and he does not understand why management does not do something about it, even suggesting “putting up surveillance cameras” to see who is stealing them. According to F_{1F}, a lady comes to the Retirement Home to show them exercises once a month but “then she tells us we can do it in our rooms.” Because of the limitations at the Retirement Home, walking around the facility is the only type of physical activity many of the participants get. When asked if they have utilized the new Wellness Dome for exercise, the participants said “no.” The

residents of the Retirement Home do have free access to the Wellness Dome if they so choose, according to one of the male Retirement Home participants, but many of them do not take advantage of the opportunity due to lack of transportation to get there and back.

Contrary to the Retirement Home participants' access to physical activity, the CHR participants have more opportunities to be physically active. Some of the activities that the male CHR participants mentioned included: walks, play with their grandchildren outside, camp, fish, or just try to incorporate some sort of movement into their day. The female CHR participants mentioned working outside, building stuff, feeding the horses, walk, ride bike, chase kids around, go to the lake, or walk the track. Candidly, F_{4B} stated that she is not into exercise because she is busy enough "cleaning house and doing laundry." In regards to utilizing the Wellness Dome, none of the CHR participants use it. Despite participant responses, F_{4C}, F_{4D}, and F_{4F} said that there are activities in the community that people could participate in "if they wanted to" including walk/runs, Pow Wows, and an annual triathlon (biking, swimming, running) that takes place in July. Though there are options available to obtain physical activity, many people are not active.

In discussing reasons why people of the community might be physically inactive, accessibility, affordability, and safety were mentioned by many of the participants. Though there are fitness centers in the community along with the Wellness Dome, a lot of people do not have access to transportation because "many people do not have vehicles" and a lot of them live "off in the distance" (F_{1E}, K_A, K_C). Because of this, K_A stated that this is a problem when planning events in the community because even if people were

interested in the event, "how are they supposed to get here?" The researcher did ask participants if the community has a bus system, of which they do, but the participants did not know how much it cost or the hours of operation. As with eating healthy, affordability was discussed as a reason why people may not be physical active.

Affordability was also mentioned as a barrier to getting physical activity. Although there are fitness centers and the Wellness Dome, many people of the community cannot afford to use them. F_{1D} heard that it costs $7 a day just to go walk in the Wellness Dome. Likewise, K_B and K_C both stated that many families cannot afford to use the Wellness Dome while K_D conversely said that a lot of the younger people in the community are using it but "we don't see a whole lot of people that are diabetics using the facility that should be using it." Though affordability may have an impact on whether people use the Wellness Dome, the Diabetes program helps those who are at risk for DM to get free access to the Wellness Dome. K_A states:

> I will pay for your membership. Let's say you are overweight and you're at risk for DM: "can you help me? I can't afford this, I have four kids, I can't afford this." Tell you what, I'm gonna put you in a structured program, I'm gonna route you up there and they'll put you in cross fit, you wanna walk and get in the ten-thousand steps club, whatever you want to do. We'll get a file on you; we'll set goals with you. We set realistic goals with them and then they get a key-fob, they pay for that themselves, it's like $5, but I'll pay for your membership. You wanna get healthy, I'm gonna help you. So, they go there then at the end of the month your key don't work until we update your goals.

K_A went on to say that she does have a good turnout in the beginning of programs but as time goes by, people seem to lose interest. She is not sure why people lose interest but did share that she has her "little cliques" whether it be for walking or cross fit. "It's all healthy cliques, I just love it" she stated. Though this program is useful in helping people gain access to the Wellness Dome, those who do not qualify for the program would have to walk outside but some people do not feel safe.

Safety was also a concern mentioned by some of the participants. Because many people do not have vehicles, they walk wherever they need to go. The reservation does have walking paths but do not have sidewalks right in town forcing people to "walk along the road" (K_A, K_D). Also, a safety concern is the abundance of untied dogs running loose around the community. F_{1D}, two of the male Retirement Home participants, one of the male CHR participants, and K_B all mentioned that dogs scare people and deter them from walking. K_B told of a story where her aunt was out for a walk on the walking path towards the college when "two Pit Bulls took after her." Luckily a gentleman was driving by and saw what was happening and helped her. If there is going to be any kind of walking, running, or biking going on among the community, at times people will be asked to tie up their dogs. One of the male Retirement Home participants said there should be an "ordinance" put in place for these loose dogs. The researcher asked for clarification as to whether the dogs were wild or just loose among the community. K_B explained that many dogs are just not tied and do stay close to home for the most part but at times they "wander around the community," which can scare people because some of the dogs might be mean but some may not be mean. Participant responses showed that

opportunities to be physically active may not always be available for some members of the community, which can lead to an unhealthier lifestyle. Other factors that can lead to an unhealthy lifestyle are simply unhealthy choices and behaviors people make and do.

Unhealthy choices/behaviors.

The third emerging theme from research question 3 was unhealthy choices and behaviors made by community members. Participants indicated that there are many unhealthy choices and behaviors that people in the community engage in. The use of alcohol, drugs, especially methamphetamine, and prescription drugs are a concern for the participants. It is important to note that the male CHR participants did not mention any of the above as a concern among the community. F_{1D} stated that "drugs and alcohol is terrible" adding that it is "scary sometimes" because a person never knows who is doing drugs. Additionally, F_{1C} and F_{1I} said that at the Retirement Home, alcohol has become a major issue because "a lot of young people" are being allowed to live there and many of them are alcoholics. F_{1E} further explained that there is a lot of drugs too as the Retirement Home has been called "pill hill" and has gotten a "bad reputation" because of it. Moreover, one of the male Retirement Home participants stated that the hospital (the Indian Health Services Hospital) is also known for dispensing drugs and they are "getting away with it" because some people are taking "12-13 pills at a time." Along with drugs and alcohol use, other behaviors were also mentioned.

F_{4D} stated there is "a lot of risky behavior" going on among the community and when the researcher asked for clarification on what constitutes as risky behavior; drugs, alcohol, sex, gambling, and prescription drugs were mentioned (F_{4A}, F_{4B}, F_{4D}, F_{4E}). Also

mentioned was the selling of drugs among the community. The researcher asked participants why drugs are being sold; reasons varied from people wanting to spend the money on themselves to having money for gas, bingo, or whatever they want to spend it on (F_{4A}, F_{4C}, F_{4D} F_{4F}). Sadly, people who are doing drugs are selling their food stamps and even their WIC (Women, Infants, and Children) just to get money to buy more drugs, which at times mean the children are going without (F_{4C}, F_{4E}). K_D had something substantial to say regarding drugs and alcohol among the community. She does not think alcohol has gotten much worse but is concerned with the use and abuse of drugs:

> We have a lot of people breaking in to homes to get items so they can go out and purchase more drugs. We have individuals that get drugs then they turn around and sell the drugs to other people that are addicted to the drugs. Oxy-cotton is a really bad drug in our community. Individuals are prescribed medication but they go out and sell it. People who need their teeth extracted will go to the doctor and ask that only one tooth be taken at a time so they can keep coming back to be prescribed hydrocodones then they turn around and sell the hydrocodones. Oh, they know how to work the system; many people that are drug users, drug sellers know how to use the system. Even cancer patients who get their medications will turn around and sell them instead of trying to make themselves feel better, they just take Motrin or Tylenol.

K_D further explained to the researcher that drugs on the reservation are "free through the Indian Health Service hospital" so to get these drugs does not cost the community members anything. Though drugs on the reservation are free, this study showed that

community members struggle to buy healthy foods. This struggle, along with other dietary habits, can contribute to unhealthy lifestyles. Because of all this behavior, F_{1D} and F_{1I} respectively felt that outside help should be brought in because the patrolmen on the reservation "are all related and don't want to do anything to hurt somebody's feelings" and because of that, "everyone's afraid." The choices and behaviors that people choose to be part of can lead to unhealthy lifestyles; dietary habits and choices can also cause an unhealthy lifestyle.

Dietary habits/choices.

A fourth emerging theme from research question 3 was dietary habits and choices, including the bad choices people of the reservation make regarding dietary habits, food preparation, and how SNAP (Supplemental Nutrition Assistance Program) is used. One of the male CHR participants started by saying "we all love to eat so much" but these days, people are eating too much during their basic three meals. Therefore, people "do not have control when it comes to eating" in that they keep eating until their full and should try focusing on smaller portions (F_{4C}, a second male CHR participant). Also, mentioned by a third male CHR participant was that people today eat late at night and that can affect a person, especially if what they are eating "is not healthy." Hence, according to one of the male Retirement Home participants and three of the female CHR participants, the young people of today "do not want to cook" because they are "lazy" and it is more convenient to just grab something from the store and go. Thus, there are "too many microwave cooks" because it is easier and because finger foods taste good, stated F_{4F} and F_{4A}, respectively. The participants recalled how they had to learn to cook

growing up because most came from big families and buying boxed foods was unheard of. As noted, convenience foods can lead to unhealthy lifestyles, as can food preparation and purchasing.

Along with how much and when to eat; participants disclosed how food is cooked and purchased could also affect a healthy lifestyle. One of the male CHR participants and two of the female CHR participants stated that instead of frying their foods, they bake or boil them but if they do fry something, they will use vegetable oil instead of lard to limit the amount of grease. In discussing ways of preparing foods, a few of the participants had something to say when it came to food purchases that many people make, especially those who use SNAP.

