

The Importance of Historical Trauma & Stress as a Factor in Diabetes and Obesity
Prevention among American Indian Adolescents

BY

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Jason Hale

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Chairperson Dr. Sharon O'Brien

Dr. Stephanie Fitzgerald

Dr. Kelly Kindscher

Date Defended: June 26, 2012

The Thesis Committee for Jason Hale

Certifies that this is the approved version of the following thesis:

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Abstract

For the last forty years, the federal government and tribal governments have developed and administered programs to lower the obesity and diabetes rates among American Indian populations. Despite these joint efforts, a diabetes epidemic continues to ravage Indian country with rates ranging from 16% to 40% to 70%, depending upon the community, while rates for non-Indians are approximately 8%.

This thesis argues that one of the reasons that existing programs have failed to lower diabetes rates is due to their failure to address an unresolved grief labeled historical trauma and socio-political factors that may be even more fundamental to diabetes causation among American Indians. Poverty, suicide, alcohol and drug abuse, microaggressions, violence and traumatic events, exacerbated by historical trauma, contribute to a heightened level of stress among American Indians that is unparalleled. Given that research has linked stress and trauma to the onset of diabetes, exposure to these risk factors for American Indians is an overlooked factor. Health behaviors and trajectories set for a lifetime during adolescence make this an extremely vulnerable period of life for American Indians. The thesis suggests American Indian diabetes prevention programs that target adolescents, explore the impact of colonization and continued oppression of American Indian people on the deterioration of their health, and continue to promote the benefits of healthy diets and exercise may help to slow the prevalence of obesity and diabetes in these communities.

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Everyone familiar with diabetes knows that it is a complicated metabolic condition. But diabetes is more than that. It is a complicated social issue that has become flattened and over-simplified. That it remains a recalcitrant and entrenched illness suggests that it needs to be re-complicated and re-contemplated. One version of that re-thinking involves life stress, neuroendocrinology and political meaning—a daunting tangle of race/ethnicity, inequality, gender, colonialism, history, memory, identity, culture, daily micro-aggressions, mind-body medicine, and public health presumptions and explanatory models.

*Jo C. Scheder*¹

Introduction: Diabetes an Epidemic

Scientists have identified three types of diabetes. Type I diabetes previously known as insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes, type II diabetes, non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes, and gestational diabetes, occurring only in pregnant women. Type II diabetes is the most prevalent accounting for 90-95% of all diagnosed diabetes cases.²

In type I diabetes, the body is unable to produce insulin and usually occurs in children and young adults, accounting for 5% of all diabetes cases.³ In type II, the body does not produce enough insulin or the cells ignore the insulin.⁴ Insulin is a hormone needed to convert sugar, starches, and other food into energy for normal bodily function. The lack of insulin or inability of the cells to process foods properly leads to a buildup of glucose in the bloodstream, which can lead to diabetes complications.⁵

Diabetes has become a global epidemic. According to the World Health Organization (WHO), over 346 million people worldwide have diabetes. Deaths from diabetes, WHO projects

¹ Lang Gretchen Chesley Ferreira Mariana Leal, ed. *Indigenous Peoples and Diabetes Community Empowerment and Wellness*, Medical Anthropology Series (Durham North Carolina Carolina Academic Press, 2006).

² Center for Disease Control and Prevention, "Diabetes Public Health Resource," http://www.cdc.gov/diabetes/projects/programs_ndwp.htm.

³ American Diabetes Association, "Diabetes Basics," <http://www.diabetes.org/>.

⁴ Ibid.

⁵ Ibid.

will double between 2005 and 2030.⁶ In the United States, diabetes affects 25.8 million people or 8.3% of the population and is the sixth leading cause of death.⁷ For populations 20 years and older, the Center for Disease Control has estimated that 7.1% of non-Hispanic whites, 8.4% of Asian Americans, 11.8% of Hispanics, and 12.6% of non-Hispanic blacks had diagnosed diabetes.⁸ Rates are clearly highest among American Indian Nations and communities, ranging from 16% to as high as 40% to 70% in some American Indian communities.⁹

The disproportionate rate by which diabetes afflicts American Indians¹⁰ compared to the national population has visibly increased since the 1960's, making diabetes now the most significant health problem among American Indians.¹¹ The diabetes that afflicts American Indian Nations and communities is almost exclusively type II diabetes.¹² Death from infectious disease has decreased substantially since the early 1950's among American Indians, while death from behavioral and lifestyle factors have increased markedly, making diabetes, heart disease, and cancer among the leading causes of death among American Indian adults.¹³

In 2000, the American Diabetes Association alerted the health care community to the growing problem of type II diabetes among children and adolescents.¹⁴ The diagnosis of diabetes among American Indian and Alaska Native ages 35 and younger had increased 71%

⁶ World Health Organization, "Diabetes Fact Sheet #312," <http://www.who.int/mediacentre/factsheets/fs312/en/>.

⁷ Center for Disease Control and Prevention, "Diabetes Public Health Resource".

⁸ Ibid.

⁹ Elisa T. Lee et al., "Type 2 diabetes and impaired fasting glucose in American Indians aged 5 to 40 years: the Cherokee diabetes study," *Annals of Epidemiology* 14, no. 9 (2004).

¹⁰ Indigenous, American Indian, and Native will be used interchangeably when referring to these Peoples.

¹¹ K. J. Acton et al., "Trends in diabetes prevalence among American Indian and Alaska Native children, adolescents and young adults," *American Journal of Public Health* 92, no. 9 (2002).

¹² For the remainder of this paper, diabetes refers to exclusively type II diabetes

¹³ Mary Story et al., "The epidemic of obesity in American Indian communities and the need for childhood obesity-prevention programs," *Am J Clin Nutr* 69, no. 4 (1999).

¹⁴ Acton et al., "Trends in diabetes prevalence among American Indian and Alaska Native children, adolescents and young adults."

between 1990 and 1998, increasing the overall prevalence by 46%.¹⁵ American Indian and Alaska Native young adults on the average were 1.7 times more likely than young white adults to be diagnosed with diabetes from the years 1994-2000, increasing to 2.5 times between 2001-2007.¹⁶

The rise in diabetes and obesity rates to epidemic proportions within the United States has created a crisis in American Indian communities. Diabetes frequently leads to a number of severe and costly health complications, such as blindness, kidney failure, and loss of feet and legs through amputation. Perhaps most alarming is that young adults diagnosed with diabetes at age 20 are anticipated to lose, on average, approximately 17 potential years of life.¹⁷ Rather than dying at 73, young Indian men today with diabetes can expect to die at 57, following years of ill health.

Since the early 1960's scientists have searched for an understanding of the causes and the internal organic breakdown caused by diabetes. Biomedical research, as discussed later in this introduction first identified a relationship between the endocrine system's production of hormones like insulin and the digestive system's process of absorbing food. But as this thesis shows, prevention programs based on these medical models have failed to slow the rise in diabetes among American Indians.

In recent years, research has increased the focus on two types of external factors that may contribute to diabetes causation and the failure of existing programs to decrease the number of diagnosed diabetes cases. The first area focuses on how one's environment,

¹⁵ Center for Disease Control and Prevention, Fact Sheet. Trends In Diabetes Prevalence Among American Indian and Alaska Native Children, and Young Adults-1990-1998

¹⁶ Henry Roberts, "Trend analysis of diagnosed diabetes prevalence among American Indian/Alaska Native young adults--United States, 1994-2007," *Ethnicity and Disease* 19, no. 3 (2009).

¹⁷ *Ibid.*

including economic, political, social, and ones individual stress response impact biological reactions within the body and lifestyle behaviors. This research has demonstrated that among populations suffering from discrimination, poverty, and unemployment, low educational attainment, and high exposure to crime and violence, suffer a higher prevalence of health disparities including diabetes.

The second area of new research, termed historical trauma, suggests that unresolved grief from a history of traumatic assaults upon Indigenous Peoples has contributed to numerous social and health problems among colonized people. These overlapping determinants in American Indian communities place them at a high risk for developing diabetes.

The premise of the historical trauma theory is that populations who experienced colonization, genocide, and enslavement continue to exhibit a higher prevalence of disease even several generations after the original trauma occurred. The intergenerational transmission of historical trauma was first conceptualized in the 1960's, based on studies among Holocaust survivors and their families after World War II.¹⁸ Since the mid 1990's, research and literature on the impact of historical trauma on American Indian/Alaska Native populations has grown. These studies have primarily focused on the psychological and social impact contributing to alcoholism, drug abuse, depression, suicide, and physical and sexual abuse within these communities.¹⁹

¹⁸ Danieli, Y. (Ed) 1998. *International Handbook of Multigenerational Legacies of Trauma*. New York: Plenum Press.

¹⁹ Maria. Yellow Horse Brave Heart, Lemyra M. DeBruyn, "The American Indian Holocaust: Healing Historical Unresolved Grief," *American Indian and Alaska Native Mental Health Research* 8, no. 2 (1998).

A relatively recent emergence is the application of this theory to the epidemic of obesity and diabetes in American Indian communities. Scientists such as clinical psychologist Richard Surwit, British epidemiologist David Barker, historian of science George Canguilhem, and medical anthropologists Jo Scheder and Mariana Ferreira all have shown a positive correlation between the experience of historical trauma and diabetes²⁰ Historical trauma theory has parallels and support from research that has demonstrated a link between discrimination and depression, psychological distress, stress, and anxiety and a possible link between high blood pressure, heart disease, diabetes, and obesity in minority populations.²¹

The impact of colonization and the accompanying violence and subjugation inflicted upon American Indians has been directly linked to their health and social problems today.²² Diabetes is increasingly discussed not just as a disease of the body, but a problem needing to be understood from the context of American Indian history, culture, and experience.²³ This paper contributes to a growing literature that is reframing an understanding of diabetes causation among Indigenous Peoples to what social scientists, physicians, and Indigenous Peoples term a “socio-political pathology”.²⁴ Socio-political pathology recognizes the impact of external influences and pressures on the health and well-being of the biological body.

Emerging developments in health and medical research are providing a greater understanding of diabetes as a product of life experience. The studies of clinical psychologist

²⁰ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

²¹ The Victorian Health Promotion Foundation <http://www.vichealth.vic.gov.au/en/Publications/Freedom-from-discrimination/Ethnic-and-race-based-discrimination-as-a-determinant-of-mental-health-and-wellbeing.aspx>

²² Waziyatawin Angela Wilson and Michael Yellow Bird, ed. *For Indigenous Eyes Only A Decolonization Handbook*, Native America Series (Santa Fe: School of American Research Press, 2005).

²³ Brooke Olson, "Applying medical anthropology: developing diabetes education and prevention programs in American Indian cultures," *American Indian Culture and Research Journal* 23, no. 3 (1999).

²⁴ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

Richard Surwit^{25 26} and Mark Feinglos²⁷ have persistently shown a physiological link between diabetes and stress. Dutch and Swedish researchers have found support for a connection between life stress and diabetes risk. Findings out of Sweden's Karolinska hospital show a four-fold greater risk for diabetes from stress in the form of loneliness, bullying, and financial worries.²⁸ Studies have also found that racism and discrimination literally hurt the body.²⁹ Other research has provided preliminary evidence for a significant association between diabetes and a wide spectrum of psychosocial stresses in American Indian populations.³⁰

Life for American Indians is mired in social inequality, daily struggle, and historical memory. Scientific literature is beginning to understand the consequences of forced removal, violent ethnic cleansing, forced assimilation and the past and current political, social, and economic structures that oppress and discriminate. Specific biological mechanisms that support this argument include what Jo Scheder calls a "physiology of oppression",³¹ where socio-inequality, traumatic experiences, and psychosocial stress produce observable changes in the neuroendocrine system.³² These changes affect the production of hormones such as cortisol³³

²⁵ Feinglos M. Surwit R. S., "Stress and Diabetes Mellitus" *Diabetes Care* 15, no. 10 (1992).

²⁶ R. S. Surwit and M. S. Schneider, "Role of stress in the etiology and treatment of diabetes mellitus," *Psychosomatic Medicine* 55, no. 4 (1993).

²⁷ Surwit R. S., Feinglos M. "Stress and Diabetes Mellitus" *Diabetes Care* 15, no. 10 (1992): 1413-22.

²⁸ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

²⁹ Vickie M. Mays, Susan D. Cochran, and Namdi W. Barnes, "Race, Race-Based Discrimination, and Health Outcomes Among African Americans," *Annual Review of Psychology* 58, no. 1 (2007).

³⁰ J. Beals et al., "Stress Burden and Diabetes in Two American Indian Reservation Communities," *Diabetes Care* 31, no. 3 (2008).

³¹ An investigative tool and conceptual framework proposed by Jo Scheder focusing on structural and macro processes in an individual's existence, experiences, and hormones that recognize the constant lived experience of oppression eroding the body and spirit.

³² Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

³³ Hormone that contributes to fat deposits within the body.

and insulin³⁴, and with an absence of protective factors; hyperglycemia or high blood sugar sets in.

This paper argues that historical trauma, through its impact on the social, physical, and emotional domains of American Indians contributes to the disproportional high prevalence of obesity and diabetes among American Indians. For American Indian adolescents, adolescence is vulnerable time when this effect may be intensified, and this age cohort and risk factor goes largely unaddressed in most American Indian diabetes prevention programs.

The purpose of this thesis is threefold; one, to examine stressors unique to American Indian populations and to suggest that these stressors are more intense during adolescence, two, to evaluate ages and risk factors targeted by federal and tribal diabetes prevention programs and three, suggest appropriate interventions and programs targeting adolescents and these “overlooked” factors.

To date, scientific studies, health literature, and medical models have focused on poor diet and lack of physical activity as the causal factors for the increasingly high incidence of diabetes among American Indians. Research on obesity, nutrition, and individual health behavior has dominated the frameworks of medical models utilized by most federal and tribal diabetes prevention programs.³⁵ This research focuses on the relation between the endocrine system, the system of glands producing hormones such as insulin and the digestive system’s organs regulating ingestion, digestion, and absorption of food. Since 1997, efforts by federal and tribal governments and health officials have established hundreds of obesity and diabetes

³⁴ Hormone enabling cells to use glucose (blood sugar) for the bodies’ energy needs.

³⁵ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

prevention programs throughout American Indian Country.³⁶ Despite the expenditure of significant amounts of money, time, and good intentions devoted to slow the epidemic among American Indians, diabetes and obesity rates remain disproportionately high.

The thesis examines the potential reasons for this lack of progress and argues that programs oriented primarily at the adult population and that focus solely on diets and exercise are inadequate. Recognizing this lack of progress, this thesis explores the argument that for diabetes prevention programs to succeed, they must recognize that historical intergenerational trauma and its aggravation of contemporary stressors may be even more fundamental to the etiology of diabetes among American Indians. Diabetes prevention programs should include components that address this phenomenon that focus on stress physiology and its impact on health.

Systems that correlate adjustments and reactions of an organism to its internal and external environments have been largely neglected despite evidence that systematic exposure to stressors and other kinds of nervous stimuli play an important role in the onset of diabetes.³⁷ Support for a link between stress and the etiology of diabetes has appeared as early as the 17th century and was established in the medical literature by the 19th century.³⁸ The relationship between the nervous system and the endocrine system is at the heart of research suggesting trauma and stress from a colonial history and the current American mainstream societies' domination of American Indian People has led to a higher likelihood of becoming diabetic. The body produces and releases glucose into the blood stream as a reaction to a stressful

³⁶ U.S. Department of Health & Human Services, "Division of Diabetes Treatment and Prevention," <http://www.ihs.gov/MedicalPrograms/Diabetes/>.

³⁷ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

³⁸ Surwit R. S., "Stress and Diabetes Mellitus".

encounter. It's a biological response to threats, or "fight or flight" scenarios. When no action is taken to use or release this energy, a buildup of glucose within the bloodstream occurs.

American Indians likely face these stressful encounters more than other groups, placing them in a highly vulnerable position for the over accumulation of glucose (blood sugar).

The foundation for a potential paradigm change in diabetes and obesity prevention rests on embracing stress physiology and its embeddedness in the experience of historical trauma, discrimination-racism, daily microaggressions, community disorder, cultural alienation, and compromised identity.³⁹ Addressing the life and lived experiences causing stress and emotions such as anxiety, grief, anger, sadness, and shame would be most beneficial during the adolescent years.

Adolescence is an extremely vulnerable time for American Indians. Emotional and psychological stress events, compounded by a horrific colonial legacy, trigger biological reactions and can negatively affect health behavioral choices, setting a life course for an increased risk for obesity and diabetes. American Indian adolescents today appear more assimilated and acculturated into mainstream American society, than previous generations. Yet, a number of important psycho-sociological wellness statistics, such as suicide rates and alcohol and drug use, indicate that American Indian adolescents are not well integrated into their communities and suffer from major problems contributing to poor health. Adult onset-diabetes (type II), once typically diagnosed⁴⁰ in middle aged adults or older is now more prevalent among adolescents and young adults.

³⁹ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

⁴⁰ Heightened risk for type II diabetes and typical diagnosis mostly occurred among AMERICAN INDIAN adults over the age of 40 before roughly 2000.

Though the recent increase in diabetes prevalence among a younger age cohort is undoubtedly connected to ideas in this thesis, this paper focuses on the life experiences and the social and physical environments of American Indian adolescents as risk factors contributing to the overall high prevalence of obesity and diabetes among American Indians. Consistently high American Indian diabetes and obesity rates and a recent explosion in adolescent diagnosed diabetes rates must be met with a refocused urgency by federal, state, and tribal governments, communities, and health officials to reevaluate risk factors addressed in diabetes and obesity prevention programs and initiate other pathways to health and wellness.

This research relies on qualitative and quantitative literature collected from primary and secondary sources. The materials includes studies from academic journals from a variety of disciplines, including medicine and health, nursing, mental health, anthropology and history , as well as primary documents collected from tribal health centers, federal government documents, and federal agencies such as the Center for Disease Control and the Indian Health Service.

This paper explores the literature of the intergenerational transmission of trauma from colonization and an emerging literature that relates its impact and aggravation of chronic and daily stress episodes. The thesis makes a connection of this impact to disproportionately high obesity and diabetes rates among American Indians. The effect of trauma and stress in the daily lives of American Indian adolescents has created an intense and sometimes hostile social environment for them, even more so than other ethnic/minority groups within the United States. An examination of the impact refocuses the idea of why obesity and diabetes prevalence has remained high among American Indians. A greater recognition and

understanding of this effect can lead to pathways to healing via diabetes and obesity prevention initiatives for American Indian adolescents.

This paper begins with an overview of the traditional explanations popularly attributed to obesity and diabetes. Diet, including “addictive foods” and the physical activity level among American Indians are examined for their current and historical impact. Chapter 2 recognizes the social, economic, and environmental factors contributing to American Indian diabetes and obesity. Psychosocial stress, due to these “mind/body/environmental” factors is then explored as being more intense among American Indians, having a more significant impact on their health. Chapter 3 is an examination of the effect of historical trauma, making a point that in addition to diet and exercise, socio-economic, and environmental determinants, this is an additional factor among American Indians, which may account for such a high prevalence.

Chapter 4 explores the vulnerability of American Indian adolescents, suggesting adolescence as a period that is likely affected by all these factors to a greater degree. This impact is discussed as a negative influence on their physical and mental health and well being. The chapter builds an argument for (1) greater inclusion of adolescents within existing obesity and diabetes prevention programs (2) new initiatives targeted at adolescents and (3) a need for these programs and initiatives to address the intergenerational trauma that hikes emotional and psychological stress levels and greatly influence poor health behavioral choices.

The establishment of health care services for American Indians is examined in chapter 5 to show how federal health policies have shaped the American Indian healthcare system and current diabetes prevention programs. Chapter 6 assesses diabetes and obesity prevention programs for inclusion of adolescents and cultural competence. Suggestions for prevention

programs for American Indian adolescents are made that address the stress unique to American Indians and American Indian adolescents. Indigenous healing models are explored for their application in American Indian adolescent diabetes and obesity prevention program.

Chapter 1

Diabetes and Traditional Approaches

As mentioned in the Introduction, until recently, the medical profession viewed diabetes as a disease caused primarily by the body's inability to adequately transform food into energy. Scientists devoted considerable research effort and time into identifying the organs and factors responsible for inhibiting the body's efficient processing of food. As scientists gained greater knowledge of the interrelationship between the endocrine system, i.e., those glands producing hormones such as insulin, and the digestive system's organs regulating ingestion, digestion, and absorption of food, researchers turned their attention to identifying those factors responsible for the body's ineffective processing of sugars – and by extension the solutions. Two primary contributing factors surfaced in the literature – nutrition and a lack of exercise.

As a result of this research focus, health officials from federal and tribal governments have established hundreds of diabetes prevention programs in Indian Country based on medical models dominated by research on obesity, nutrition, and individual health behavior. The purpose of this chapter is to briefly review this literature and how scientists have applied these traditional explanations for diabetes to the U.S. population in general, and to American Indians specifically. The first two sections of the chapter discuss the important role of nutrition and lifestyle especially as related to physical exercise. The last section discusses the existence of the "thrifty gene" - a theory that gained some prominence in the 1960's to explain the large differences between the incidence of diabetes among American Indians and the general population.

Nutrition

A fundamental element to weight gain and obesity is the process of taking in more calories than are expended or “burned off”. Today, all Americans are eating more meals away from home, spending less time preparing meals at home, and eating larger proportions.⁴¹ Higher incomes, 2-income households, less expensive and more convenient fast food, and pervasive advertising of food-service establishments have increased American families’ amount of total energy obtained from dining outside of the home.⁴² The alteration of food characteristics in restaurants and fast food establishments that include higher calorie content, larger portion sizes, and more variety have been shown to increase the total caloric intake during meals.⁴³ Regardless of the type of food, setting, or the timing relative to other meals, people served larger portions have been found to simply eat more food.⁴⁴

Young people are a major target of the food and beverage and restaurant industries, which together represent the second-largest advertising group within the U.S., second only to the automobile industry.⁴⁵ Food and beverage companies have spent more than ten billion a year on advertising, predominately on foods and beverages high in sugar and fat.⁴⁶ A report suggests that children aged 8-17 are increasingly playing central roles in household purchasing decisions related to food, media, and entertainment. Technological advances have made highly

⁴¹ Cathy A. Nonas, and Gary D. Foster, ed. *Managing Obesity A Clinical Guide Second Edition* (American Dietetic Association, 2009).

⁴² Snow E. Rodney Lieb C. David, DeBoer D. Mark, "Socioeconomic Factors in the Development of Childhood Obesity and Diabetes," *Clin Sports Med* 28, no. 3 (2009).

⁴³ Ibid.

⁴⁴ Nonas, *Managing Obesity A Clinical Guide Second Edition*.

⁴⁵ Catharyn T. Liverman Jeffrey P. Koplan, Vivica I. Kraak, , ed. *Preventing Childhood Obesity Health in the Balance* (Washington D.C.: Institute of Medicine, 2005).

⁴⁶ Nonas, *Managing Obesity A Clinical Guide Second Edition*.

palatable food readily available and in larger portion sizes, and at a relatively low cost to people nearly everywhere they spend time.⁴⁷

America is increasingly exporting these highly profitable processed foods around the world and has been blamed for the global increase in obesity, diabetes, and heart disease.⁴⁸ In many developing countries, traditional healthy diets have increasingly been replaced by imported American foods. Uneducated populations of colonized people who have been told for centuries that western ways are superior to their Indigenous customs see processed and packaged junk foods as “modern” and desirable.⁴⁹ The increasing preference for foods that many identify with America, progress, and modernity may have transformed from a choice to increasingly becoming an addiction.

Growing evidence suggests that ‘food addiction’ may be a factor contributing to the obesity epidemic. Clinical studies have shown that rats who fed a sugar solution develop behaviors and changes in the brain that are similar to the effects of some drugs of abuse.⁵⁰ The studies supported by clinical research exhibit similarities in the effects of increased body weight or obesity and drugs on brain dopamine systems, as well as a manifestation of addictive behaviors.⁵¹ Hyperpalatable foods may be capable of triggering an addictive process. Hyperpalatable foods are engineered by increasing the fat, sugar, salt, flavors and food additives to high levels, giving them greater rewarding properties than traditional whole foods

⁴⁷ Jeffrey P. Koplan, *Preventing Childhood Obesity*

⁴⁸ Oliver De Schutter, "Report submitted by the Special Rapporteur on the right to food," (United Nations Human Rights Council, 2011).

⁴⁹ Jill Richardson, "How America Is Making the Whole World Fat and Unhealthy," http://www.alternet.org/food/154464/how_america_is_making_the_whole_world_fat_and_unhealthy?page=entire.

⁵⁰ Peter J. Rogers, "OBESITY – IS FOOD ADDICTION TO BLAME?," *Addiction* 106, no. 7.

⁵¹ *Ibid.*

(e.g. fruits, vegetables, nuts).⁵² Addictive processes in food leading to overeating and obesity include behaviors such as craving, continued use despite negative consequences, and diminished control over consumption.⁵³

Researchers have only recently begun to examine current dietary intake of American Indians that raises the risk for chronic diseases like cancer and diabetes. Concern has been expressed about the quality of the Food Distribution Program on Indian Reservations (FDPIR) where use of the program is high. An evaluation of the program by the Food and Nutrition Service concluded that FDPIR provided an acceptable and often preferred alternative to food stamps for American Indian families.⁵⁴ The nutritional content of the foods however was not evaluated. Ongoing discussions about the poor availability of high-fiber and low-fat foods have called for a greater inclusion of these in the FDPIR.⁵⁵

A study on food use behaviors among American Indians and the psychosocial factors that influence these behaviors found that higher-fat, higher-sugar and pre-prepared foods were commonly purchased.⁵⁶ Participants in the study spoke of eating fast food, fried foods, prepared foods such as “Hamburger Helper”, and hamburger. Many also drank nondiet “pop” on a daily basis instead of water, milk, or juice, including children.⁵⁷ The study also found cooking methods that add or have little impact on the fat content of the foods were used more than methods that reduce the amount of fat. The most common cooking method was pan-

⁵² Ashley N. Gearhardt et al., "Can food be addictive? Public health and policy implications," *Addiction* 106, no. 7.

⁵³ Ibid.

⁵⁴ Betty Geishirt Cantrell, "Access and Barriers to Food Items and Food Preparation among Plains Indians," *Wicazo Sa Review* 16, no. 1 (2001).

⁵⁵ Ibid.

⁵⁶ Joel Gittelsohn et al., "Psychosocial Determinants of Food Purchasing and Preparation in American Indian Households," *Journal of Nutrition Education & Behavior* 38, no. 3 (2006).

⁵⁷ Ibid.

frying. The preparation and consumption of high fat foods among American Indian Nations is common and likely contributes to the high rates of obesity.⁵⁸ In a study conducted by college faculty, staff, and students from 9 different tribal colleges, nearly all reported poverty as a major factor in food insecurity, nutritional deficiencies, and hunger.⁵⁹ The lack of knowledge regarding healthy eating habits, high prices of healthy foods, and the inaccessibility of traditional foods are also contributing factors.⁶⁰

American Indian Historical Diet

Waziyatawin Angela Wilson calls the colonization and ensuing spread of disease and systematic destruction of Indigenous food sources as an attack on Indigenous health.⁶¹ Ironically, the latest fad to hit the media is referred to as the Caveman Diet or Paleolithic Diet now touted by Hollywood celebrity starlets.⁶² The diet of American Indians has been strongly implicated as a major factor contributing to obesity and diabetes. The diet of American Indians before the influence of European food ways consisted of a variety of foods that sustained a higher quality of life.