People who have SNAP have the choice to buy whatever foods they want; most of these foods are not healthy, according to some participants. "Pop, candy bars, you can buy all that junk with that. They should only be allowed to get like their vegetables, meat, and potatoes, not chips (F_{4E})." F_{4C} added to this by saying "keep the junk off there. My husband always said that SNAP, that's what's killing our community." Likewise, F_{4C} also thinks that the state should do a better job of regulating what can and cannot be purchased with SNAP. F_{1A} added that the reservation is full of pizza eaters, "on food stamp day their carts are filled up with pizzas." K_D supported these comments adding that Walmart is wiped out of pizzas when people have their SNAP cards, all they buy are foods that are high in fat or are processed along with pop because many families do not know how to purchase healthier foods. She continued:

> Cases of pop, just cases and cases of pop, that's what they're buying. I would love to see pop taken off of the EBT card, pop is poison. I've even seen parents put the pop in the baby's bottle and give it to the babies. The parents have to change because they're the ones that buy the foods, they're gonna continue to drink the pop. It's the pop, it's high fat foods that we're purchasing, the unhealthy foods.

Conversely, K_A felt that people who have SNAP are limited money-wise for the month and because of that, they need to make the money they have stretch and it's cheaper to buy "four bags of chips for five bucks versus a bag of oranges for ten dollars." "The unhealthier food is so less expensive" she added. Not being able to afford healthy foods is one of many factors that can contribute to an unhealthy lifestyle; feeling hopeless could be another factor.

Overwhelming feeling of hopelessness.

The fifth theme that emerged from research question 3 is having an overwhelming feeling of hopelessness. Four female CHR participants and four of the key-informants felt that the attitude among the community is "negative" because many people do not seem to care about their health, which could be their choice or the fact that so many people cannot afford to eat healthy or get proper exercise. Sadly, F_{4F} stated that because so many people among the reservation are impoverished, they do not see "a light at the end of the tunnel" and do not try to change their lifestyles. F_{4F} went on to say that she truly believes that things will not change with the community until "something's done to help them prosper." F_{4A} added to this by saying that people among the reservation need

to start working together instead of "fighting about everything" so to help their community move forward. "Look at the positive things around you versus the negative" added F_{4C}.

The key-informants' views on this topic focused more on people of the community who are suffering from DM or other illnesses. K_A stated that there are many facilities among the community that are available for those who need or want help including a mental facility for counseling and a camp that helps families with drugs and drinking. "We have every facility here that can help us. Everybody has a story but there are places out there we can get help," she concluded. K_B, K_D, and K_E all stated that getting a better handle on DM is key because those who are suffering from DM are not educated enough on the disease or what it can do to their body and because of this, those suffering do not take it seriously until they are having their feet amputated or beginning dialysis. K_E believes that those suffering from DM do not want to listen, "it's like in one ear and out the other." Many diabetics think "the medication is saving them and you don't have to worry as long as you've got the needle to push in your body to take care of your insulin," continued K_B. How to address this issue is a hard question that participants could only answer with "more education." K_D stated that the "low rent, uneducated, unaware individuals probably don't have a high school education and they don't care so they're teaching their children the same thing they do." K_E too stated that more education on DM is needed because "Native Americans are just overweight. I hate to say that but that's just the way they are." As seen in this section, participants had a lot of concerns they feel could impact healthy lifestyles. Though people do make their own

choices, support from leaders and the community may also influence how people live, according to participants.

Community leadership and support.

Community leadership and support of the Tribal Council was the sixth theme that emerged from research question 3. It should be noted that none of the female Retirement Home participants had opinions on this topic and did not engage in discussion when the researcher asked questions. Many of the participants seemed discouraged with the Tribal Council when the researcher first asked questions about the Tribal Council doing more for the community; F_{4A} said "oh boy" while F_{4B} candidly stated "that's another touchy subject." There was, however, an agreement that the Tribal Council needs to focus more on the community, for example the high number of people with DM, rather than personal agendas. One of the male Retirement Home participants frustratingly stated "there is a lack of leadership. Leadership is leading us down the path and we, like fools, are following. We get sucked into all this crap they pull off out there. They don't focus on the right things." Likewise, one of the male CHR participant added that their "government don't work" because instead of focusing on concerns among the community like safety, drug use, or poverty, they are more concerned about pleasing people to "keep votes." A second male CHR participant further stated that "they decide it is better politics to address that over there because somebody on that council, that's his first cousin up there and they carry a lot of weight of votes so this Tribal Council will not deal with it." K_C had similar thoughts as the focus group participants regarding the Tribal Council. He stated that "they don't give much help" adding that the reservation needs to

look at who they are electing to power because “we get a lot of talk but don’t see any action.” He went on to say that if the people of the Tribal Council did a decent job in the two-year term they served, they would get re-elected but they do not get re-elected so “a new bunch comes in” and two years is a short period of time to really make a difference. However, a third male CHR participant, who has served in the past as Tribal Chairman, spoke up saying there are times when the Tribal Council must deal with “emergency issues” that take precedence over other issues. He gave the example of young teenage mothers who have babies and nowhere to go; they must focus on those babies and where they will be living. Regardless of this example, the overall feeling from participants was “it’s gotta change, gotta change.”

According to F_{4A} and F_{4C}, the Tribal Council expects a handout from the Federal Government to start any programs instead of “taking the initiative” and creating the programs on their own. F_{4F} added to this stating that “the problem is, I think, we’re all like this and it starts with the Tribal Government. We don’t want do anything on our own, we want somebody to give it to us.” She went on to say that not only does the Tribal Government act like this, “the schools and hospitals are all the same way.” Nevertheless, K_B and K_E both stated that the Tribal Council gives their program directors approval to carry out objectives. K_B also mentioned that the Tribal Council does give money to the Pow Wow committees to help fund the annual Pow Wows within the community, which is an effective way to promote physical activity and tradition among the community. K_A and K_D are both program directors and stated that the Tribal Council does listen to them and backs their decisions. However, K_D did mention that she thinks

"the Tribal Council has so many other things to focus on than what's going on health-wise. So, I think they kind of leave it up to us to try to do what needs to be done in the community." Though there seemed to be mixed feelings among participants regarding leadership and community support, there was a unanimous agreement among participants that parents need to be "more involved" in their children's lives and should also be "more educated" to make healthier decisions (one CHR male participant).

Parental education.

The final theme that emerged from research question 3 is that of parental education. Most of the participants indicated that parents need to be more involved in their children's lives to be healthier. Again, the researcher should note that none of the female Retirement Home participants had any perceptions on this topic and did not engage in discussion; instead they sat quietly or changed the subject. Nevertheless, one of the male Retirement Home participants and K_E felt that "obesity is a learned behavior" because of the parents; if the children see their parents eating unhealthy and being physically inactive, chances are they will too because it "stems from home, I know it does" (K_E). F_{4A} added to that by saying behaviors are generational; how people were raised is how they in turn raise their families. Furthermore, one of the male CHR participants expanded on this view stating that "the obesity level is sky-rocketing in Native Country" so the parents need to be educated on the effects of DM and need to "push their kids and grandkids to make something happen for them." This same participant continued by strongly stating that changes need to be made with the parents, "the parents need to make and effort. Be the parent, you got to be the parent." This

statement caused a second male CHR participant to state he is not sure how to tell their kid that they are eating too much. This in turn caused the first male CHR participant to bluntly state "you're the parent, you need to."

According to F_{4D}, many of the parents are "too busy and want their own personal life" instead of being part of their children's lives and some are "at the casino every night and these kids are left on their own." K_C echoed this opinion stating "the parents are usually at the casino or they're out partying or something and the children don't have nothing at home." Because the parents are too busy doing what they want to do, "grandparents are doing everything for their grandkids and kids, they're not allowing them to do for themselves (F_{4C}). F_{4B}, F_{4C}, and K_B stated that it is the parents' responsibility to be teaching their kids and allowing them to do things so they learn for themselves and it needs to "start in the homes." Similarly, K_D also felt that parents need to be educated. She proceeded to say:

> The parents have to change because they're the ones that buy the foods so they need to be educated. If you don't educate the parents, the kids aren't going to do anything. I think if there was a program that actually went into the homes and educated the individuals, the parents, the whole family as a group to let them know what's causing obesity; that's what we need to teach the families now because we have young kids that are dying from obesity. And how do we get to the parents? Many won't even open their doors even if you went to their homes, they'll close the door in your face.

F_{4C} concluded, “as a Mother, it is your job to teach them, you can’t do everything for them” because a time may come when the parent is not there so the children need to be taught to take care of themselves. K_A, who is a mother, did not provide perceptions of parental education among the community, but more of a personal view of how she is involved with her own family and how important it is to be a parent:

> I like nice things, I like my kids to have nice things. I promote it like when my kids go to school, they have it in their heads already to go to school. You want nice cars, you want boats, you want campers, you want whatever, you want to have a good time with your family and friends? Well, you need to work hard, stay healthy so you can live a longer life. You go to school, you work hard, you can have nice things. If you want to sit home and eat ten bags of chips, get to be four hundred pounds and blame the government, well I don’t know what to tell you. I push education and health on my own children. So, they’re lucky they’ve never seen their mom and dad coming home drunk, don’t have to worry about me shooting needles in my arm. They’re lucky; it’s a very healthy household.

Research question 3 identified a variety of factors that can influence healthy lifestyles and although obesity was not directly mentioned as one of these factors, these factors can have an indirect link to obesity. Research question 4 looks deeper into the American Indian culture to determine if participants view their own cultural beliefs as an influence on being overweight or obese.

Research Question 4

Research Question 4 investigated whether there are culturally-driven beliefs or behaviors that contribute to being overweight or obese among the reservation. A variety of questions, again based on the interview guides, were directly asked by the researcher to get a better understanding of how culture plays into behaviors that could lead to obesity or being overweight per the participants. The five subthemes that emerged from these questions included: cultural importance of food, traditional food production, absence of home cooking, culture change, and identity shift.

Cultural importance of food.

The first theme that emerged from research question 4 is cultural importance of food. In discussing importance of food among their culture, F_{4F} stated that "one thing you'll find in our culture is pretty much everything revolves around food; it is at the center of almost everything. If you want someone to come to an event, you offer food." In agreement with this comment, K_D added that though food does bring people together, "it's gotta be something that they like." K_D went on to say that many people will not come to meetings where there are "apples and oranges but if you provide Indian Tacos, they'll be there." Although, Indian Tacos are not considered a traditional American Indian food but rather a survival food their ancestors had to eat, explained K_D. Likewise, three participants agreed that food is important because it "symbolizes togetherness" and unity that stems from their ancestors. Whether it is funerals, that at times are every day but Sunday (F_{4F}), or weddings, where there can be 1-2 every weekend with easily 500 people in attendance (F_{4A}), there is a feast because the community unites to cook and

show support for the families. In times of benefits or fundraising events, three participants stated there is nothing in place to raise money while K_E stated that most benefits sell Indian Tacos as the staple food to raise money for families or organizations, i.e. Taekwondo. In addition to this, F_{4D} told of how poor their ancestors were that they would celebrate New Year's for "seven full days." They "had to eat in every house" they went to because the food was available adding that even today when people go to visit neighbors or friends, "there's always something to eat" (F_{4B}). The participants made it clear that food is very important in their culture but they did not specifically convey if they thought it influences being overweight or obese. Along with the importance of food in their culture, the participants also discussed traditional foods that they grew up eating.

Traditional food production.

The second theme that emerged from research question 4 was traditional food production. When discussing more traditional foods that their ancestors ate, one of the male Retirement Home participants felt that "food was more healthier for ya, they were hunting, fishing. They were healthy people." Growing up eating wild meat, bunny, berries, or food from the gardens was also mentioned by one of the male Retirement Home participant and one of the male CHR participants. Furthermore, F_{1C} stated that when she was growing up she was "raised on rabbit, ducks. My folks had their own garden, pigs, and stuff; we'd even cook skunk by taking the glands out and boiling it." F_{1G} added to this by stating her grandma told of the times when they would "eat gofer" because there was nothing else to eat. K_D supported these thoughts by stating "years ago we had the buffalo, buffalo was very healthy. Well, the buffalo was extinct, we had no

more buffalo. In order to get buffalo today it's very expensive." Additionally, K_B told a story of how her grandpa, back in the 1930s, would travel miles to trade wood, medicines, and berries for vegetables "that would give them the healthier lifestyle. They canned berries, they didn't grease anything, they canned meat, they butchered." This lead one of the male CHR participants to state:

> …genetically we're naturally slim people. If you look at the old pictures, the people are slim and trim, nobody was fat. It was diet. Modern diet has affected us so much. It's just the grease, the different types of carbohydrates in all these foods that we eat. It's probably at some point going to change the Native DNA.

When food was available, everyone had a "freezer full of wild meat and fish" along with many gardens that were planted, stated a male Retirement Home participant. Even when food was scarce, "Mother Earth will provide" was the deeply rooted belief that their ancestors had added a male Retirement Home participant. Though their ancestors did eat healthier, there were some traditional foods that were not so healthy.

A couple of the unhealthy traditional foods participants mentioned were bullets and bangs and gullet. Bullets and bangs are a type of soup consisting of potatoes and breaded meatballs and is a New Year's tradition. Gullet is a heavy bread that is made with "flour and baking powder and oil or lard" explained F_{1F}. Laughingly, F_{1E} said that "we are a guinea pig with our gullet." K_D and K_E added to this stating that growing up they would fry their bacon then they would "soak up the bacon grease with their gullet" knowing it was not necessarily healthy. Healthy or not, F_{4B} proudly stated that she eats the same foods her grandparents and great-grandparents did and they lived to be 107, and

she is ok with that. Moreover, a male CHR participant told of his aunt and when she was growing up she went hungry so much that she promised herself when she got to be an adult she was "not going go to hungry anymore" and ate the diet she wanted all her life. This story lead to a comment by another male CHR participant that maybe that is why people eat so much, because they "went without" so much growing up. However, K_A said "you can't eat healthy all the time." Participant findings described how their ancestors lived in a healthier time living off the land even though they would eat bullets and bangs and gullet, which is not healthy. Getting away from the traditional type of living and cooking was also discussed by participants.

Convenience foods and absence of home cooking.

The third theme that emerged from research question 4 was the absence of home cooking and the increase of convenience foods. Participants mentioned that one of the major things that has changed from the traditional days was how people are eating now. "They eat different" today stated one of the male CHR participants adding that "throwing in a pizza or some chicken nuggets" is quicker and easier for people. F_{4F} and K_D supported this comment stating that people these days do not want to prepare food while F_{4A} added that people "don't want to or don't know how to" cook. In the same way, K_B and K_C both stated that people today think they can go into the grocery store and buy the cheapest foods they can so they last longer. F_{4B} and F_{1G} stated that they, and their ancestors, had to learn to cook meals when growing up because many came from big families and they had to learn to make meals that "would last a week; macaroni and hamburger I think was on everybody's menu" stated F_{1G} laughing. K_D too felt there is

just not enough good cooking going on in the homes today like there was back in their ancestors' days. "they are cooking whatever they can find." In agreement with the above statements, K_E said that most people find it easier to "go to Dairy Queen" than make a home cooked meal because it is quicker. F_{4F} added there are "too many microwave cooks" today because of the convenience and because we live in a society of "instant gratification." With this comment F_{4C} stated that she cooks all her meals "from scratch" not using any boxed meals. F_{4C} also had a unique perspective on gender roles of their culture and how those roles have changed:

> The women in our culture prepared the meals. The woman's role is to take care of the children, your home. The husband's part is he takes care of the outdoor things. Some of the younger couples' roles kind of like we're equal so you take care of half and I take half.

F_{4C} also stated she finds it important to allow her children to cook with her because she feels parents today are "not teaching their kids" how to cook. F_{4A} agreed with this statement and added that as Elders, they should be allowed to go into the schools and teach the children "basic living skills" like how to cook a meal instead of "head-schooling" them because as Elders, they have a lot to teach about traditions. According to participants, many things have changed compared to their ancestors' time and because of this, there is a concern that their culture overall is changing as well.

Culture change.

The fourth emerging theme from research question 4 was culture change. Throughout the sessions many of the participants discussed physical labor of the lands

that they grew up with on the farm and how people today have become physically inactive. There was not as much discussion among the female participants regarding the types of physical activity they grew up with compared to the male participants. Only four of the female focus group participants had something to say on this topic. F_{1D} stated that she felt all the walking that took place "back when" was healthy while F_{4A} stated that the young people today need to be "taught to plant gardens or how to can" like they had to learn. Furthermore, F_{1E} feels getting physical activity is a "personal thing" because there are opportunities in the community including walk/runs. She went on to say that "if you want to do the run/walk, go for these walks, if you don't want to go, don't blame everybody else." F_{1G} added to this comment saying that "some are just set in their ways" because they have grown up with family members not being physically active so they are not physically active. F_{1D} further added that many people are not doing anything among the community and "do not want to," which can cause physical inactivity.

The male participants, however, had more to say on this topic. One of the male Retirement Home participants stated, "we were always busy" whether it was planting/tilling gardens, fishing, or hunting adding that hauling hay and going outside "is just what you did" when growing up. This statement was supported by a male CHR participants who stated that "we had no problem going outside" adding that they would "create what they had to do outside to enjoy themselves." Finding a swimming hole, riding stick horses, or playing Cowboys and Indians were common pastime activities mentioned. K_E, who has bad DM, remembered always being outside playing but even for himself now days he is not as physically active as he should be stating, "now it's right

here at the desk, from here to finance and back. I go home, it's nothing. I'll eat supper and sit at the TV with my wife." On the other hand, a second male Retirement Home participant clearly remembers hearing his parents tell him and his brothers to "get the hell out and don't come back til dark," of which they did. Regarding people today, a third male Retirement Home participant frustratingly said "they're not doing anything; they're not doing hard work. Now we got no time to do anything, they get too lazy now." This same male participant also remembers walking to school "a good mile, summer and winter we'd walk." Contrary to what was being stated, one of the male Retirement Home participants did not grow up on a farm but in an orphanage in a city. He could not relate to the other male participants in the concept of hard manual farm work. He stated that his exercise was "going back and forth to places like McDonalds" and other hamburger joints because he enjoyed eating at those places. He did state that he feels it is a "personal choice" whether a person wants to include physical activity into their life. Participant responses indicated that people today have gotten lazy, one of the main reasons for this could be the use of technology.