The forests of North America, now a fraction of what they once were, along with the prairies, wetlands, and deserts, contained virtually everything essential for life. Some American Indians were self-made horticulturalists with a vast knowledge of the diverse plant environment, utilizing it for food and healing. A chronicler of Hernando De Soto's expedition from 1539–1543 noted that, in what is today northern Florida, Native American fields of corn,

⁵⁸ Ibid.

⁵⁹ Joseph "Jay" H. Stauss Louellyn White, and Claudia E. Nelson, "Healthy Families on American Indian Reservations: A Summary of Six Years of Research by Tribal College Faculty, Staff, and Students " *American Indian and Research Journal* 30, no. 4 (2006).

⁶⁰ Ibid.

⁶¹ Waziyatawin Angela Wilson and Michael Yellow Bird, *For Indigenous Eyes Only A Decolonization Handbook*.

⁶² Matt Emery, "Caveman Power," http://www.cavemanpower.com/food/caveman_power_diet.html.

beans, squash, and other vegetables “were spread out as far as the eye could see across two leagues [approximately 6 miles] of plain.”⁶³

Many of the diseases that inflict American Indians today, cardiovascular, cancers, and diabetes were not evident before their near total diet assimilation.⁶⁴ The wide array of foods once available on the North American continent is staggering. The sea, lakes and rivers had an abundance of fish and other sea and freshwater creatures available. Dense forest surroundings held a seemingly endless bounty of game, wild nutrient rich plants and berries. The cultivation of corn, beans and squash, known as the three sisters among tribal nations in the Northeast and Great Lakes regions were a staple. In the northeast, the Mohawks depended upon the St. Lawrence River, an enormous source of a huge variety of plant and animal life. The Anishnabe⁶⁵ from the Great Lakes Regions relied upon the wild rice surrounding the thousands of lakes. In the southwest, tribes such as the Tohono O’odham and Pima ate nutrient rich desert foods such as the buds of the cholla, mesquite and prickly pear cactus, tepary beans, chia seeds, and acorns.⁶⁶ These foods were low fat, high in fiber helping to maintain blood sugar, blood pressure and suppress hunger in between meals.⁶⁷

On the plains, the Blackfeet, Lakota, Dakota, and Comanche survived on many foods obtained from the land, including the bison. The American Bison was a vital aspect to Plains Indian life, encompassing their physical and spiritual being. One successful hunt could feed

⁶³ National Humanities Center, "The Expedition of Hernando De Soto in southeastern North American, 1539-1543," <http://nationalhumanitiescenter.org/pds/amerbegin/exploration/text1/desoto.pdf>.

⁶⁴ Mihesuah Devon L., "Decolonizing Our Diets by Recovering Our Ancestors' Gardens," *American Indian Quarterly* 27, no. 3/4 (2003).

⁶⁵ Anishinabe is what the Ojibwa, Ottawa, and Potawatomi tribes refer to themselves.

⁶⁶ Bruce E. Johansen, *The Praeger handbook on contemporary issues in Native America*, 2 vols. (Westport, Conn.: Praeger, 2007).

⁶⁷ Ibid.

tribes for months. This nutritious protein source was a lifeline. In the nineteenth century, it has been estimated that 50 million bison were exterminated on the plains of North America.⁶⁸ The loss of a vital protein source depended on for thousands of years was suddenly gone, leading to starvation and weakened bodies unable to fend off disease. Switching buffalo meat for domesticated cattle added both calories and fat to the diet of American Indians. (Bison contains less fat than beef. A 3.5 oz. serving of bison contains 2.42 g of fat compared to the same size of choice beef which has 18.54 g of fat, select beef has 8.09 g.⁶⁹ Beef contains 8.2 % polyunsaturated fat and 45.5 % monounsaturated fat. Compared to bison, 11.7 % of a bison's fat is polyunsaturated fat and 45.1 % is monounsaturated fat. A 3.5 oz. serving of bison contains 143 calories compared to 283 in the same serving size of choice beef and 201 in select beef.)⁷⁰

The American Indian diet after removal and confinement to reservations consisted of what was available within their reservations to hunt, fish, gather, and grow. Deer and buffalo herds were disappearing, systematically eliminated by the American government.⁷¹ Other healthier foods would slowly be replaced and forgotten with increasingly integrated store bought foods.⁷² The diet transformation continued once government foods became widely distributed on reservations.

Government 'rations' came in the form of refined white flour, sugar, and lard, far different from the natural whole foods their bodies were used to. Fry bread, a food eaten at many social gatherings and ceremonies today in American Indian communities was inspired by

⁶⁸ Waziyatawin Angela Wilson and Michael Yellow Bird, *For Indigenous Eyes Only A Decolonization Handbook*.

⁶⁹ Differences in fat content occurs because of how they are raised, either wild or feedlot.

⁷⁰ Live Strong .Com, "Buffalo Meat Versus Beef Nutrition," <http://www.livestrong.com/article/372112-buffalo-meat-versus-beef-nutrition/>.

⁷¹ Waziyatawin Angela Wilson and Michael Yellow Bird, *For Indigenous Eyes Only A Decolonization Handbook*.

⁷² Michael P. Milburn, "Indigenous Nutrition: Using Traditional Food Knowledge to Solve Contemporary Health Problems," *American Indian Quarterly* 28, no. 3/4 (2004).

federal government rations. Bruce E. Johansen's interview with a Dakota elder, "Fry bread is what creative minds and hungry stomachs came up with after the buffalo had been slaughtered, guns and horses had been seized, and the only things the residents of open-air concentration camps had to cook with were a fire, a skillet, lard, and white flour, often of questionable quality."⁷³ American Indian's lawfully unable to move outside of reservation borders were forced into a life of idleness. They became more sedentary, no longer hunting, gathering, and cultivating. Physical activities once a part of a daily routine that kept the body fit were becoming more unnecessary and even forbidden.

Traditional foods were eaten only occasionally and healthier preparation methods were less practiced. American officials wanted the Indian to conform, and live like white Americans; taking a way of life that provided their food was one way of doing this. Soil qualities on many reservation lands were not conducive for agriculture, severely limiting the likelihood of a successful crop. Processed western foods became necessary and sometimes preferred. The American government succeeded in making the tribes dependent upon government foods, these foods would become known as "commodities" among American Indian communities.

Boarding schools intensified the change in diet. Meals consisting of mostly starches and meats replaced a former diet of natural whole foods; a typical meal included baked bread and a stew or meat and gravy.⁷⁴ Fresh fruit and vegetables were rarely available even though some schools tried to plant gardens.⁷⁵ The brainwashing of American Indian children at government boarding schools included tactics causing shame of original languages, customs, and the foods

⁷³ Johansen, *The Praeger handbook on contemporary issues in Native America*.

⁷⁴ Ibid.

⁷⁵ Corbett James, "A History of the Diet of Prairie Band Potawatomi " (2007).

they once ate before leaving for boarding schools. Once back home, a preference for foods grown accustomed to at school replaced the more nutritious whole foods prepared by parents. The knowledge of traditional foods and preparation methods slowly dissipated with each generation, replaced by a western Americanized diet. Increasingly, a replaced knowledge, cooking foods with lard and flour and frying was being passed on, rather than for example, the knowledge of how to smoke meats, a healthier option.⁷⁶ A near total immersion of a westernized American diet had occurred. American Indian children had acquired a taste for saltier more fatty foods.

Lifestyle and Physical Activity

Despite the large amount of evidence of the increased health benefit of regular exercise and physical activity, the majority of Americans remain sedentary. A high level of physical activity, independent of weight status, provides many health benefits throughout a lifetime, which include increased cardiovascular endurance, improved glucose metabolism, and lower blood pressure.⁷⁷ Sustained physical activity reduces cardiovascular and diabetes risk factors.⁷⁸ The recommendation of at least 30 minutes of moderate-intensity physical activity on most days of the week is rarely met. American Indians physical activity level, though under the recommended thresholds, are similar to the levels of physical activity as other ethnic groups in the U.S.⁷⁹

⁷⁶ Milburn, "Indigenous Nutrition: Using Traditional Food Knowledge to Solve Contemporary Health Problems."

⁷⁷ David Menschik et al., "Adolescent Physical Activities as Predictors of Young Adult Weight," *Arch Pediatr Adolesc Med* 162, no. 1 (2008).

⁷⁸ Bonnie A. Spear et al., "Recommendations for Treatment of Child and Adolescent Overweight and Obesity," *Pediatrics* 120, no. Supplement 4 (2007).

⁷⁹ Acton K. J. and Bullock A., "American Indians and Physical Activity " *American Journal of Preventive Medicine* 37, no. 6 (2009).

Historical Lifestyle and Physical Activity

Richard Steckel and Joseph Prince reported in an article written in the *American Economic Review* in 2001 that Plains Indians were the tallest humans in the world in the late 1800's. Plains Indian Men stood an average 172.6 centimeters (about 5 feet, 8 inches) tall, a hair or two above Australian men (averaging 172 cm), American men of European decent (171 cm) and European men (170 cm or less).⁸⁰ Heights being a strong indicator of nutritional health, these standards suggest plains Indians were some of the healthiest people in the world.⁸¹ Steckel's remarks epitomize the American Indian health situation at that time, "The Plains Indians had a remarkable record of nutritional and health success, despite the enormous pressures they were under...They developed a healthy lifestyle that the white Americans couldn't match, even with all of their technological advantages."⁸² Weight control was hardly an issue, making obesity, diabetes and heart disease virtually unknown to the American Indian.

Lifestyles of American Indians were vastly different before their "Americanization". An enormous amount of physical activity was required to obtain and keep food, water, and shelter; physical activity was a necessary and natural part of everyday life. Energy expenditure was constant; gathering, planting and cultivating. Hunting and fishing trips often required several miles of walking or running. Cultivating crops involved standing, bending, and walking; a task that would be considered a 'moderate activity' by today's health officials. Many recreational activities and games mimicked hunting practices. Stick ball, a game played by several American tribes and the inspiration for contemporary lacrosse was played in fields up to four hundred

⁸⁰ Richard Steckel, "Standing Tall: Plains Indians Enjoyed Height Health Advantage," <http://researchnews.osu.edu/archive/tallind.htm>.

⁸¹ Ibid.

⁸² Ibid.

yards long.⁸³ These activities were prolonged and intense, and equivalent to today's "vigorous activities". American Indians were typically lean and relatively healthy. Caloric intake would have been at least matched by calorie expenditure, making obesity almost non-existent.

Thrifty Gene

A common explanation for the rise of obesity and diabetes among American Indian is based on genetics that American Indians possess a "thrifty gene". First proposed by Dr. James Neel⁸⁴, of Michigan University Medical School, Neel hypothesized that over generations, Native societies developed a thrifty gene that provided for increased fat storage during prosperous times. This genetic modification allowed for their body to access this increase fat during times of famine, thereby ensuring their survival. In the modern era of abundant food and unlikely famines, the ability to "turn off" this gene has resulted in obesity.⁸⁵ Although attractive as a biological explanation, several counter arguments to the theory soon appeared in the medical literature leading Dr. Neel and other researchers to dispute the theory's validity. More recent work and research have also been critical of the theory and its social implications.^{86 87}

One, there is little evidence that early hunter-gatherers experienced the periodic starvation that could give rise to the insulin resistant gene. The groups with the highest rates of diabetes such as the Pima have had the longest history of intensive agricultural subsistence.⁸⁸

⁸³ Mihesuah Devon L., "Decolonizing Our Diets by Recovering Our Ancestors' Gardens."

⁸⁴ Neel, J.V. 1982. "The Thrifty Genotype Revisited." In *The Genetics of Diabetes Mellitus*, ed. J. Kobberling and R. Tattersall. New York: Academic Press, 293-93.

⁸⁵ Timothy J. Richards and Paul M. Patterson, "Native American Obesity: An Economic Model of the ?Thrifty Gene? Theory," *American Journal of Agricultural Economics* 88, no. 3 (2006).

⁸⁶ Timothy Caulfield, "Popular Media, Biotechnology, and the "Cycle of Hype", " *Houston Journal of Health and Law Policy* (2005).

⁸⁷ United States Department of Health & Human Services, "Healthy People 2010," (DHHS, 2000).

⁸⁸ Carolyn M. Smith-Morris, "Reducing Diabetes in Indian Country: Lessons from the Three Domains Influencing Pima Diabetes," *Human Organization* 63, no. 1 (2004).

Third and highly important is that type II diabetes was nearly non-existent in American Indian populations fifty or sixty years ago. The fact that type II diabetes between 1990 and 2001 increased 106% in the 15-19 year old American Indian/Alaska populations would appear to point to more modern causes.⁸⁹

⁸⁹ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

Chapter 2

Recognition of “Environment/Mind/Body” Factors

The purpose of this chapter is to examine the environmental and socio-economic factors that contribute to obesity and diabetes among American Indians. These factors are gaining a wider understanding as part of the epidemiology of obesity and diabetes among all people.⁹⁰ American Indians are at or near the bottom of every socio-economic statistical category. The impact of these factors on stress levels is likely heightened in American Indian Nations and communities. Many American Indians live in pervasively adverse social and physical environments where they are exposed to a higher risk of stress.⁹¹ American Indians have a complex history with the U.S. government and the ideology that it is founded upon, the relationship is distinct and unlike other marginalized groups within the United States. The stress that American Indians endure is a result of both an inherited traumatic history and their status as a marginalized people. Carrying this burden in a highly industrialized nation have led them to more social isolation and stress episodes, likely more than other ethnic groups within the U.S. High rates of poverty, low educational attainment, violence, and accidents, discrimination and microaggressions in these communities contribute to this elevated amount of psychosocial stress. Comfort eating is examined as a coping mechanism among members of these communities.