In contrast to growing up on the farm doing manual work, the participants discussed how technology use has become a priority today rather than being active outside. "There are too many games around and too much TV. You get no physical activity if you don't get away from the computer" stated one of the male Retirement Home participants. Similarly, F_{4F} felt that people today "have no social activities cause they're on their phones, sit in front of a TV playing games." Consequently, one of the male CHR participants candidly stated:

> It appears our culture is changing. Before we had to haul wood for heat, had to haul water, had to til the garden, we had to maintain. These things aren't really important now, what's important is technology; children with the iPads watching cartoons rather than pull those weeds from the garden.

Three of the key-informants agreed that people today do not exercise like they did growing up. K_B and K_D both mentioned there is a lot of sitting in front of TVs, playing games, or sitting around playing and texting on their cell phones. K_C felt concerned with the lack of physical activity seen around the community because that can "contribute to heart problems and diabetes" and he himself has DM so knows how important exercise is. Participants conveyed that they see their culture changing compared to that of their ancestors. Participants also conveyed that their identity is shifting as well with more and more mixed bloods residing on the reservation.

Identity shift.

The final theme that emerged from research question 4 is identity shift. During the discussions, questions were specifically asked of the participants as to whether cultural beliefs or traditions contribute to unhealthy lifestyles. Three of the four focus groups and four of the five key-informants gave input about these questions; the male CHR focus group and K_B said nothing regarding the topic and did not engage in the discussion. F_{4C} started by saying that "our culture was about respect," adding that the young people of the reservation "don't respect our Elders enough to even want to talk to them." In addition, K_E felt that keeping traditions is a "lost interest" because there are not enough people to keep them going. He went on to say that though people do attend

Pow Wows, many do not understand the tradition behind them because "it's a dying thing." F_{1G} supported this comment by stating upholding traditions is "drifting away, a lot of people say they keep away from the heritage, the Indian heritage, like the sweats." In further discussing culture, the word *michif* was used occasionally to describe the "mixed blood" that is found among the reservation. "You got all different bloods here, too much mixed blood here" stated one of the male Retirement Home participants. This sentiment was further reinforced by three of the key-informants. K_D felt that they, as American Indians, have "lost their identity," adding, "we lost our traditional ways, times changed." K_C too felt that their people have lost their identity and believes that "they don't want to be Indian." But, he also stated that he does not think getting away from traditions influences health among the reservation:

> Well, I don't think it could impact health because the government has the treaty, laws, they have to follow to provide health, education, and welfare so they [the people of the community] know that regardless they're gonna get the health, the health is gonna be there as long as that hospital is there. Regardless if I'm a traditional Indian or if I'm a half-breed, they got the law to provide us the Indian Health Service or the education office.

Even though the laws are there to provide all members heath regardless of their identity, when it comes to having meetings about health and health issues among the community, the traditional people try to provide their suggestions but the "*michifs* are gonna be against them" stated K_C. K_A further added to this perception stating that "our culture is mixed up around here, we have *michif* and you have the traditions." She went on to say

that she personally feels that when going to other reservations, “they don’t look at us as real Indians” because of the mixed blood. “Ya know, the full bloods leaned in there with the Canadians so it’s *michif*. I have my beautiful family tree, my dad’s, but I still am French but I am ok with that, I don’t have a choice” (K_A).

Research question 4 discussed in great depth whether participants viewed any of their cultural beliefs as an influence on being overweight or obese. It was apparent that participants can see that their culture is changing, their identity is shifting, and times are changing compared to that of their ancestors but they are not quite sure how to address what needs to be addressed.

Summary

This chapter provided and in-depth examination of data collection methods, management of data, data trustworthiness, and data analysis. The responses from the sample population (N=30) determined if the members of the community viewed obesity as an influence on healthy lifestyles among their reservation. Four research questions guided this study. Research question 1 investigated how the participants viewed a healthy weight and body mass index. Some of the participants did recognize that they should be a certain weight to be considered healthy but mostly participants felt a healthy weight is how one feels and views themselves. Being a healthy weight is more about “feeling comfortable in your own skin” (one CHR male participant) rather than being a certain weight.

Research question 2 explored how the participants viewed being overweight or obese. Participants who did give input did not feel being overweight or obese was s sign

of prosperity but instead a sign of being impoverished. Living in poverty limits what people can purchase for food and people cannot always buy healthier foods to eat. Participants also associated overweight and obese to being physically inactive. Sitting in front of a TV, playing video games, or using iPads were all mentioned as reasons why people are overweight and obese. There is not as much physical activity as when the participants were growing up.

Research question 3 investigated if participants felt that obesity was an influence on healthy lifestyles. Participants did not mention obesity directly as a cause for unhealthy lifestyles but did mention a gamut of other factors that could be of influence on healthy lifestyles. The factors mentioned included: diet, physical inactivity, unhealthy behaviors/choices, dietary habits/choices, overwhelming feeling of hopelessness, community leadership and support, and parental involvement. Though obesity was not directly discussed, these factors can be tied to obesity and its effect on healthy lifestyles.

Research question 4 explored whether there are culturally driven beliefs that could contribute to being overweight or obese. Participants felt that the way of living has changed from their ancestors' time regarding diet and being active outside. Most of the participants recalled hunting, fishing, chopping wood, or planting gardens as common activities that took place when they were growing up. Participants had to find things to do outside to keep busy and pass time. Participants lived off the land having natural foods with no preservatives.

In the following chapter, Chapter 5, the researcher provides the interpretations of the study findings, limitations, recommendations, and social change implications this

study addressed. The researcher concludes with a chapter summary and this study's conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this qualitative study was to identify perceptions, beliefs, opinions, and attitudes about obesity and its effects on a healthy lifestyle among a reservation in the Northern Great Plains region of the United States. Principles of ethnographic research and community participatory strategies were applied to determine culture-specific interpretations of obesity and whether this population is concerned that obesity affects their overall health.

According to the 2014 National Health Interview Survey, 42.3% of American Indians over the age of 18 years are obese, which is almost 15% higher than that of non-Hispanic Whites (NCHS, 2016). Researchers have also found that American Indians have a higher risk of other health conditions such as hypertension, DM, asthma, cancer, and CVD (Kochanek, et al., 2011). Therefore, this study was conducted to help fill the gap in the literature and contribute new knowledge regarding American Indians' perceptions of obesity and healthy lifestyles.

In this chapter, the researcher provides interpretations of themes that emerged from the data analysis. Limitations, recommendations, and implications of social change are then discussed. This content is followed by the chapter summary and study conclusions.

Interpretations of Findings

The researcher did not find evidence that obesity directly influences healthy lifestyles among the participants on the reservation. The major themes that emerged from

the data analysis did not concur with previous research findings that were discussed in earlier chapters. The findings from this study suggest that there are many factors that can influence healthy lifestyles. Obesity was not identified as one of these factors, however. Themes found in the analysis presented in Chapter 4 will be further discussed below.

Self-Perceived Appearance, Healthy Weight Perceptions, and Self-Acceptance

When asked about healthy weight and BMI, many participants seemed to not engage in the discussion but rather sat quietly or changed the subject. It was unclear to the researcher why more of the participants did not engage in the conversation. Three participants recognized they should lose weight but stated they felt fine at their current weight. A fourth participant was the only participant who acknowledged that a healthy weight meant having a "low blood pressure." One of the male CHR participants was the only participant to state that according to his BMI, he should weigh a certain number; however, he said that he would be nothing but "skin and bones" if he was at this weight. Two other participants stated that being a certain weight is a "personal choice" or a "learned behavior," respectively.

The findings from this study indicate that being a healthy weight, according to participants, is more about being happy with and accepting of oneself. Researchers have found that American Indians, especially younger ones, may have a negative self-image of themselves, which can lead to unhealthy weight loss efforts (Story et al., 1994; Trimble, 1987). Gibbs et al. (2016) suggested that people in general often have misperceptions about their weight or weight category, which may lead to unhealthy actions or behaviors on their part that can lead to additional health problems. Although participants indicated

that being a healthy weight is not necessarily related to a certain clothing size, researchers have shown that misperceptions about a person's weight can affect their health (Gibbs et al., 2016).

Poverty as an Influence on Healthy Weight

According participants, another factor that can affect overall health is poverty. Researchers have found that more than 35 million people across the United States are of a lower SES (IOM, 2004). Those in a lower SES may not have access to nutritious foods, and American Indians are among those included in this statistic (Beaulac, Kristjansson, & Cummins, 2009). Participants of this study expressed a concern that not being able to afford healthy foods contributes to unhealthy lifestyles because healthy foods are too expensive. With an unemployment rate of 69.25%, one in three persons among the reservation are jobless and live in poverty. The average tribal member on the reservation under study lives on $4, 681 per year (United States Department of the Interior, 2014). Because of this financial constraint, many families are limited as to what foods they can purchase because they must subsist on a fixed amount of money each month (American Indian Relieve Council, n.d.). Study participant F_{1E} and one of the male Retirement Home participants stated that being able to buy a better cut of meat such as steak or fresh fruit depends on the money they have available to them.

Those in a lower SES category face many challenges. These include having limited access to healthier foods found in grocery stores or at farmers' markets (French, Story, & Jeffery, 2001). They are also more susceptible to high levels of stress due to financial burdens, and they often follow a "feast or famine cycle" where food is present

or absent (Shavers, 2007). In addition, researchers have found those individuals with a low SES consume more foods that are unhealthy and cheaper (; Larson, et al., 2009; McLaren, 2007; Pickett et al., 2005). Study participant K_A mentioned that money is a key reason why people within her community do not eat healthy foods. She also reported that lack of access to healthy food also contributes to the problem. Prices at small town grocery stores are higher than elsewhere, but people do not have the option of going to lower-priced stores because the bigger towns are anywhere from 40-90 minutes away by car, and most people do not have access to transportation, she said.