⁹⁰ Kathy Sanders-Phillips et al., "Social Inequality and Racial Discrimination: Risk Factors for Health Disparities in Children of Color," *Pediatrics* 124, no. Supplement 3 (2009).

⁹¹ Beals et al., "Stress Burden and Diabetes in Two American Indian Reservation Communities."

Environment

In their study on diet and physical activity and perceptions of the environment, Lake and Townsend describe “obesogenic environments” as the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations.⁹² Neighborhoods with low socio-economic status generally have fewer physical activity resources than more affluent neighborhoods.⁹³ Research has found objective measurements of the residential environment, such as high level of graffiti and litter, to be associated with physical inactivity and obesity.⁹⁴ One study on environment and its impact on adolescent male physical activity found sidewalk characteristics, such as location, material, presence of street lights, and presence of trees, to be positively associated with light intensity physical activity.⁹⁵

Infrastructure and quality of life have improved in many American Indian communities since the Self-Determination era, though great disparities still exist in areas such as quality of healthcare, access to health and recreation facilities, access to grocery stores, housing, education, and employment.⁹⁶ The majority of reservations remain rural. Rural reservations have many barriers making it difficult for community members to access facilities and services. Grocery stores, recreation and wellness centers, and libraries with public Internet access and

⁹² A.A. Lake, Townsend, T. , "Diet, physical activity, sedentary behaviour and perceptions of the environment in young adults " *Journal of Human Nutrition and Dietetics* 22(2009).

⁹³ Ibid.

⁹⁴ A. Ellaway, Macintyre, S., & Bonnefoy, X., "Graffiti, greenery, and obesity in adults: secondary analysis of European cross sectional survey," *British Medical Journal* 331(2005).

⁹⁵ R. Jago, Baranowski, T., Zakeri, I. & Harris, M. , "Observed environmental features and the physical activity of adolescent males," *American Journal of Preventive Medicine* 29(2005).

⁹⁶ Dawn W. Satterfield et al., "Using the Essential Public Health Services as Strategic Leverage to Strengthen the Public Health Response to Diabetes," *Public Health Reports (1974-)* 119, no. 3 (2004).

other sources that provide information and education in areas such as diet and exercise are not in a close proximity.

Immediate food options are limited, often only convenience stores and trading posts offering only calorie dense nutrient poor foods and high sugar and sodium beverages. Greater distances separate American Indian reservations and communities with grocery stores abundant in a variety of higher quality foods such as fresh fruits and vegetables and lean meats and fish.

Housing on many reservations, because of allotment and the “checkerboard” affect, is clustered together leaving little room for gardening or play.⁹⁷ Homes are often “run down” and in poor condition. There are limited options for recreational physical activity where walking trails and playgrounds are few and far between. Recreation facilities with exercise equipment, gymnasiums and sport leagues are often non-existent or in poor condition in reservation communities. Limited access to recreation options in American Indian communities makes television both a default and preferred choice. In their investigation of factors contributing to diabetes Kayleen Islam-Zwart, and Alvina Cawston⁹⁸ cite a longitudinal study in which increased television viewing hours correlated with higher rates of obesity, poor cardio-respiratory fitness, increased cholesterol, and cigarette smoking in early adulthood, all risk factors for diabetes. Many reservations are extremely isolated and opportunity for “getting out of the house” is less. Television can become an escape, an outlet away from the perceived mundane restlessness of reservation life.

⁹⁷ Lorelei de Cora, "The Diabetic Plague in Indian Country: Legacy of Displacement," *Wicazo Sa Review* 16, no. 1 (2001).

⁹⁸ Kayleen Islam-Zwart, and Cawston, Alvina "Investigation of Factors Contributing to Diabetes Risk In American Indian/Alaska Native Youth," *American Indian and Alaska Native Health Research* 14, no. 49-58 (2008).

Socio-Economic Factors

Socio-economic status is increasingly discussed as a factor impacting health status. Both income and educational attainment are independent predictors of health status.⁹⁹ Demographic studies have shown as income falls in North America, body weight rises.¹⁰⁰ Counties within American Indian reservations are among the poorest in the country. Nearly 60% of all AIs residing outside of metropolitan areas inhabit persistently poor counties.¹⁰¹ American Indian children are significantly affected, 43% of American Indian children under the age of five live in poverty which is more than twice as high as the 21% of the total U.S. population.¹⁰² More than one-quarter, 28.4%, of American Indian and Alaska Native population are living in poverty, compared to 15.3% of the U.S. as whole.¹⁰³ The rate is as high as 40% for individuals¹⁰⁴ and family poverty as high as 66% in certain tribal groups.¹⁰⁵

A persistent lack of opportunity is often cited as the cause of poverty. American Indian communities have less full time employees than any other high-poverty group. Only 36 % of males in high-poverty American Indian communities have full-time, year-round employment.¹⁰⁶ The Blackfeet People of Montana for example have a 69% annual unemployment rate every year, nearly three times as severe as the worst of the great depression (25%).¹⁰⁷

⁹⁹ Deaton Angus, "Policy implications of the gradient of health and wealth," *Health Affairs* 21, no. 2 (2002).

¹⁰⁰ Margery Fee, "Racializing narratives: Obesity, diabetes and the "Aboriginal" thrifty genotype," *Social Science & Medicine* 62, no. 12 (2006).

¹⁰¹ Economic Research Service, "The Economics of Food, Farming, Natural Resources, and Rural America," <http://www.ers.usda.gov/Search/?qt=american+indian+poverty>.

¹⁰² National Center for Educational Statistics, "Status and Trends in the Education of American Indians and Alaska Natives: 2008," http://nces.ed.gov/pubs2008/nativetrends/ind_1_6.asp.

¹⁰³ U.S. Census Bureau, "Facts on the American Indian and Alaskan Native Population," http://www.census.gov/newsroom/minority_links/aian.html.

¹⁰⁴ "National Center for Education Statistics," (2010).

¹⁰⁵ U.S. Census Bureau, "Poverty: 2008 and 2009," <http://www.census.gov/prod/2010pubs/acsbr09-1.pdf>.

¹⁰⁶ Economic Research Service, "The Economics of Food, Farming, Natural Resources, and Rural America".

¹⁰⁷ Ibid.

Overall, American Indians possess poor educational scores and attain less formal education, when compared to the general population. Educational discrepancies are evident as early as K-4 grades where American Indian children's math and reading skills begin to fall progressively behind those of their white peers.¹⁰⁸ Recent studies indicate that approximately 71% of American Indians obtain a high school diploma or GED, compared to 80% of the general population, and 11.5% compared to 24.4% obtaining a bachelors degree.¹⁰⁹ American Indians are more likely to hold a subordinate job where they are less likely to be in a position of control.¹¹⁰ Chronic stress related to job environment is linked to a lower health status among all people.¹¹¹

Violence and Accidents

Today American Indians are victimized by violent crime at a rate (124/1000) more than two and a half times the national average.¹¹² In specific terms, statistics demonstrate that more than half – 56% of American Indians have been the victim of simple assault, 28% have experienced aggravated assault.¹¹³ Whereas in other population groups, whites are most likely to be victimized by whites, and blacks by blacks, in American Indian communities, 60% of violence is perpetrated by European Americans and other non-American Indians (10% for a total 70%).¹¹⁴ Violence against American Indian women is horrific, 1 out of 3 American Indian

¹⁰⁸ Michelle Sarche and Paul Spicer, "Poverty and Health Disparities for American Indian and Alaska Native Children," *Annals of the New York Academy of Sciences* 1136, no. 1 (2008).

¹⁰⁹ U.S. Census Bureau, "Poverty: 2008 and 2009".

¹¹⁰ Jason P. Block et al., "Psychosocial Stress and Change in Weight Among US Adults," *American Journal of Epidemiology* 170, no. 2 (2009).

¹¹¹ American Psychological Association, "Work, Stress, and Health & Socioeconomic Status," <http://www.apa.org/pi/ses/resources/publications/factsheet-wsh.aspx>.

¹¹² Teresa Evans-Campbell, "Historical Trauma in American Indian/Native Alaska Communities," *Journal of Interpersonal Violence* 23, no. 3 (2008).

¹¹³ Ibid.

¹¹⁴ Ibid.

and Alaska Native women are raped in their lifetime.¹¹⁵ American Indian children between the ages of 12-19 are more likely than their non-American Indian peers to be the victims of both serious violent crime and simple assault.¹¹⁶

Data shows American Indian children are more likely to be killed in a motor vehicle accident, to be hit by a car, to commit suicide or to drown than either African American or white peers.¹¹⁷ American Indian adolescents and children witness high rates of trauma among their family and friends, exposing them to trauma both as direct victims and as bystanders, it becomes a significant source of trauma in their life.¹¹⁸ The impact of individual serious injury or traumatic loss in interconnected reservation communities has an effect on more than just immediate family and friends. These types of events carry a heavy psychological burden on developing adolescents.

Microaggressions

Race scholars have used the term *microaggressions* to define contemporary events involving discrimination, racism, and daily hassles that are targeted at individuals from diverse racial and ethnic groups. Microaggressions or daily discriminatory stressors, such as racist name calling, encompass the most persistent forms of discriminatory acts that minorities endure. These actions, which include both covert¹¹⁹ and overt¹²⁰ acts, contribute to immediate and

¹¹⁵ Thoennes Nancy. Tjaden Patricia., "Prevalence, Incidence, and Consequences of Violence against Women: Findings from the National Violence against Women Survey. Research in Brief.," ed. Department of Justice (Washington D.C.1998).

¹¹⁶ Sarche and Spicer, "Poverty and Health Disparities for American Indian and Alaska Native Children."

¹¹⁷ Ibid.

¹¹⁸ Ibid.

¹¹⁹ Being arbitrarily pulled over by a police officer

¹²⁰ Being spit on or attacked

persistent feelings of distress and anger.¹²¹ Related research suggests that daily discrimination often elicits more distress than episodic or time-limited discrimination, and as a result, daily assaults have a more significant impact on health outcomes.¹²² These findings are troublesome for American Indians who are frequently exposed to violence, alcohol and drug-use, and discrimination from their surrounding communities.

For American Indians, the current oppression and the daily indignities of being a person of color are constant reminders of the historical and ongoing injustices.¹²³ American Indians have likely experienced these indignities all of their lives. Race related stressors are more powerful predictors of psychological distress among people of color than ordinary stressful events because they (a) are constant reminders of racism, (b) occur continually rather than being time limited, and (c) are present in nearly all aspects of the life—education, employment, health care, and social interactions.¹²⁴

High stress and Lower Health Status

As the studies indicate, western health research is beginning to catch up with two important truths that Indigenous science has always understood. Individuals are part of a larger system that includes the surrounding environment, their community, and their family. Second, within the individual, the physical self is not separated from one's psychological or spiritual self. The natural life trajectories of American Indians that once led them to optimal health and wellness were dependent upon maintaining a balance of their mental, physical, and spiritual bodies. The total disruption of their original way of life decimated these areas that once

¹²¹ Evans-Campbell, "Historical Trauma in American Indian/Native Alaska Communities."

¹²² Ibid.

¹²³ Jill S. Hill, Michael Y. Lau, and Derald Wing Sue, "Integrating Trauma Psychology and Cultural Psychology: Indigenous Perspectives on Theory, Research, and Practice," *Traumatology* 16, no. 4 (2010).

¹²⁴ Ibid.

completed the American Indian individual. External forces have dominated American Indians in nearly every aspect of their existence, keeping them from finding any true balance within themselves, their families, and their communities. American Indians have never recovered and have been forced to fight battles on all fronts surrounding them. The challenges they are faced with everyday are not ones they have chosen.

American Indians fall under some of the most difficult socio-economic positions in the U.S. Added to this burden are high rates of violence, discrimination, and accidents. The impact of such a stress burden is seen in high suicide rates, domestic violence, and substance abuse, contributing to a cycle of suffering. As William Dressler has stated “Where a person can adapt to environmental challenges, an adjustment has occurred and “normal” life is maintained. When a person cannot, where environmental challenges are too great and resources cannot meet these demands, a breakdown of the system or individual occurs, the breakdown often results in sickness and disease.”¹²⁵

Food as a Coping Mechanism

When people are faced with difficult living experiences, they, by necessity, look for coping and defense mechanisms to help them get through the day, the experience, or their lives in general. As is well acknowledged, many of the most prevalent coping mechanisms, such as alcohol and drugs not only fail to diminish the stress, but establish a vicious circle that compounds the problems. Psychologists and doctors have long understood the role of alcohol and drug use as a means of combating stress and depression. Over the last thirty years, researchers have increasingly understood the role that food can play in similar circumstances.

¹²⁵ William W. Dressler, *Stress and Adaptation in the Context of Culture: Depression in a Southern Black Community* (Albany, New York: State University of New York Press, 1991).

Referred to as the stress-reaction theory (SRT), this research recognizes how individuals use food in response to stressful or anxiety-producing situations.¹²⁶ Individual weight differences result, in part, from variations in the frequency, intensity, and duration of stress, coupled with easy or default access to calorie dense, nutrient poor foods.¹²⁷ Other studies have demonstrated correlations between stressors and eating behaviors.¹²⁸ When placed under conditions of psychosocial stress, researchers found that individuals required more energy. To meet this increased energy need, individuals ingested more carbohydrates.¹²⁹

As the above research indicates, and as will be demonstrated in the following chapter, American Indians face an extraordinary amount of stress in their daily lives. Individuals who use food as a coping mechanism, over time will become obese and greatly increase their risk for diabetes.¹³⁰ The use of food as a coping mechanism may have as serious or even more serious consequences to one's overall health. In other words, health researchers must refocus their studies and questions to include not only what American Indians are eating, but also why they are eating.