According to researchers, the health of American Indian populations became disproportionately affected within the last two generations. Reasons for this include, but may not be limited to: the creation of commodity foods by the Federal Government that became more commonplace on reservations, supermarkets and fresh foods became scarce on the reservations or long distances away, fast food restaurants and gas stations became more common on the reservations, food intake increased while physical activity decreased, and income levels on the reservations were at or near poverty level (Gittelsohn & Rowan, 2011; Larson, et al., 2009). Participant responses indicated that the lifestyles of their ancestors changed dramatically several decades ago once they were unable to live off the land, eat buffalo, and started receiving food subsidies from the Federal Government. According to one of the key-informant participants, the commodity foods are not healthy as most of them are "starchy, high in saturated fat, high in sodium, high in fructose corn syrup." A second key-informant stated that, because the government had to figure out a way to "feed the Native Americans," it created food rations for American

Indians, which "were not healthy at all." Because commodity foods are low quality, high-calorie food rations, the negative impact has become highly evident today with an increase in obesity and other chronic diseases among American Indians, including DM (Curran et al., 2005). Living in poverty and being unemployed both have an impact on healthy lifestyles but so does being physically inactive lifestyles (Chino, Haff, Dodge-Francis, 2009).

Physical Inactivity

Throughout this study, participants noted that being physically active is not as common as when they were growing up thus contributing to an unhealthy lifestyle. Staying physically active not only allows a person to maintain a healthy weight but also helps reduce the risk of other health consequences including DM, CVD, high blood pressure, cancer, and stress (CDC, 2015; Jakicic, 2009). There is a limited amount of research findings describing physical activity levels among American Indians. However, previous research findings that are available have shown that American Indian adults do not partake in large amounts of physical activity with only 5 out of 10 adults being physically active (Schoenborn et al., 2004; Storti et al., 2009).

Study findings indicate that participants grew up being active doing things like chopping wood, hunting, fishing, tilling gardens, and taking part in other outdoor chores and activities. This lifestyle is no longer commonplace in the current environment. The reasons given by participants as to why people have become less active varied but the increased use of technology, affordability of fitness centers, safety, and accessibility to walking paths and fitness facilities were mentioned by participants. Four of the

participants stated that people cannot afford to go to the fitness centers that are available on the reservation while three other participants added that many people do not have vehicles so are forced to walk where they need to go. When walking to places safety becomes a concern, as stated by seven participants, due to the lack of sidewalks and loose, sometimes feral, dogs. These findings support the literature as reasons that contribute to unhealthy lifestyles (Cummins & Macintyre, 2006; Farley et al., 2007; Lee et al., 2012; Ng & Popkin, 2012). According to participants, some factors are out of people's control regarding physical activity. However, participants stated that some people make bad choices or participate in activities or behaviors that can contribute to unhealthy lifestyles.

Unhealthy Choices/Behaviors

During the sessions, participant responses indicated a concern for the unhealthy choices and behaviors that have taken place among their community. Behavioral concerns discussed by participants included the consumption of alcohol and the use of drugs, such as prescription drugs and illegal drugs, especially methamphetamine. Ten participants disclosed that the use of drugs and alcohol have become "terrible" (F_{1D}) among the reservation causing people to feel scared. Adding to this, one participant stated that the drug situation has gotten so bad on the reservation that people seek teeth extractions just to obtain the pain medication so they can, in turn, sell it for money. Furthermore, three participants offered different reasons why selling drugs have become so common. These included: spending the money on themselves, gambling, gas money, or having spending money on hand ($F_{4A,}$ $F_{4C,}$ F_{4F}). Regardless of the reasons, this risky

behavior led two participants to state that outside help (i.e. police) should be brought to the reservation because nothing is getting done due to tribal police officers being afraid to "hurt each other's feelings."

For many years, the health status of American Indians has been below that of the general United States population because of health determinants such as risky sexual behaviors, the use of drugs and alcohol, lack of physical activity, and obesity, all of which can contribute to poor morbidity and mortality rates (Barnes, Adams, & Powell-Griner, 2005; Halpern & Regier, 2007; Slattery et al., 2010). This study's findings support previous research findings showing both drug and alcohol use and abuse have taken a toll on the American Indian population (Beauvais, 1998; Frank, Moore, & Ames, 2000; Yabiku, Rayle, Okamoto, Marsiglia, & Kulis, 2007). Another factor mentioned by participants that could be taking a toll on their community is the feeling of hopelessness.

Overwhelming Feeling of Hopelessness

Participants indicated that there is a feeling of despair within the reservation. Eight participants disclosed that they see the outlook among the community as negative both in general and towards health, especially those who are already suffering from DM or are prediabetic. One of the eight participants saw the problem as a sign of being impoverished and not seeing a light at the end of the tunnel and until "something's done to help them prosper," nothing is going to change (F_{4F}). In regards to the people who are prediabetic or have DM, four of the eight participants mentioned that many people who are sick with DM think the medicine will save them so they refrain from being proactive until they require amputation or dialysis.

Researchers have shown that the overall health of American Indians has decreased dramatically in the past one-to-two generations, which can affect the natural balance that American Indians believe in, consequently causing a poorer outlook on life (Brave Heart & DeBruyn, 1998; Edwards & Patchell, 2009; Hodge & Nandy, 2011; McLaughlin, 2010). Researchers have shown that the rates of psychological distress, especially depression, disproportionately affect American Indians compared to other United States ethnic groups and is associated with emotional trauma (Urban Indian Health Institute, 2012). Though a person's mental health can affect how they perceive their general health, how one chooses to purchase foods and eat can also affect health.

Dietary Habits and Absence of Home Cooking

Findings from this study indicated that participants felt that the way people eat today, how food is prepared (if prepared at all), lack of home cooking, and the use of SNAP can affect healthy lifestyles. Four participants stated that how much food people eat and when they eat can negatively affect their overall health. Eating late at night, eating too much at each meal, and not focusing on smaller portions were a few behaviors mentioned by participants. Two of these participants further stated that people have no control when it comes to eating. Researchers have shown that dietary habits like overeating can lead to obesity along with other health issues. However, eating late at night does not necessarily cause health problems, rather what a person eats at night could be the problem (Koufman, 2014; Schulze et al., 2006). Food preparation and lack of home-cooking were also noted by participants as factors that can affect healthy lifestyles.

Six participants agreed that these days the younger generation do not want to cook because they are "lazy," so they turn to convenience foods because they are quick and easy. Study participant F_{4F} felt there are "too many microwave cooks" because it is easier and because finger foods taste good, added participant F_{4A}. Growing up the participants had to learn to cook because most of them came from big families where meals were made to last a week. "They eat different" today, stated one of the male CHR participants, continuing that "throwing in a pizza or some chicken nuggets" is quicker and easier for people. Adding to this, study participant F_{4C} stated the importance of allowing children to learn to cook with their parents because that is how children learn. Moreover, study participant F_{4A} strongly felt that the Elders of the community should be allowed to go into the schools to teach basic living skills, i.e. cooking, to the children. These findings support previous research findings that showed in the last several decades American Indians' nutrition has undergone a certain transition. In the past, American Indians were living off the land when eating wild game and wild berries was common. Today, American Indians are leading more sedentary lifestyles, have limited access to fresh fruits and vegetables, and have a reliance on convenience-type stores for food rather than cooking at home (Compher, 2006; DeNavas-Walt, Proctor, & Lee, 2005; Story, Strauss, Gilbert, & Broussard, 2000). The cost and availability of food can also influence dietary behaviors, especially those of lower-income families. For instance, not being able to afford the items needed to cook at home has become an issue for American Indians because they are trying to maximize their spending by buying cheaper foods that last longer (Jetter & Cassady, 2006; Larson, et al., 2009; Liese, Weis, Pluto, Smith, &

Lawson, 2007; O'Connell, Buchwald, & Duncan, 2011). Because the cost and availability of food can influence dietary behavior, those who use SNAP may choose to buy foods that are cheaper and last longer because they have a limited amount of money to work with each month. Participants were concerned with what types of foods people are purchasing with SNAP.

Obesity is considered a precursor to serious health problems including high blood pressure, cancer, and CVD, all of which can be reduced with proper eating habits (Ma et al., 2003). With current overconsumption of fats, sugars, and calories in the United States, how people eat is becoming a major health concern, especially with obesity at its highest rates ever (Shelley, 2012). Five participants conveyed their concern for what types of foods people are purchasing with their SNAP and how the use of SNAP could be enabling bad food choices. "Pop, candy bars, you can buy all that junk with that. They should only be allowed to get like their vegetables, meat, and potatoes, not chips" (F_{4E}). F_{4C} added to this by saying "keep the junk off there. My husband always said that SNAP, that's what's killing our community." Many members of the community use SNAP as their only source for obtaining groceries. Because choices are limited, they must make what money they have stretch for the month and it is cheaper to buy bags of chips than fresh fruit or vegetables (K_A). Although participants were concerned how food is prepared and purchased, they clearly stated how important the value of food was and still is to their culture.