Diet, physical activity levels, addictive foods, physical environment, and lower socio-economic status are contributing factors to a high prevalence of diabetes and obesity among American Indians. These factors together make American Indians vulnerable to obesity and diabetes. However, these factors still may not account for such a disproportionately high incidence of obesity and diabetes among them. In a study on socio-economic factors, health

¹²⁶ Charles J. Pine, "Anxiety and Eating Behavior in Obese and Nonobese American Indians and White Americans" *Journal of Personality and Social Psychology* 49, no. 3 (1985).

¹²⁷ Ibid.

¹²⁸ Mary F. Dallman et al., "Chronic stress and obesity: A new view of "comfort food,"" *Proceedings of the National Academy of Sciences* 100, no. 20 (2003).

¹²⁹ Achim Peters et al., "The Selfish Brain: Stress and Eating Behavior," *Frontiers in Neuroscience* 5.

¹³⁰ Dallman et al., "Chronic stress and obesity: A new view of "comfort food" •."

behaviors, and mortality, it was revealed that smoking, alcohol consumption, body mass index, and physical activity level account for only about 12-13% of the increased mortality risk in people with lower levels of education and income.¹³¹ The next chapter explores historical trauma and the effect it has on the lived experiences of American Indians as a contributing factor that may account for the diabetes and obesity discrepancies.

¹³¹ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

“Contemporary chronic diseases are sometimes mislabeled “diseases of civilization”. Rather, they are diseases of colonialism – and that’s a very big difference.” Joe C. Sheder¹³²

Chapter 3

Impact of Historical Trauma

As the preceding chapters have demonstrated, American Indians suffer the highest rates of diabetes of all population groups within the United States. Forty years of research and intervention programming designed to understand the causes of this diabetic epidemic and to control and reduce these rates have proven disappointingly ineffective.

American Indians face similar risk factors for obesity and diabetes that lower socio-economic status Americans are exposed to. Yet, American Indian obesity and diabetes rates far exceed the rates of other groups within the U.S. The relatively rapid change in diet is perhaps the most popular risk factor blamed for the creation of the diabetes epidemic by both American Indians and a majority of health officials, despite clinical trials focusing on lifestyle interventions such as diet and exercise that have proven to be largely ineffective.¹³³ Early genetic-based hypotheses have been largely dismissed by those who study the disease among American Indian populations closely. As pointed out in chapter 2, health behaviors such as smoking, alcohol consumption, and physical activity level account for only 12-13% of the increased mortality risk in people with lower levels of education and income.¹³⁴ If the combination of these factors cannot account for the high prevalence of obesity and diabetes in American Indian communities like this thesis suggests, what might be held accountable?

¹³² Ibid.

¹³³ Narayan KM. etc, "Randomized clinical trial of lifestyle interventions in Pima Indians: A pilot study," *diabetes medicine* 15(1997).

¹³⁴ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

This chapter explores historical trauma as an additional factor in American Indian life and the role that it may play in explaining the obesity and diabetes disparities between American Indian and other U.S. population groups. Previous studies have argued that historical trauma is an important but overlooked contributing factor to high suicide rates, homicide, domestic violence, child abuse, alcoholism, and other social problems in American Indian communities.¹³⁵ ¹³⁶ Emerging research is examining the impact that historical trauma may have on obesity and diabetes epidemics among Indigenous Peoples.

The chapter will define colonization and historical trauma. The impact it has on American Indian Nations and communities is discussed using a model conceptualized by Eduardo Duran that has been built upon by other Indigenous scholars. Historical trauma is then connected to American Indians today. The historical trauma response (HTR) elicits emotions and behaviors that are discussed as contributing to obesity and diabetes. Recent studies of the psychological and physical impact link HTR to obesity and diabetes.

Evidence of the historical trauma and the continued effects of colonization on Indigenous and minority populations have been found throughout the world. Colonization, as defined and applied to Indigenous Peoples, refers to the formal and informal methods used by the colonizers, such as behaviors, ideologies, institutions, policies, and economies to maintain the subjugation or exploitation of Indigenous Peoples, lands, and resources.¹³⁷ Persistent struggles in American Indian communities like poverty, family violence, chemical dependency,

¹³⁵ Yellow Horse Brave Heart, "The American Indian Holocaust: Healing Historical Unresolved Grief."

¹³⁶ Eduardo Duran and Bonnie Duran, *Native American postcolonial psychology*, SUNY series in transpersonal and humanistic psychology (Albany: State University of New York Press, 1995).

¹³⁷ Waziyatawin Angela Wilson and Michael Yellow Bird, *For Indigenous Eyes Only A Decolonization Handbook*.

suicide, and the deterioration of health are direct consequences of colonization.¹³⁸ Since the first invasion of Europeans, Indigenous people on the whole have been sicker and died younger than non-Indigenous inhabitants of the same colony or state.¹³⁹ It is proposed that this historical legacy, despite the end of formal federal occupation and overt forms of oppression, continue to exert powerful psychological effects on the identities of the colonized.¹⁴⁰ This burden has impacted Indigenous health both abroad and among American Indians.

Historical trauma has been defined as “cumulative emotional and psychological wounding, over the lifespan and across generations, emanating from massive group trauma experiences”.¹⁴¹ The massive loss of lives, land, and culture from European colonization has left a legacy of chronic trauma and unresolved grief.¹⁴² The historical losses of American Indians meet the United Nations definition of genocide. Over several generations, American Indians have endured a series of traumatic assaults that include community massacres, genocidal policies, pandemics from new diseases, forced relocation, forced removal of children through boarding school policies, and the outlawing of cultural and spiritual practices. American Indian trauma is analogous to other groups’ experiences, such as the Jewish Holocaust and slavery of African American people in the United States.

There are distinguishing differences between the Jewish Holocaust experiences during WWII and those of American Indian people. The most important is the senses of loss are not

¹³⁸ Ibid.

¹³⁹ Warwick Anderson, "The Colonial Medicine of Settler States: Comparing Histories of Indigenous Health," *Health and History* 9, no. 2 (2007).

¹⁴⁰ Michael Y. Lau Jill S. Hill, Derald Wing Sue, "Integrating Trauma Psychology and Cultural Psychology: Indigenous Perspectives on Theory, Research, and Practice," *Traumatology* 16, no. 4 (2010).

¹⁴¹ Yellow Horse Brave Heart, "The American Indian Holocaust: Healing Historical Unresolved Grief."

¹⁴² Ibid.

143 144 tied to one single catastrophic period, but are ongoing and present. The ethnic cleansing of American Indian people did not end with military defeat and the occupation of American Indian territories. The legal sanctioning of spirituality practices, traditional hunting and fishing, and the forced removal and brainwashing of American Indian children at boarding schools continued the wave of traumatic experiences.

The onslaught of Western imperialism and colonialism began with the European Age of Discovery in the 15th century.¹⁴⁵ Structures in place today that continue to deny American Indian land rights, challenge sovereignty and rights to determination are rooted in the declarations of *Terra Nullius*, the Vatican's *Inter Caetera* Papal Bulls of 1452, 1492, and 1493,¹⁴⁶ and the Spanish *Requerimento* of 1514.¹⁴⁷ Indigenous scholars in the United States have demonstrated how these documents formed the basis for U.S property law, nationhood, and federal Indian law in the 19th century.¹⁴⁸ The U.S. government sought to eradicate the "Indian problem" by destroying the culture, traditions and lifeways through weapons manifested as federal laws, court decisions and policies.¹⁴⁹ Native lands were appropriated; American Indians were removed to reservations severely disrupting lives and the spiritual connection to place.

¹⁴³ Les B. Whitbeck, Gary W. Adams, and Dan R. Hoyt, "Conceptualizing and Measuring Historical Trauma Among American Indian People," *American Journal of Community Psychology* 33, no. 3/4 (2004).

¹⁴⁴ May be seen as a controversial statement – as many Jews would argue that they have endured 2000 years of hostility that extends today to Israel.

¹⁴⁵ Hill, Lau, and Wing Sue, "Integrating Trauma Psychology and Cultural Psychology: Indigenous Perspectives on Theory, Research, and Practice."

¹⁴⁶ Declared European Christians could claim title to any "discovered" non-Christian or "empty" lands (*terra nullius*) in spite of American Indians already there.

¹⁴⁷ Addressed to non-Christian population in the Americas, gave the Pope, considered to have divine power, the authority to give Indigenous lands to the King of Spain and his daughter.

¹⁴⁸ Waziyatawin Angela Wilson and Michael Yellow Bird, *For Indigenous Eyes Only A Decolonization Handbook*.

¹⁴⁹ Hill, Lau, and Wing Sue, "Integrating Trauma Psychology and Cultural Psychology: Indigenous Perspectives on Theory, Research, and Practice."

Education and religion were used as a force to indoctrinate and assimilate; economic expansion was used as a rationale for forced relocation and termination of many rights.¹⁵⁰

Connecting Historical Trauma to American Indians Today

Duran¹⁵¹ outlines a model of six phases in the American Indian experience that have created historical trauma that correspond with the stages of Euro-American imperialism, colonialism, and colonization. They include First Contact, Economic Competition, Invasion War Period, Subjugation and Reservation Period, Boarding School Period, and Forced Relocation and Termination Period.¹⁵² Duran makes a point that the holism of life experiences mean that trauma in one phase is necessarily interconnected to trauma in other phases. These phases include both general and specific atrocities committed upon American Indians and its consequences.

American Indians face daily reminders of their historical losses, including the loss of land, economic self-sufficiency, languages, ceremonies, traditional and family clan systems and traditional healing practices, to name a few.¹⁵³ Compounding the memory of these losses is an environment controlled by the dominant population of persistent discrimination and ignorance and indifference of and for American Indian justice.

Teresa Evans-Campbell suggests several kinds of events occurring to American Indians today are a compounding burden when understood in the context of historical trauma.¹⁵⁴ The social environment that includes discrimination, violent assaults, and microaggressions are part

¹⁵⁰ Ibid.

¹⁵¹ Duran and Duran, *Native American postcolonial psychology*.

¹⁵² Ibid.

¹⁵³ Whitbeck, Adams, and Hoyt, "Conceptualizing and Measuring Historical Trauma Among American Indian People."

¹⁵⁴ Evans-Campbell, Teresa. "Historical Trauma in American Indian/Native Alaska Communities." *Journal of Interpersonal Violence* 23, no. 3 (2008): 316-38.

of the daily interactions within modern American Indian life. These events, perpetrated on American Indians by non-American Indians because of skin color, social status, political and historical misconceptions and ignorance are reminders of the social, political, and economic force of the dominating American society. The assault connects them to the injustices suffered by their ancestors and in this way, historical trauma becomes an ongoing context in which many people live.¹⁵⁵

The historical trauma response is the reaction to the trauma and includes both emotions and behaviors. These may include substance abuse, suicidal thoughts and gestures, depression, anxiety, low self-esteem, anger, and difficulty recognizing and expressing emotions.¹⁵⁶ Evans-Campbell and Walter's have termed the interaction of historical and contemporary traumas as the Colonial Trauma Response (CTR). The CTR reaction occurs when an individual experiences a contemporary discriminatory event or a microaggression that connects the individual to historical injustice and trauma. For example, an American Indian woman is called a derogatory race-related name, though it is directed at her individually, she is reminded of the experiences of her ancestors, connecting her to a collective pain of their suffering in an immediate and emotional way.¹⁵⁷

The past violations of American Indian life are recalled mentally and emotionally during modern assaults, encounters of discrimination, and daily struggle of social inequality. Alcoholism, drug abuse, suicide, domestic violence and overeating often serve as coping

¹⁵⁵ Ibid

¹⁵⁶ Maria. Yellow Horse Brave Heart, "The historical trauma response among natives and its relationship with substance abuse: A Lakota Illustration " *Journal of Psychoactive Drugs* 35(2003).

¹⁵⁷ Evans-Campbell, "Historical Trauma in American Indian/Native Alaska Communities."

mechanisms, designed to anesthetize or distance the individual from the situation.¹⁵⁸ These behaviors then become integrated into a “cycle of traumas”, contributing to a sustained social dysfunction and keeping American Indian communities from realizing true health and wellness. On the individual level, the cycle erodes the mental, physical, and spiritual body. Duran has termed the loss of identity, spiritual collapse of American Indian Nations, and daily reminders of the subjugation and continuing injustices as the “soul wound”.¹⁵⁹ Ann Bullock refers to diabetes as a slow form of suicide, attributed to the “soul wounds” that have never healed.^{160 161}

For American Indians, the invasion and violence inflicted by a foreign race of people remains imbedded in their identities today. American Indian people lost nearly everything fundamental to their existence which may have led them to question their status as human beings on this earth. The spiritual and physical bodies of American Indians continue to feel pain; dismal conditions in many American Indian Nations and communities make hope for a better existence seem out of reach. Exhausting oneself to overcome these conditions, to tackle the enormous burden of 500 years of injustice, is likely perceived as unattainable on an individual level. The momentary escape that alcohol and drug abuse and over-indulgence in food provides has become worth the consequences as quality of life statistics have shown.

It is imperative to establish that historical loss is part of the cognitive world of American Indians today and that the prevalence is substantial. In a study conducted with elders from two northern plains reservations, respondent’s generations removed from many historically tragic

¹⁵⁸ Yellow Horse Brave Heart, "The American Indian Holocaust: Healing Historical Unresolved Grief."

¹⁵⁹ Eduardo Duran, *Transforming the soul wound : a theoretical/clinical approach to American Indian psychology* (Berkeley, CA: Folklore Institute, 1990).

¹⁶⁰ Ann Bullock and Ronny A. Bell, "STRESS, TRAUMA, AND CORONARY HEART DISEASE AMONG NATIVE AMERICANS," *American Journal of Public Health* 95, no. 12 (2005).

¹⁶¹ Indian Health Service, "NC4 National Council of Chief Clinical Consultants," <http://www.ihs.gov/nonmedicalprograms/nc4/index.cfm?module=fp>.

events were clearly still emotionally effected. Respondents thought at least once a day about loss of land, language, culture, and alcoholism and its impact on the community.¹⁶² Elders also reported a range of emotions such as sadness, depression, anger, anxiety and discomfort around white people, fear of white people, shame, loss of concentration, feelings of isolation, rage, feeling that more trauma will happen, and avoidance of places or people that are reminders of losses.¹⁶³ There was a significant amount (21.4%) of respondents who reported always or often feeling discomfort around white people because of historical losses and one-third (34.6%) always or often felt distrustful of the intentions of white people because of historical losses.¹⁶⁴ The preliminary results from the study indicate a remarkable prevalence of a perception of historical loss among the current parent generation.

The Intergenerational transmission of trauma theory supports a claim that these historical trauma response symptoms are exhibited in American Indian communities today. Although the strength of the emotions may diminish with each generation or the more assimilated or acculturated American Indians become, there are daily subtle reminders of the horrors and atrocities committed upon their people.

Historical Trauma and Diabetes

The fundamental argument of this paper is that historical trauma is an important contributing factor that has led to the epidemic of diabetes and obesity in American Indian communities. Historical trauma, a stressor in and of itself also aggravates and compounds

¹⁶² Whitbeck, Adams, and Hoyt, "Conceptualizing and Measuring Historical Trauma Among American Indian People."

¹⁶³ Ibid.

¹⁶⁴ Ibid.

contemporary stressors. Stress triggers hyperglycemia and the development of diabetes.¹⁶⁵ Research has linked the phenomenon of historical trauma with physical sickness and disease. These include hypertension, heart disease,¹⁶⁶ diabetes¹⁶⁷, and being overweight.¹⁶⁸ The historical memory of American Indians coupled with the constant lived experience of oppression damages the body as well as the spirit. Scheder's framework, what he calls the "physiology of oppression", provides a model for connecting oppression, from the beginning of colonization to today's discrimination, with immune deficiency and disease. Considering studies showing the body never adjusts or "gets used to" repeated stress, neuroendocrine mini spikes¹⁶⁹ likely occur among American Indians daily.

The impact of historical trauma on diabetes and obesity among American Indians is evident under three domains. Historical trauma embodies and builds upon three theoretical frameworks within social epidemiology: psychosocial theory, political/economic theory, and social/ecological theory.¹⁷⁰

Psychosocial theory links disease to both physical and psychological stress arising from the social environment.¹⁷¹ In this framework, an extraordinary amount of psychosocial stressors, such as low socio-economic status and exposure to violence as discussed previously, create susceptibility to disease and trigger mechanisms affecting biological systems in the body.

¹⁶⁵ Surwit and Schneider, "Role of stress in the etiology and treatment of diabetes mellitus."

¹⁶⁶ Maria Yellow Horse Brave Heart, "Gender Differences in the Historical Trauma Response Among the Lakota," *Journal of Health & Social Policy* 10, no. 4 (1999).

¹⁶⁷ Ann Bullock, Physician, Eastern Band of Cherokee Nation

¹⁶⁸ Yellow Horse Brave Heart - Jordan M., "the return to the sacred path: healing from historical trauma and historical unresolved grief among the Lakota" (Doctoral Dissertation Smith College, 1995).

¹⁶⁹ The stress response which includes the release of glucose (blood sugar) into the bloodstream to prepare the body for "fight or flight" reactions.

¹⁷⁰ Michelle M. Sotero, "A Conceptual Model of Historical Trauma: Implications for Public Health Practice and Research" *Journal of Health Disparities Research and Practice* 1, no. 1 (2006).

¹⁷¹ Ibid.

Specifically, psychosocial stress producing changes in the neuroendocrine system affecting the production of hormones like cortisol and insulin. The second theoretical framework, political/economic theory, recognizes the political, economic, and structural determinants of health and disease.¹⁷² As discussed in chapters two and five, a general indifference for American Indian social and political issues, underfunded health services, lack of access and barriers to supermarkets and facilities for physical activity, high unemployment and poverty are significant factors in American Indian obesity and diabetes prevalence. The third, social/ecological theory recognizes the interdependencies of present/past, proximate/distal, and life course factors in disease causation.¹⁷³ From chapter one, loss of land and forced removal to unfamiliar, poor soil quality lands and the sanctioning of traditional hunting and fishing practices led to rapid changes in diet and lifestyle, and increased the psychological stress burden.

The connection between these three domains creates a “perfect storm” of variables that may be the root of the diabetes and obesity epidemic among American Indian Nations and communities. Exposure and vulnerability to obesity and diabetes risk factors may be at its highest during adolescence. The next chapter explores life experiences in American Indian adolescence that creates a high risk for obesity and diabetes.

¹⁷² *Ibid.*

¹⁷³ *Ibid.*

"Stress causes anxiety and depression leading to self-medication with drugs, alcohol, carbohydrates and sugar; in turn these substances exacerbate stress". Leslie E. Korn¹⁷⁴

Chapter 4

Vulnerability of American Indian Adolescence

Adolescence is a crucial period in our psychological, social, emotional, mental and physical development. Capacities built within these areas are influenced by interactions at home, school, and within the community and the larger society in which we live. In the U.S. each year, among all populations, 2,000-2,500 adolescents under the age of twenty commit suicide.¹⁷⁵ It is estimated that for every adolescent who succeeds in ending his or her life, another twenty five are attempted.¹⁷⁶ Rapid changes to the physical body can make adolescents self-conscious and sensitive.¹⁷⁷ Emotional and mental growth during this time causes internal conflict and confusion. Conflicts over independence and experimentation with drinking, drugs, and sexual exploration during adolescence place them in potentially harmful situations.

The behavioral practices fostered in adolescence have an enormous impact on long term physical and mental health. Adolescents who engage in physical activity have lower tobacco and marijuana use, watch less television, consume more fruits and vegetables, have less depression, closer relationships with parents, and decreased social marginalization.¹⁷⁸ The

¹⁷⁴ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

¹⁷⁵ F.R.C. Pscyh. David Shaffer F.R.C.P., and Leslie Craft MSW., "Methods of Adolescent Suicide Prevention," *Journal of Clinical Psychiatry* 60, no. 2 (1999).

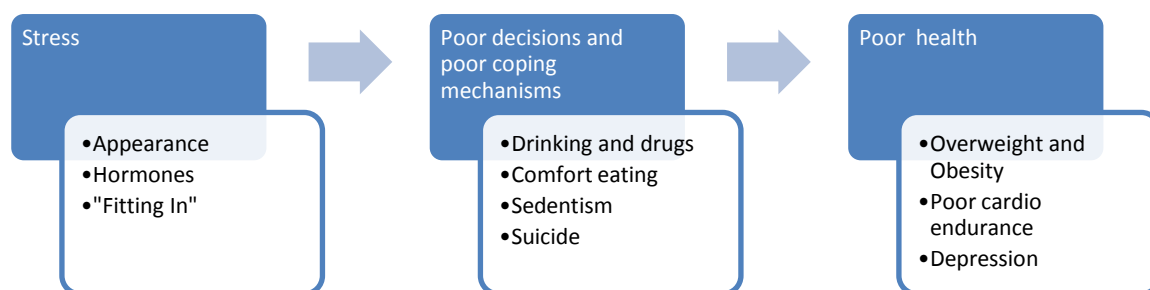
¹⁷⁶ Teen Suicide, "Teen Suicide," www.teensuicide.us.

¹⁷⁷ University of Maryland Medical Center, "Adolescent development - Overview," <http://www.umm.edu/ency/article/002003.htm>.

¹⁷⁸ Menschik et al., "Adolescent Physical Activities as Predictors of Young Adult Weight."

transition from adolescence to adulthood is a life stage where learned behaviors can dramatically decrease or increase the risk for obesity.¹⁷⁹ Positive mental and emotional experiences during adolescence increase the likelihood of becoming mentally and emotionally healthy adults. Research has shown that adolescents who have good support networks report greater satisfaction with themselves, higher likelihood of seeking social support, and less symptomatic response to stressful live events.¹⁸⁰ By contrast, those with unresponsive and unpredictable attachments to parents or peers are more likely to experience anxiety, sadness, depression, and anger when dealing with life obstacles.¹⁸¹ Conventional wisdom says that adolescence is often a time where the sense of invulnerability leads to risky behavior. Others have suggested high risk taking occurs because adolescents perceive they have reached a point of near hopelessness.¹⁸² In either case, perceptions can lead to poor decisions that in turn cause physical and or psychological damage that can impact long term health.¹⁸³

Graph A



¹⁷⁹ Lake, "Diet, physical activity, sedentary behaviour and perceptions of the environment in young adults ".

¹⁸⁰ Gay Armsden and Mark Greenberg, "The inventory of parent and peer attachment: Individual differences and their relationship to psychological well-being in adolescence," *Journal of Youth and Adolescence* 16, no. 5 (1987).

¹⁸¹ Ibid.

¹⁸² Youth Board on Children et al., *Adolescent Risk and Vulnerability: Concepts and Measurement*, ed. Baruch Fischhoff, Elena O. Nightingale, and Joah G. Iannotta (The National Academies Press, 2001).

¹⁸³ Ibid.

This generalized decision-making process for adolescents, shown in graph A, is sometimes romanticized in Hollywood sitcoms and movies. For American Indian adolescents, it has become an increasingly complex and vicious cycle with real life and death consequences. The passage to adulthood for American Indians must be navigated in an environment that retains the continuing scars and presence of colonization. Adolescence is a vulnerable period of life for everyone and even more tumultuous for American Indians. Having to navigate the inherent stress of adolescence in combination with the socio-political and historical trauma factors impacting American Indian adolescent health and wellness makes them perhaps the most socially, physically, and mentally challenged group within the U.S. Given the medical profession's increasing recognition of how stress affects health, it is surprising that professionals have devoted so little attention to 1) recognizing the vulnerability of American Indian adolescence and 2) designing intervention programs for American Indian adolescents. It is the purpose of this chapter to explain this destructive cycle thereby explaining how American Indian adolescents are at a greater risk for developing obesity and diabetes.

The chapter will first review and compare statistics between the general population and American Indians. The statistics highlight the extreme challenges facing American Indian adolescents. The chapter discusses (see graphic B) the destructive cycle that American Indians endure which creates social dysfunction and contributes to obesity and diabetes. The discussion includes the role that historical trauma plays in this cycle, both as a likely originator of stress and an element of American Indian life that compounds other stressors. Contemporary challenges facing American Indian adolescents, including a brief overview of the Indian mascot issue provides insight into the extent of American Indian adolescent

marginalization in American society today. An examination of Inupiat narratives will link colonialism, adolescent decisions, and obesity and diabetes.

Contemporary Trauma

The extraordinary number of challenges facing American Indian adolescents is evident in quality of life statistics. (See Table 1) These numbers reflect both the “outcomes” and damages caused by living in a certain environment, and at other times function as an additional layer of stressors. American Indian adolescents are more likely than other groups to be born into poverty, witness and or victimized by a traumatic assault, and exposed to the consequences of alcohol and drugs all before they turn eighteen. These difficult life circumstances affect their quality and outlook on life during the most crucial time in their psychological, physical, and spiritual development.

Table 1: American Indian Quality of Life Statistics			
American Indians and Alaska Natives die at higher rates than U.S. all races rate¹⁸⁴			
Alcoholism		514% higher	
Diabetes		177% higher	
Unintentional injuries		140% higher	
Homicide		92% higher	
Suicide		82% higher	
Tuberculosis		500% higher	
Obesity ages 6-17¹⁸⁵			
American Indian	African American	Latino/Mexican American	European American
26% 39% (boys, highest of all groups)	20%	19%	16%

¹⁸⁴ U.S. Department of Health & Human Services Indian Health Service, "IHS Fact Sheets Indian Health Disparities," <http://www.ihs.gov/PublicAffairs/IHSBrochure/Disparities.asp>.

¹⁸⁵ Center for Disease Control and Prevention, "Overweight and Obesity," <http://www.cdc.gov/obesity/data/trends.html>.

Poverty ¹⁸⁶		
American Indian	Non-Hispanic Whites	
28%	9.9%	
Poverty rate among American Indian/Alaska Native families with children under 18 ¹⁸⁷		
AI/AN	U.S. general population	
27%	15%	
Poverty rate American Indian families on reservations or trust land ¹⁸⁸		
36%		
Education ¹⁸⁹		
	American Indian	U.S. general population
High school diploma	71%	80%
Bachelor's degree	11.5%	24.4%
16- to 24-year-olds who are out of school and who have not earned a high school diploma or GED (drop out rates) ¹⁹⁰		
AI	Non Hispanic whites	
15%	6%	
American Indian Violent victimization aged 18-24 ¹⁹¹		
Highest per capita rate of violence of any racial group	1 violent crime for every 4 American Indian aged 18-24	
Rates of violence in every age group are higher among American Indians than all other races		
American Indian Violence Victimization more than twice the National rate ¹⁹²		
American Indian	U.S. general population	
124 per 1000	50 per 1000	

Poverty and unemployment are extremely high in American Indian communities. (See

Table 1) The lack of resources in the most materialistic, capitalist society in the world is a

¹⁸⁶ U.S. Department of Health & Human Services, "The Office of Minority Health," <http://minorityhealth.hhs.gov/templates/browse.aspx?lvl=2&lvlID=52>.

¹⁸⁷ National Center for Educational Statistics, "Status and Trends in the Education of American Indians and Alaska Natives: 2008".

¹⁸⁸ Ibid.

¹⁸⁹ Ibid.

¹⁹⁰ Ibid.

¹⁹¹ Bureau of Justice Statistics. U.S. Department of Justice, "AI/ANs and crime," <http://bjs.ojp.usdoj.gov/content/pub/pdf/aic.pdf>.