Cultural Importance of Food

Findings from this study strongly indicated that food is extremely important to American Indians. Ten participants stated that food is central to their culture, including every event that takes place on their reservation because it symbolizes unity. Study participant F_{4F} stated that "one thing you'll find in our culture is pretty much everything revolves around food; it is at the center of almost everything. If you want someone to come to an event, you offer food." Whether it is funerals, weddings, fundraisers, or benefits, there is a feast because the community comes together to support each other. Study participant F_{4B} added that even today when people go to visit neighbors or friends, "there's always something to eat."

These findings support previous research findings that showed American Indians have had a rich past that involved living off the land with natural resources (Vrooman, 2012). There was a great respect and appreciation the American Indian had for the flora and fauna of the land. When hunting animals, the American Indians would ask permission from the Creator to kill an animal and then would perform a song of thanksgiving after having killed the animal so to maintain natural harmony and balance (Foster, 2006). Though these traditional, active ways of hunting, fishing, and gathering are not as common today as they were before, the symbol of togetherness with each other still shines through among the people on this reservation. American Indians have a strong belief that "Mother Earth will provide," stated a male Retirement Home participant. These findings showed that participants find food important in their culture

and is a way to show support for each other in times of need. Another type of support that was discussed by participants was community leadership and support.

Community Leadership and Support

When discussing community leadership and support, participant responses conveyed a feeling of discouragement, frustration, and even anger towards the apparent nepotism and favoritism displayed by Tribal Council members (Fagan, 2000; Kawamoto & Cheshire, 1997; McGee, 2013). One of the participants stated this topic, in general, was a "touchy subject" while eight other participants agreed that the Tribal Council does not focus on the right topics because keeping votes is more important than hurting people's feelings. A ninth participant stated that "they [Tribal Council] decide it is better politics to address that over there because somebody on that council, that's his first cousin up there and they carry a lot of weight of votes so this Tribal Council will not deal with it." Adding to this, a tenth participant, who had served on the Tribal Council in the past, tried clarifying that there are times when "emergency issues" take precedence. The Tribal Council takes on many community issues and at times the "emergency issues" take priority over other community issues therefore leaving the Tribal Council unable to fix all of the issues.

Four additional participants stated they thought the Tribal Council does a good job backing the tribal organizations of the reservation always making sure to give funding to the Pow Wows, though the Tribal Council may not focus on the health-related topics that are affecting the reservation. Pow Wows are a good opportunity to promote healthy lifestyles through tradition but the focus seems to be geared more towards the foods that

are available at the Pow Wows, i.e. fried bread and Indian Tacos, both of which are not healthy food choices. However, Pow Wows do consist of a lot of movement and dancing, both of which are very healthy (one CHR male participant).

With the high rates of DM and obesity among the reservation, the overall feeling from participants was that something must change on their reservation and some participants are looking to the Tribal Council to take the lead to address these issues. More than one participant stated that there are a lot of "young people dying among the reservation due to DM" and obesity. Additionally, participants frustratingly stated that too many of the Tribal Council members are related or related to other community members, which can cause them to not address the concerns on the reservation that should be addressed, including how to combat DM and obesity. These findings supported previous research findings both in that a Tribal Council can be very supportive, which can help their reservation grow and prosper, or they can focus on the wrong things, which can hurt the morale and vision of the reservation (Fagan, 2000; Karabell, 2014; McGee, 2013; National Congress of American Indians, 2014).

When a Tribal Council chooses to not focus on the best interest of their tribe, families are pitted against families, corruption takes place, and the tribal members are the ones who suffer (Fagan, 2000; McGee, 2013). However, empowering strong leaders within the Tribal Council who are willing to unite as one, work together, listen to their people, and collaborate will help their people prosper (Karabell, 2014). A good example of this is Jeff Grubbe, Tribal Chairman of the Agua Caliente Band of Cahuilla Indians in California. When his tribe lost 60% of their revenues during the latest recession, he did

not lay people off from work or cut wages but rather the tribal members chose to take a cut in their monthly allowance. He concluded that he did it for his tribe and for their future so they can continue to prosper (Karabell, 2014). Though participant responses are mixed when it comes to Tribal Council support among the reservation, there is a consensus among participants that parents among the community need to be more involved in their children's lives and need to be better educated to help make healthier choices for their children.

Parental Education

Twelve participants indicated that parents among the reservation need to be more involved in their kids' lives. K_D stated that the "parents have to change, they need to be educated. If you don't educate the parents, the kids aren't going to do anything." One of the male CHR participants added to this by strongly stating that changes need to be made with the parents, "the parents need to make and effort. Be the parent, you got to be the parent." Also, conveyed by participants was the perception that behaviors are learned and generational so it is important for parents to be educated on such things as healthier foods and the effects of DM. Study participant K_A described how she as a mother is always pushing her kids to work hard and do good in school so they can have nice things whereas some people choose to "sit at home, eat ten bags of chips, get to be 400 pounds, and blame the government." She then added that her kids are lucky "they've never seen their mom and dad coming home drunk, don't have to worry about me shooting needles in my arm."

Findings from this study support previous research findings that parental involvement plays a key role in the success of American Indian youth (Longie, 1995; Mackety & Linder-VanBerschot, 2008; Novins, Spicer, Beals, & Manson, 2004; Sanderson, 2011). Parents are a child's first influence from the time they are born through most of their teen years nurturing, guiding, and teaching them (Chang, 2007). According to the literature, parental involvement tends to be low, especially among those who fall within a lower SES, who are an ethnic minority, or are less educated (Dauber & Epstein, 1993; Dornbusch & Ritter, 1988; Griffith, 1996; Ho, 2002; Moles, 1993). This low parental involvement is true for American Indians. Researchers have shown that American Indian parents have less involvement with their children compared to White parents (Griffith, 1996; Ho, 2002). Reasons for this difference in parenting are unclear but researchers have shown that lack of parental involvement can negatively affect children's lives regarding obtaining an education or in regards to adopting risky behaviors. These risky behaviors include: alcohol and drug abuse, which are considered the "most serious health and mental health problems" (p. 54) among American Indians (King, Beals, Manson, & Trimble, 1992; Swaim, Oetting, Thurman, Beauvais, & Edwards, 1993). Though there was agreement among study participants that parental changes are needed among the reservation, there was an even stronger agreement among participants that there is a culture change going on within the reservation.

Culture Change

Many of the participants discussed changes in physical activity such as physical labor of the lands that they grew up with on the farm, how people today have become so

physically inactive, and how technology use has influenced being physically inactive. Many of the activities participants did while growing up consisted of some form of hard manual labor. Nine participants candidly disclosed that people today are lazy and do not seem to want to do any hard work. One of the male Retirement Home participants stated "we were always busy" whether it was planting or tilling gardens, fishing, or hunting adding that hauling hay and going outside "is just what you did" when growing up. Participants stated that people today sit behind computers, watch TVs, or talk on their cell phones instead of finding something to do outside. One of the participants strongly felt that being on the computer and cell phones so much has caused the younger people to not have any social skills. Four participants supported the above perception. One of these four participants clearly stated that their culture has changed:

> Before we had to haul wood for heat, had to haul water, had to til the garden, we had to maintain. These things aren't really important now, what's important is technology; children with the iPads watching cartoons rather than pull those weeds from the garden.

Actions like sitting on the computer and cell phones led one participant to feel concerned because those types of behaviors can lead to a more sedentary lifestyle, which can lead to other health issues like DM.

Study findings supported previous study findings that culture change has occurred within the last generation, including increasing reliance on technology use and a marked decrease in physical activity (Acharya, Acharya, & Waghrey, 2013; Cecchini et al., 2010; Cook, 2016). The level of physical activity has decreased in many cultures, not just

American Indians, and has become a concern for many communities and healthcare professionals due to the health ailments that are associated with a more sedentary lifestyle (CDC, 2015; Ng & Popkin, 2012). Participants acknowledged that their way of life has changed, not necessarily for the better, but also recognized that their American Indian identity has also changed.

Identity Shift

Study participants were specifically asked whether cultural beliefs or traditions contributed to unhealthy lifestyles. Seven participants mentioned that the culture among the reservation is changing along with the identity of wanting to be American Indian and lack of respect for Elders. "You got all different bloods here, too much mixed blood here" stated one of the male Retirement Home participants. Adding to this, study participant K_C agreed that there is a loss of identity and believes that the younger generation "don't want to be Indian." But, he also stated that he does not think getting away from traditions negatively influences health within the reservation. The participants did not convey why they felt members of the reservation do not want to be American Indian anymore but it was certain that their identity changed when the "full-bloods leaned in there with the Canadians" (K_A).

Research does not specifically show why American Indians today may not want to be Indian anymore or why some American Indians feel their identity is being lost. Further research would need to be conducted to gain a deeper understanding of the perceptions put forth by this study's participants. As seen in the above sections,

participants stated many factors that could influence healthy lifestyles. What they did not mention was whether obesity itself affects healthy lifestyles.

Perceptions of Obesity on the Reservation

The aim of this study was to determine if obesity was a concern among the members of a Northern Plains region reservation. A key finding for this study was that participants did not convey obesity as being a main concern among their community. As seen in the above sections, participants disclosed that other concerns, such as poverty, physical inactivity, and parental education, take precedence over obesity among the reservation. There is plenty of anthropometric studies showing that obesity disproportionately affects the American Indian population but findings from this qualitative study did not support previous research findings. Therefore, the information obtained from this study added to the gap in the literature showing that American Indians do not perceive obesity as a direct influence on healthy lifestyles.

The above sections interpreted study findings found in Chapter 4 in regards to what participants deemed to be the biggest concerns among their reservation. Next, the researcher discusses the limitations that this study had followed by recommendations that are based on the study findings.

Study Limitations

There were several limitations to this study: sample size, a potential for recall bias, sampling method, and researcher influence. This study consisted of 30 participants between the four focus groups and five key-informant interviews. This number is not a realistic representation of all American Indians but in qualitative research, a common rule

of thumb is to have a big enough sample size to hear most of the perceptions that may be important to the study (DePaulo, 2000). Secondly, having used focus groups and key-informant interviews is a limitation because the potential for recall bias could have caused the participants to provide perceptions that may or may not have been true and accurate (Hassan, 2006). Thirdly, this study used non-probability convenience sampling, which allowed for quick and easy access to participants for the researcher, but is considered one of the weaker techniques because it is based strictly on convenience, which could result in poor results because this type of sampling does not provide evidence for being able to generalize results to the whole population under study (Kitchenham & Pfleeger, 2002; Marshall, 1996). Fourthly, the researcher was not of American Indian heritage and this could have caused participants to feel uncomfortable or intimidated during the sessions, which could skew the true feelings the participants may have felt (Anderson, 2010).

Recommendations

Obesity did not appear to be a major concern among study participants, though the concerns mentioned by participants could indirectly lead to obesity. Though obesity was mentioned a couple times by a few different participants, it was not discussed in great depth as an influence on healthy lifestyles. Based on the findings from Chapter 4, the researcher has five recommendations.

The first recommendation is a movement for creating empowerment through cultural revitalization. The concept of revitalization has been documented for many years and is defined as “a deliberate, organized, conscious effort by members of a society to

construct a more satisfying culture" (Wallace, 1956 p. 265). Revitalization movements are a way to allow certain groups (i.e. cultural, political, religious) "to be delivered from deprivation and return to their traditional cultural values" (White, 2009 p. 156). Continuous oppression and lost off self-worth can lead to deterioration, or death, of a society but most often these dire circumstances are avoided by a revitalization movement (Wallace, 1956). American Indian revitalization movements have been successful in the past with the two most influential being *The Ghost Dance*, which occurred during the 1890s uniting thousands of American Indians in the west that called for tribes to create fearful dances and hostile resistance towards the Whiteman, and the *Peyote Religion* (a.k.a Peyotism), which still exists today and is the largest religion that was begun by and is organized by American Indians (Nabokov, 2002; Schultes & Hoffman, 1979).

The findings from this study eluded to the fact that people of the reservation have lost their identity with some not wanting to be Indian anymore. Specific reasons for this are unclear but participant responses showed that poverty, lack of caring, and modern ways of living, compared to their ancestors, have changed their mindset and caused a cultural shift. There is an apparent struggle among the reservation to keep traditions going with the younger generation and even among the adults. This concept of revitalization could help restore the American Indians of the reservation back to their once known prosperity, pride, and health if the community would work together to address the challenges facing them. Participant responses indicated there is a lot of jealousy and politics among the reservation that causes hurt feelings and aggressiveness instead of working together as one to make their community better, safer, and healthier.

Somehow there needs to be unity formed so as a whole the community can gain empowerment and therefore become a healthier community as one, together. A good place to start this unity is with the youth of the community.

The second recommendation is to have the tribal high schoolers organize and put on an informational health fair for the community based on the findings in Chapter 4. The health fair would consist of educational and awareness components addressing most of the major concerns found in Chapter 4 and how those factors can affect overall health. The concerns that should be addressed include alcohol, drugs, obesity, DM, lack of physical activity, poor diets/food choices, and poverty. Student participation in the health fairs would help young people see how unhealthy behaviors and choices can affect their lives and long-term health. With American Indian youth 9 times more likely to be affected by diseases such as type II DM than non-Hispanic Whites, this health fair would allow students to research and learn the effects of the above concerns on health so they can make better, healthier choices to help reduce these statistics (Indian Health Services [IHS], 2012a). This health fair would also be important so to allow students to bring awareness to the community in regards to the health-related problems that have been revealed through this study. Having the students take the initiative to coordinate this health fair would hopefully show the community that there is a concern and need for unhealthy lifestyle changes among the younger generation. Not only getting the youth involved in this educational effort is important but so is including parents.

The third recommendation is to provide parenting education to the community. Participants from this study strongly indicated that parents are not involved in their

children's lives as they should be and are not educated enough to make healthier choices. Researchers have shown that parental influence and involvement can make a crucial difference in a child's life whether it be in their education, behaviors, or health related conditions including obesity and DM (Epstein, 1996; Epstein & Wing, 1987; King, Beals, Manson, & Trimble, 1992; Mackety & Linder-VanBerschot, 2008). Findings from this study also indicated that children are often left on their own and many are not being fed healthy meals or getting enough physical activity. Creating parent education classes on a variety of topics including budgeting, creating a grocery list, reading food labels, how to purchase healthy foods, the importance of being active, and the effects of DM on longevity could aid parents in changing their own behavior as well as their child's behavior.

Participants discussed how DM has affected many people of their community including the youth and how so many young people are dying from DM complications. Because participants stated that parents are not educated enough about the harms of DM, creating a DM education class specifically aimed at parents could be effective in addressing the need to establish healthy habits early on in a child's life. Researchers have shown that the likelihood of American Indian youth having DM is 9 times higher than non-Hispanic Whites (Liese et al., 2006). Because of statistics like this, there have been two successful programs to help parents become more involved.

The first program, Positive Indian Parenting, is a curriculum that was created by the National Indian Child Welfare Association in 1987 to aid in positive parenting. This program is based on values and traditional cultural teaching and allows parents to

"reclaim teaching and return to their rightful state as positive parents" (Cross, Friesen, & Maher, 2007 p. 12). The second program, NAYA Youth and Family Center, was created in 1974 by American Indian parents who wanted their children to partake in healthy activities like sports or cultural arts. The focus of this program was to create activities that help against high-risk behaviors for American Indian youth along with aiding families who are battling domestic violence (Cross, Friesen, & Maher, 2007). Examples like these could be used as guidelines for the reservation to create their own programs that could aid the parents of the community. Having a parent-oriented program among the reservation is important in helping the youth be healthier, but having a strategic plan in place can help the whole community be healthier.

The fourth recommendation is to create a community-wide strategic plan for the prevention of DM among the reservation. Between the years 1994-2004, the rate of DM among American Indians younger than the age of 35 years doubled (CDC, 2011). According to the IHS (2012b), roughly 16.1% of American Indians who receive services through the IHS have been diagnosed with DM. Findings from this study indicated that there is a great concern for DM and its impact on the community. More than one participant mentioned DM as a major health concern within their community as DM is affecting adults and youth alike. Also, disclosed in the findings of this study was that many members of the community have a poor outlook on DM as it takes members getting sick with DM, i.e. having toes amputated or going on dialysis, before taking their health seriously and making lifestyle changes.

The CDC predicts that one in two American Indian children born in the year 2000 will be diagnosed with type II DM in their lifetime unless the current trend is stopped (Narayan, Boyle, Thompson, Sorsensen, & Williamson, 2003). Because DM disproportionately affects American Indians of all ages, creating a prevention plan could help provide educational and awareness components to the community by allowing the community to work together to combat DM in a certain timeframe. When creating a strategic plan, it is important to include input from all stakeholders, including community members, because perceptions of DM can vary, so getting a better consensus of DM perceptions among the community could be a useful tool prior to creating a strategic plan (Acton, 2006).

The reservation does have its share of health fairs, health screenings, and an annual Wellness Conference that address health concerns related to the community, all of which are open to the public. Based on participants' response, these health fairs, health screenings, and Wellness Conferences do not appear to be enough to build proper awareness, establish healthy habits, or improve overall health outcomes. To help better address participants' concerns, the reservation could reference other DM prevention programs to gain better ideas and approaches to combat the DM problem on the reservation. One of these programs being the CDC's Traditional Foods Project. The Traditional Foods Project is tribally driven to create solutions that are used to reclaim traditional food systems and ways of living by using sustainable ecological approaches for health promotion and DM prevention (Penman-Aguilar, Boye, & Liburd, 2016). With that being said, more recently the reservation's RRB received a grant to conduct a

Community Food Sovereignty Assessment. This assessment will examine the reservation's food assets to help determine areas of needs and opportunities. With programs like the Traditional Foods Project and the Community Food Sovereignty Assessment, efforts to address DM among American Indians is becoming crucial and must be continued for this population to continue to survive (Edwards and Patchell, 2009). Though DM is a problem on the reservation, unemployment is also a problem and can too lead to health disparities.

The last recommendation is to conduct future research on the reservation on how high unemployment affects the overall health of the reservation both mentally and physically. Since the Great Depression researchers have argued that unemployment can have a damaging effect on mental health in any culture (Eisenberg & Lazarsfeld, 1938; Jahoda, Lazarsfeld, & Zeisel, 1933). Researchers have shown a relationship between unemployment and its negative effect on physical health (Linn, Sandifer, & Stein, 1985; McKee-Ryan, Song, Wanberg, and Kimicki, 2005). Researchers have indicated that American Indians are directly affected by economic development shortfalls and high unemployment (Cornell & Kalt, 2000; Harrington, Ni, Liebert, Wilkins-Turner, & Ellien, 2012). The current unemployment rate for the reservation is 69.25%, compared to 3.2% for the state, where the reservation is located, and 9.0% for the United States (United States Department of the Interior, 2014). Because of numbers like this, 28% of all families on the reservation and 31% of the county population, where the reservation is located, are below poverty level with an average income of $29,744 and $26,232 respectively, according to tribal websites.