¹⁹² Ibid.

frustrating existence for young teenagers who are routinely targeted with advertisements for high tech phones, trendy clothes, and a wide variety of entertainment options. For families struggling to meet basic needs, children witness firsthand the attempt by parents to provide. The realization that they have less as far as material wealth, and seeing their own parents' struggles can weigh heavy on young people and contributes to their stress level. Adolescents feeling obligated to help the family situation may take on more responsibility, detracting from more healthy forms of activities that promote their physical, intellectual and spiritual development. American Indian adolescents have many barriers that keep them from high achievement in school and participating in structured physical activity. Vital health behaviors promoting a higher quality life are not realized.

American Indian people of all ages are exposed to repeated losses throughout their lives. Each trauma builds upon the last, taking an emotional and physical toll on the individual, the family, and the community. Early, unexpected, and traumatic deaths remain fixated within the community consciousness, leaving an uneasiness that more trauma will likely occur.

American Indian deaths due to injuries, accidents, suicide, homicide, and firearms exceed the U.S. all-races rate by at least two times, those due to alcoholism exceed the U.S. all races rate by seven times.¹⁹³ (See Table 1) Data also shows American Indian children are more likely to be killed in a motor vehicle accident, to be hit by a car, to commit suicide or to drown than either African Americans or whites.¹⁹⁴ Children who are killed in these situations represent only a small portion of those who experience it, many more survive these traumatic events and it

¹⁹³ Sarche and Spicer, "Poverty and Health Disparities for American Indian and Alaska Native Children."

¹⁹⁴ Ibid.

becomes a significant source of trauma in their life.¹⁹⁵ American Indian adolescents and children witness a high incidence of trauma among their family and friends, exposing them to trauma both as direct victims and as bystanders.¹⁹⁶

In one population of American Indian adolescents, 96% of children had witnessed at least one traumatic event and 75% had some symptoms of Post Traumatic Stress Disorder.¹⁹⁷ As stated in chapter two, American Indian children between the ages of 12-19 are more likely than their non-American Indian peers to be the victims of both serious violent crime and simple assault.¹⁹⁸ Non-American Indians perpetrate more violence on American Indians than do American Indians on one another.¹⁹⁹

No statistics speak more to their suffering than a suicide rate among 15-24 year olds that is the highest of any group within the U.S.,²⁰⁰ and the second leading cause of death for those aged 15-34.²⁰¹ (See Table 1) American Indian adolescents also have some of the highest rates of mental health and substance abuse disorders.²⁰² Suicide is the most extreme path to dealing with external and internal pressures. Many more American Indian adolescents cope by drinking and using illegal drugs. American Indian youth are more likely than non-Indian youth to have substance abuse problems, including starting to drink at earlier ages, drinking more

¹⁹⁵ Ibid.

¹⁹⁶ Ibid.

¹⁹⁷ Morsette Aaron, "Trauma in American Indian Communities,"

<http://www.giftfromwithin.org/html/amindian.html>.

¹⁹⁸ Sarche and Spicer, "Poverty and Health Disparities for American Indian and Alaska Native Children."

¹⁹⁹ Evans-Campbell, "Historical Trauma in American Indian/Native Alaska Communities."

²⁰⁰ Jessica R. Goodkind et al., "Promoting Healing and Restoring Trust: Policy Recommendations for Improving Behavioral Health Care for American Indian/Alaska Native Adolescents," *American Journal of Community Psychology* 46, no. 3/4 (2010).

²⁰¹ Center for Disease Control and Prevention, "Suicide Data Sources,"

<http://www.cdc.gov/ViolencePrevention/suicide/datasources.html>.

²⁰² Goodkind et al., "Promoting Healing and Restoring Trust: Policy Recommendations for Improving Behavioral Health Care for American Indian/Alaska Native Adolescents."

heavily, using drugs in combination with alcohol, and experiencing negative consequences.²⁰³

The same burdens that cause negative coping mechanisms also contribute significantly to the American Indian obesity and diabetes epidemics. And recent statistics for obesity and diabetes among American Indian youth confirm the existence of these epidemics.

American Indian youth are disproportionately obese. Statistics show 26% of those aged 6-17 are obese compared to 20% of African-American, 19% of Mexican-American, and 16% of non-Hispanic whites.²⁰⁴ (See Table 1) The obesity prevalence for American Indian male youths alone is 39%.²⁰⁵ (See Table 1) From 1990-2001, type II diabetes prevalence increased 106% in the 15-19 year old American Indian/Alaska Native populations.²⁰⁶

The highly elevated amount of psychosocial stress faced from these telling statistics, along with the additional burden of historical trauma factors, when examined within Scheder's "physiology of oppression" framework, potentially sets them on a trajectory for obesity and diabetes.

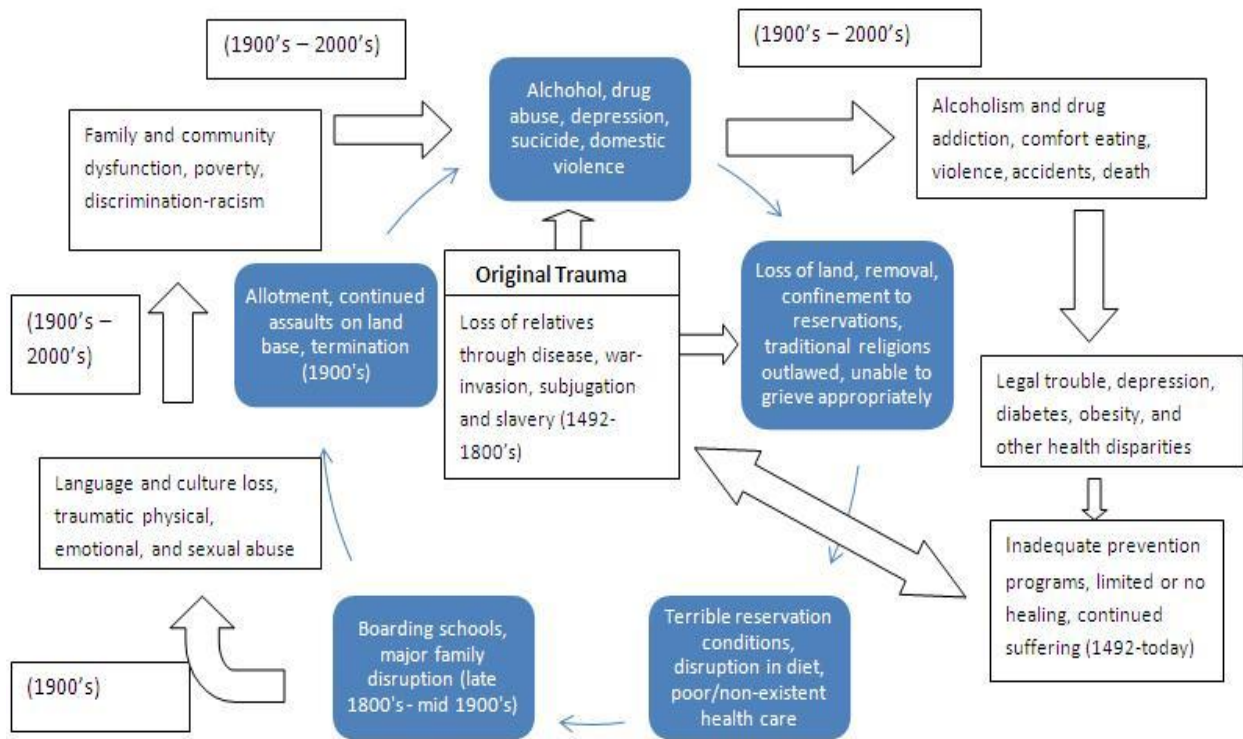
²⁰³ Ibid.

²⁰⁴ Sonia Caprio et al., "Influence of Race, Ethnicity, and Culture on Childhood Obesity: Implications for Prevention and Treatment," *Diabetes Care* 31, no. 11 (2008).

²⁰⁵ Ibid.

²⁰⁶ Acton et al., "Trends in diabetes prevalence among American Indian and Alaska Native children, adolescents and young adults."

Graph B



The next section seeks to explain the differences in the previous statistics and to show how these statistics demonstrate both the results of stress and, in turn function as stressors. The process in graphic B shows the relationship between stress induced decision making and poor health outcomes. For American Indians, this cycle becomes an increasingly complex and destructive one that is passed on to the next generations. High suicide rates result from a deep depression and hopelessness, existing at a disproportionately high level in American Indian

communities. Losses resulting from suicides weigh heavy on interconnected American Indian Nations and communities. The increased burden on individuals and the larger community become an added layer of stress, increasing the probability that others are going to carry more pain and will need to cope in some way, likely in other unhealthy ways. The cycle continues with the consequences of destructive coping mechanisms, for example, alcohol and drug abuse can lead to legal trouble, violence, accidents and death.

American Indian communities have for generations been operating in a “crisis mode” reeling from one traumatic loss after another. The dominant society has destroyed or denied access to traditional coping mechanisms and those they have offered often serve to compound the loss. Without access to healthy models of intervention to stop this cycle, it is unsurprising that many have turned to mechanisms to block out the pain. Domestic violence and alcohol and drug -abuse, are both a reaction to distress and the cause of greater distress, becoming entrenched behaviors that are passed on within families and to subsequent generations.

Although not explored in detail in this paper, alcohol abuse is an example of a behavior that has severe consequences on the causes and prevention of obesity and diabetes. Alcohol has been one of the most physically, emotionally, and spiritually destructive forces in American Indian communities. Alcoholic beverages are high in calories, with the average beer containing approximately 150 calories. Binge drinking episodes where several drinks are consumed in one setting add an enormous amount of calories to the body. Even light beers, which now account for four of the five most popular beers sold domestically,²⁰⁷ and are advertised as having only

²⁰⁷ Charles B. Stockdale and Michael B. Sauter, "Eight Products the Facebook Generation Will Not Buy," <http://finance.yahoo.com/news/eight-products-the-facebook-generation-will-not-buy.html>.

60 to 100 calories, contain a high amount of high fructose corn syrup.²⁰⁸ The rise of type 2 diabetes has closely paralleled the increase of sweeteners, particularly corn syrup. High fructose corn syrup in foods and beverages does not stimulate insulin secretion nor reduce the hunger hormone ghrelin, causing you to remain hungry while the body converts fructose into fat.²⁰⁹ Fructose also increases blood triglycerides, cholesterol, and raises blood pressure, all associated with overweight and diabetes.²¹⁰

This destructive cycle may be rooted in a realization among American Indian people that their traditional existence was no longer an option. The way of life that endured and thrived over thousands of years was suddenly at its end. The unresolved grief and relentless systematic oppression of American Indians fed the cycle. Increased assimilation and acculturation enveloped American Indians into a western Americanized culture where values and expectations changed. American measures of success increasingly influenced how American Indians viewed their own success and failure. The inability to meet these imposed expectations has led to frustration, anger, and hopelessness.

Historical Trauma

Historical trauma is central to the destructive life cycle as it impacts every aspect of American Indian life. It is a presence that has long been intuitively felt throughout American Indian Nations and is now gaining support and emerging as a concept that western science should acknowledge. The original loss of relatives through removal, massacres, diseases, and poor living conditions may have been the original grief. As discussed in previous chapters, the

²⁰⁸ M. Cullmann, A. Hilding, and C. G. Östenson, "Alcohol consumption and risk of pre-diabetes and type 2 diabetes development in a Swedish population," *Diabetic Medicine* 29, no. 4 (2012).

²⁰⁹ Andreas Moritz Gabriel Cousens, Jack Challem,, "High-Fructose Corn Syrup and Diabetes: What the Experts Say," http://www.naturalnews.com/026468_sugar_Amazon_corn.html.

²¹⁰ *Ibid.*

inability to mourn and constant pressure to assimilate left a void and altered their history and natural life trajectories, this has never been recovered.

The intergenerational transfer of historical trauma to adolescents today is evident in several ways. For one, stories passed down from those who experienced the original trauma become imbedded in family and community conversations. These stories connect adolescents to their ancestors and elicit a range of emotions such as sadness, grief, and anger. Two, the boarding school experience deprived at least two generations of affective parenting skills. These children were raised without the benefit of culturally normative role models.²¹¹ Boarding schools were physically, emotionally, and sexually abusive and destructive. American Indian children were damaged through this experience, stripping away their ability to raise their own children in a traditional American Indian context.²¹² The result has led to dysfunctional American Indian communities where traditional family structures are in distress. American Indian families today may be unable to communicate feelings and emotions, contributing to this dysfunction. In many American Indian communities, the home may not be a safe or desired place to be. A lack of a stable home and family makes life difficult for children and adolescents. Life and interactions in mainstream America outside of their home reservations and communities are often perceived as hostile and can be uncomfortable for American Indians.

Always in the shadows is the realization that they are living within the country and under the government that perpetrated their holocaust. America has threatened war over human rights violations in foreign countries, yet here in their own backyard; American Indians are often relegated to the outskirts of society and must constantly lobby for their own justice.

²¹¹ Yellow Horse Brave Heart, "The American Indian Holocaust: Healing Historical Unresolved Grief."

²¹² Ibid.

The recent capture and execution of Osama Bin Laden, one of the most wanted men in American history, was carried out under the operational name “Geronimo”. This mission was a reminder to American Indian people that their ancestors, those who fought to preserve their way of life, were enemies of the U.S. The name “Geronimo” still represents hostility and a unified permission for violence towards an enemy of the American way of life. A reference intended to unite America, further marginalizes and confuses young American Indians. The public schools speak of the United States as the “land of the free”, the “cradle of democracy” and the source of freedom, rights, and liberty; of how the settlers developed the lands – lessons that are unspeakably at odds with their own history. Lessons that taught how America was a land that welcomed and protected all religions – while destroying and imprisoning Indians who practiced their own religions.