Researchers have shown that American Indians have the lowest employment rates compared to any other ethnic group in the United States. In some of the poorest American Indian counties, only one-third of their male population has full-time employment (United States Bureau of Labor Statistics, 2013). Because the American Indian unemployment rate is so much higher compared to the White unemployment rate, it is common for people in these communities to stop looking for jobs simply because there are not any jobs to find (Austin, 2013). Austin (2013) continues:

> Without work, it is difficult for an individual to rise out of poverty; without a well-paying job, it is difficult to save, purchase a home, and build wealth. Thus, increasing Native American employment is necessary for addressing Native American poverty, and is a foundational step toward building Native American wealth.

Researchers have also shown that higher employment rates among American Indians have been strongly correlated with robust and culturally appropriate tribal leadership (Cornell & Kalt, 2000). Cornell and Kalt (2000) continued stating that effective tribal governments focus on culture and traditions rather than Federal Government forms. Findings from this study revealed mixed views on tribal leadership among the community. Some participants felt the Tribal Council does what it can to address issues at hand while other participants felt the Tribal Council is not very supportive and does not focus on the right things. In conducting further research on how unemployment affects the community's health, the researcher suggests that the Tribal Council create part of the reservation's strategic plan so to implement initiatives that

increase employment opportunities on the reservation. The researcher also recommends using both qualitative and quantitative approaches to gain a more holistic picture of the true effect unemployment has on the community.

Social Change Implications

This study's findings on American Indian perceptions of obesity and its effect on healthy lifestyles revealed a lack of overweight and obesity knowledge, awareness, and concern. A review of the literature showed a limited amount of studies addressing the qualitative views of obesity and its effects among American Indians from American Indians themselves. This study was conducted with the purpose of understanding how American Indians view obesity as an effect on healthy lifestyles as well as to bridge the current knowledge gap that exists from the limited literature on the topic of obesity. Participants' responses from the interview questions asked by the researcher indicated that obesity is not a major concern among the reservation. Participants revealed other factors that are more pressing and could have more of an impact on healthy lifestyles and their health.

Based on the participants' responses, members of the reservation felt factors like poverty, physical inactivity, parental education, alcohol and drug use, and identity shift, to name a few, were major concerns among the community. By identifying these factors, a further decline in American Indian health could be avoided or at least managed to create effective public health education and prevention programs (Dornhorst & Merrin; 1994). By providing basic living skills, educational programs on how to prepare meals or how to purchase healthier foods, for example, could help create improved diets, which in

turn could help alleviate other health concerns including DM and obesity. Providing education to parents so they understand the importance of eating healthier and being more physically active could help aid in reducing the numbers of youth who are being affected by DM and obesity.

As a result of this study's findings, agencies from all disciplines that provide American Indians with care will have key information for educating community members, staff, and employees on how to improve the quality of care, in general, for American Indians. The knowledge acquired from this study has the potential to influence current Tribal Council members, along with the community, to create or implement interventions aimed at addressing the participants' concerns through strategic planning. These interventions would enable the members of the reservation to understand the negativity of these concerns that could affect their lives and the community.

The dissemination of this study's findings will take place per the agreement made with the reservation; presentations and peer-reviewed publications. Also per the agreement, the researcher will give all information back to the RRB for their own use. In giving this study back to the RRB, the researcher hopes the concerns brought to light by the participants' perceptions are used to create better education programs or at least provide information that can be disseminated throughout the current programs located on the reservation. The researcher also hopes that the voices of the participants were heard by those on the reservation who have the power to make a change.

Summary and Study Conclusions

This study contributed to the gap in the literature by being the first to focus on obesity perceptions, beliefs, opinions, and attitudes among an American Indian reservation in the Northern Great Plains region of the United States. Although there is a considerable amount of literature reporting research on the effects obesity can have on American Indians, findings from this study conveyed that participants did not see obesity as a direct effect on healthy lifestyles. Rather, participants felt other factors were of concern among the reservation including poverty, physical inactivity, unhealthy choices/behaviors (i.e. alcohol and drugs), dietary habits and absence of home cooking, the cultural importance of food, community leadership and support, parental involvement, cultural change, and identity shift. Though participants did mention obesity on occasion, it was not used in the context that it was a contributor to unhealthy lifestyles.

Based on the findings from this study, five recommendations were suggested to help address participants' concerns:

1. Creating empowerment through cultural revitalization because, as seen in the findings, participants feel they are losing their identity and that their culture is changing;
2. Having the high-schoolers of the reservation organize and create a health fair providing information on the concerns found in this study so they can learn and become aware of how lives can be affected by unhealthy choices;
3. Creating parental education classes so parents can make healthier choices for themselves and their children;

4. To create a community-wide strategic plan addressing the prevention of DM because DM is affecting many people among the reservation both old and young; and
5. Conducting further research to find how high unemployment affects both the mental and physical state of a community as the reservation has an almost 70% unemployment rate.

The purpose of this study was to gain an understanding of how American Indians among a United States Northern Great Plains region reservation viewed obesity as an influence on healthy lifestyles. The information obtained through the four focus groups and five key-informant interviews is fruitful and sheds light on what really is of concern among the community. By obtaining these findings, the reservation could share this information with public health officials, among others, so to create educational, preventative, or interventional programs or revamp existing programs that could help address concerns discussed by participants. Regardless of whether obesity was mentioned or not in this study, the American Indian people are disproportionately affected by factors that are, for the most part, out of their control. The social change implication of this study was to provide useful and actionable information to help the reservation address the negative effects of some of the socio-behavioral determinants of health raised in this study.

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Appendix A: Focus Group Inclusion Criteria Questionnaire

Please complete the following questions.

1. Age in years: ____
2. Are you of American Indian heritage? Yes___ No___
3. Are you a member of this reservation? Yes___ No___
4. Are you a resident of the Retirement Home? Yes___ No___
5. Are you a member of the Wellness Dome? Yes___ No___

Appendix B: Key-Informant Inclusion Criteria Questionnaire

Please complete the following questions.

1. Age in years: ____
2. Are you of American Indian heritage? Yes___ No___
3. Are you a member of this reservation? Yes___ No___
    a. If yes, have you held a professional position on the reservation? Yes___ No___

Appendix C: Contact Information Form

May I, as the researcher of this study, contact you if I have any questions regarding the session you participated in and to clarify transcripts? Personal information will not be used for any other purpose but for clarification. Yes____ No____

Participant (A, B, C, etc.) _____

Phone Number_____

Appendix D: Focus Group Questions

1. What does a typical weekday consist of regarding meals?
    a. What types of foods are normally prepared?
2. What does a typical day consist of regarding physical activity?
3. Could you describe what kinds of foods are eaten on the weekends?
4. What kinds of activities are there to do on the weekends?
5. For the holidays, are there special foods that are made?
6. What kinds of foods are served at special events?
7. When you hear the words "healthy lifestyle," what comes to mind?
    a. How would food preparation influence a healthy lifestyle?
    b. How would physical activity influence a healthy lifestyle?
8. How would personal or cultural beliefs influence healthy lifestyles?
9. What would you consider to be barriers that may prevent you from leading a healthy lifestyle here on the reservation?
10. What do you consider to be the most pressing health concern on the reservation?
11. Why do you think this is most pressing?
12. What could be some factors contributing to this?
13. What should this community do to address this health concern?
    a. Should a group be targeted?
    b. Is there a specific type of community effort that should be focused on?
14. What would your definition of a healthy weight be?

15. Would you consider being overweight or obese to be a sign of wealth and prosperity?
16. Is there anything else you would like to add?

Appendix E: Key-informant Interview Questions

1. Could you please tell me a little bit about yourself?
    a. Name and position?
    b. How long have you been in this position and how did you end up in this position?
    c. Contact information?
    d. Background information (education, speak any other language, services to the reservation).
2. Could you describe the current state of health among the reservation?
    a. Could you compare the current state of health to that of a decade ago (better, worse, same)?
    b. In your opinion, what are some reasons that may be contributing to the (decline, improvement, stability) of health in this community?
3. What do you see as the most pressing health concern on the reservation?
    a. (obesity, diabetes, alcoholism, drugs)-*go with their health concern*.
    b. Why do you think that is the most pressing issue?
    c. Are there specific factors that cause you to think this way?
4. What efforts, if any, have been successful in helping address this concern?
5. What do you think could be done, or should be done, to better address this health concern? (What are the barriers?)
6. How important is having community support/involvement in addressing this health concern?

7. In your opinion, what could the people of this community, as a whole, do, if anything, to promote healthier lifestyles?
8. Could you tell me about some of the traditions among the reservation that could impact health?
    a. Traditional foods (cooking with lard, fry breads, berry picking)
    b. Events/activities engaging in physical activity
    c. Beliefs about a healthy weight?
9. What is your overall concern for the health of the reservation and its people in the next 10-15 years?
10. Is there anything else you would like to add?