For American Indians, these were not lessons or truths that promoted feelings of pride and idealisms, but lessons that produced rage over the *lack* of truth, grief, shame, and feelings of hopelessness, powerlessness, and inferiority. Where to take these feelings? The colonizer was everywhere – there was no safe place to retreat. Spiritual practices used for centuries to manage grief and losses were outlawed by the colonizer. This unresolved grief is associated with shame, helplessness, powerlessness, feelings of inferiority, and identity disorders.²¹³

In American society today, American Indian adolescents may be reluctant to discuss or share opinions that put America in a negative light. Their ability to “fit in” would be compromised and would further marginalize them. American Indian adolescents might feel it’s best to just “leave it alone” in order not to stand out, internalizing their frustration. Without a

²¹³ Ibid.

place or means to relieve their rage, frustration, and pain, many turned it inward. As Indigenous people have always understood, but as western medicine is only beginning to understand, pain that is internalized will find its own way of expression – through suicide, drugs, alcohol, overeating, and other negative coping mechanisms.,

As discussed in chapter three, responses to historical trauma includes substance abuse, suicidal thoughts and gestures, depression, anxiety, low self-esteem, anger, and difficulty recognizing and expressing emotions.²¹⁴ Emotional responses such as anger/avoidance and anxiety/depression impede adolescent development by limiting their exposure and the experience of healthy behaviors. For example, an avoidance of sports teams or social clubs in school greatly diminishes the ability to gain social skills, learn ways to exercise that develop into lifelong habits, and build self-esteem. The impact of historical trauma on American Indian adolescent health and well being is most evident in the high rates of suicide and substance abuse. This occurrence, exhibited in graph B, allows the cycle to continue its destructive course. As subsequent generations are born into this cycle, contemporary events build on and contribute to their marginalization and the psychological stress burden.

The colonial trauma response (CTR), discussed in the previous chapter, is the interaction of historical trauma and contemporary trauma and likely occurs frequently in American Indian adolescent life. Inter-racial violence and racism-discrimination connect adolescents to challenges faced by ancestors. Low socio-economic status is a constant reminder of loss.

The loss of the original culture across many American Indian Nations leaves adolescents without a supportive network that can secure their identity and heal. Many American Indian

²¹⁴ Yellow Horse Brave Heart, "The historical trauma response among natives and its relationship with substance abuse: A Lakota Illustration ".

adolescents today are more likely than ever to be out of touch with the traditional teachings, religions, ceremonies and beliefs of their tribal nations. Many are immersed in the mainstream American culture and environment, where there is no interaction with those who still hold on to these traditional ways of life. American Indian epistemologies hold that having a connection with the earth, done through the practice of ritual prayer, song, and dance places them in harmony with the earth, bringing balance and harmony within.²¹⁵ Harmony is necessary for the maintenance of good health and healing. The absence of spirituality among a People whose life was once centered on it leaves them vulnerable and unable to deal effectively with the heavy burdens of American Indian life. American Indian adolescents must contend with a society who does not fully understand them or necessarily feels a need to. Discussion of atrocities committed upon American Indian people in the name of “progress” that built the infrastructure of this country makes non-American Indians uncomfortable and even defensive.

There is a lack of positive and authentic representation in popular media of American Indians and the challenges they face. American Indians are reminded of their marginalized existence as a people and as a culture during social interactions, stereotyped movies, television, new-age religions, and even within the pageantry of the Boy Scouts of America. High schools, college, and professional teams continue to use American Indian mascots and representations of the culture. The “Redskins”, “Chiefs”, and the “Fighting Sioux” are examples of professional and collegiate mascots. The antics performed by these mascots degrade American Indian culture and ceremonies, along with chants misrepresenting traditional tribal songs; this scene pervades throughout sports arenas across America. These acts are popularly embraced by the

²¹⁵ Lewis Mehl-Madrona M.D., *Coyote Medicine Lessons From Native American Healing* (New York, NY: Simon & Schuster, 1997).

mainstream American culture, despite protest and a recent initiative by the NCAA²¹⁶ to sanction schools whose mascot portrays American Indians.²¹⁷ A study has suggested that American Indian mascots are harmful to American Indian youth because they are reminders of the limited way others view them and therefore, constrain how they see themselves.²¹⁸

On the other hand, African-Americans are highly visible in the social media and civil rights issues on their behalf for the most part have been popularly defended by American society. A professional sports franchise or collegiate team calling themselves the “blacks” with accompanying distorted African tribal songs and plastic spears would lead to protest and almost certain backlash from media and society. Yet, American Indians and its youth witness these acts that are permitted every weekend of the sports calendar. American Indian adolescents likely encounter “tense” situations on a daily basis where they are met with indifference for their contemporary issues and rights. Many American Indian adolescents are highly acculturated, yet may still feel marginalized by American mainstream society. At the same time, there is a disconnection from their tribal community where mainstream American values conflict with those of their tribal nations.

Health Consequences

Biomedical models of diabetes causation, discussed in the chapter one Introduction, focus almost entirely on diet and physical activity. However, this paper suggests that poor diet, overeating, and the lack of motivation for physical activity are a possible response to depression or high stress. Poor diet and lack of physical activity alone is not to be blamed,

²¹⁶ National Collegiate Athletic Association

²¹⁷ Stephanie A. Fryberg et al., "Of Warrior Chiefs and Indian Princesses: The Psychological Consequences of American Indian Mascots," *Basic & Applied Social Psychology* 30, no. 3 (2008).

²¹⁸ *Ibid.*

rather it is the historical trauma and socio-political factors that cause pain, and to ease pain, American Indians find comfort in food and are unmotivated to exert themselves in any physical way. Diet and lack of exercise become a significant factor because of the oppressive social environment. If poor diet and physical inactivity were as significant a factor in the prevalence of diabetes as many claim, American Indian rates would arguably be similar to lower socio-economic status whites. A poor diet is often “comfort eating”, and emerges because of oppressive social environments; food is used as a coping tool like alcohol and drugs.

The current experiences of young American Indian people are filled with tension created and fostered by colonization.²¹⁹ The connection between colonialism and the ongoing struggle with overweight/obesity and diabetes in American Indian Nations may be understood by examining what Lisa Wexler, Ph.D. calls a “colonial consciousness”. Wexler articulates ways that colonial discourses affect young people’s self-conceptions, perceived choices, and consequently, their behavioral health.²²⁰ Her examination provides a framework for American Indian adolescent fear, anxiety, anger, and the hopelessness that lead to high rates of suicide, alcoholism, and drug abuse in these communities. The same concept might be considered in behaviors such as overeating, eating poorly, and physical inactivity. Overeating among adolescents has been shown to be associated with negative psychological experiences,²²¹ and

²¹⁹ Lisa Wexler, "Identifying Colonial Discourses in Inupiat Young People's Narratives as a Way to Understand the No Future of Inupiat Youth Suicide.(Brief article)," *American Indian and Alaska Native Mental Health Research: The Journal of the National Center* (2009).

²²⁰ Ibid.

²²¹ Diann M. Ackard et al., "Overeating Among Adolescents: Prevalence and Associations With Weight-Related Characteristics and Psychological Health," *Pediatrics* 111, no. 1 (2003).

as already discussed it may be more preferable to the other more destructive coping mechanisms that deal with intense unremitting stress.²²²

American Indian adolescents see an undesirable future because they have been taught to understand their past and present through western ideologies. They see the struggles of their family members and community as personal and collective failings, not the result of oppressive belief systems and structures.²²³ Structures in school systems and additional exposure to western values and forms of social control through educational programming have imposed new categories of personhood on young American Indians.²²⁴ As young people become more attuned to prescribed ideas of what is “cool” or what it is to be successful, traditional activities and lifeways (e.g. gathering cultivating traditional foods) may seem unappealing. The increasing Americanization of the most remote reservations and American Indian settlements and communities has changed traditions. Traditional worldviews may lack compelling emotional and ideological power for young people,²²⁵ at the same time; environment and lifestyles portrayed in popular media and in surrounding mainstream communities do not resemble their own. Young American Indians may seek to emulate white middle class and African-American urban youth and their consumptive patterns that exist in contrast to local realities in which they live.²²⁶ The inability to live this lifestyle because of socio-economic conditions and the social and geographical isolation of many American Indian communities can evoke a wide range of emotions and frustration.

²²² Dallman et al., "Chronic stress and obesity: A new view of “comfort food” • ."

²²³ Wexler, "Identifying Colonial Discourses in Inupiat Young People's Narratives as a Way to Understand the No Future of Inupiat Youth Suicide.(Brief article)."

²²⁴ Ibid.

²²⁵ Ibid.

²²⁶ Ibid.

The choices and actions American Indian adolescents choose are dictated by their relationships and the learning they ascertain through watching, listening, and interacting with family, community, and the environment. The socialization practices of the Inupiat, similar to many other American Indian tribes emphasize an awareness of others, their relations and the broader contexts within which people act.²²⁷ The perception and response to this environment determines a person's situational conduct. Departing from peers can be more unacceptable than following their lead and making "bad choices."²²⁸ Research has shown that conformity through shared opinions light up reward centers within the brain bringing pleasure, and has the power to influence behavior.²²⁹ A western value possibly imbedded within American Indians is that individual choice is an important part of being American; leading youth to believe individuals within their community make "bad" decisions and do not live the right way.²³⁰ As American Indian adolescents are associated with "bad decision making," many young people do not expect their destiny to be any different.²³¹

The choice to escape worries through the use of alcohol and drugs or gratifyingly high fat and high sugar foods has had a disastrous impact on health. In Wexler's examination, decisions about drinking and the internalized frustration contributing to suicide are directly influenced by social norms created from dysfunctional families and communities. Alcohol has caused a severe disruption in American Indian families and communities; however, refusing to drink with friends and family members can lead to conflict.

²²⁷ Ibid.

²²⁸ Ibid.

²²⁹ Time, "Why We Conform to the Group: It Gets Your Brain High," <http://healthland.time.com/2010/11/04/why-we-conform-to-the-group-it-gets-your-brain-high/>.

²³⁰ Wexler, "Identifying Colonial Discourses in Inupiat Young People's Narratives as a Way to Understand the No Future of Inupiat Youth Suicide.(Brief article)."

²³¹ Ibid.

An important American Indian value is that people should not strive to be better than others and thus cause others to lose face.²³² Inupiat youth narratives of family chastisement included family members saying such things as, “You think you are better than us?” or “You should try it first with family”.²³³ Those who choose to stay sober or who would strive for success in school or athletics may be ostracized by their peers and family for standing out, keeping them from attempting or underachieving in order not to draw attention. Similar responses may be drawn from attempts to eat healthy and or exercise. In this environment, an adolescent’s desire to eat healthier may be met with disdain in communities where healthier food options such as fresh fruits and vegetables are not readily available and/or expensive. The subordinate role of adolescence does not allow them to question parental or school authority. Lack of agency both at home and in a school environment can be extremely frustrating for adolescents.

Wexler attributes young Inupiat suicide to feelings of hopelessness and the despair of colonized people. It is a struggle to meet or never meet imposed western ideas of success. American Indian adolescent ideas about themselves, their families, and communities are negatively affected by the cultural conflicts between their tribal nations and western expectations and values. The narratives of Inupiat youth condemned individuals for their lack of success without implicating the colonial forces that have led to this outcome.²³⁴ Wexler states,

The dominant culture is able to situate young people’s ideas, making Western understandings the standard by which they (harshly) judge their world. These imposed notions also establish the criteria youth believe they have to follow to achieve success,

²³² MD Irving N. Berlin, "Suicide among American Indian Adolescents: An overview," *Suicide & Life-Threatening Behavior* 17, no. 3 (1987).

²³³ Wexler, "Identifying Colonial Discourses in Inupiat Young People's Narratives as a Way to Understand the No Future of Inupiat Youth Suicide.(Brief article)."

²³⁴ Ibid.

*and the “best way”—making good individual choices—even though they have a sense of shared destiny. This untenable situation leads many to feel like they have reached an existential dead end.*²³⁵

These emotions may also lead to overeating and eating poorly and as previously discussed in chapter three, may be both a slow suicide and coping mechanism. Overeating among adolescents has been shown to be associated with negative psychological experiences.²³⁶

This chapter has suggested the impact of the legacy of colonization and historical trauma and it’s aggravation of a staggering amount of current life stress in American Indian adolescence is a substantial factor contributing to obesity and diabetes among American Indians. Current oppressive environments are reminders of historical loss, intensifying stress levels and leading to behaviors that contribute to obesity and continue to feed a diabetes epidemic in American Indian Nations and communities. A colonial consciousness, likely varying individually among adolescents is at the worst, clouded in despair and hopelessness. This conscious is torn between traditional tribal and western values systems that have confused identities affecting their perception of stress and decision making, leading to behaviors that contribute to unhealthy weights and diabetes.

Stress works against American Indian adolescents in two ways. Bio-chemical reactions to stress have been hypothesized as a variable in diabetes and two, the reaction to stress influences a number of negative lifestyle choices and behaviors. Substance abuse and overeating are significant to the destructive cycle and contribute exponentially to the obesity and diabetes epidemics. Stress is perhaps more intense for American Indians in adolescent

²³⁵ Ibid.

²³⁶ Ackard et al., "Overeating Among Adolescents: Prevalence and Associations With Weight-Related Characteristics and Psychological Health."

years where in the recent past, the detrimental impact on health has not been apparent until middle age. The national childhood obesity epidemic may have been the tipping point that has led to earlier diagnosed diabetes cases in American Indian adolescents. A national obesity epidemic plaguing America has disastrous consequences for American Indians who were already more likely to be overweight and obese across all ages.

There is a glaring need for American Indian adolescent obesity and diabetes interventions that go beyond diet and exercise education. Prevention programs that address the anger, anxiety, and hopelessness within the lived experience of today's American Indian adolescents may help slow the increasing prevalence of obesity and diabetes in American Indian communities. The next chapter examines federal policies and legislation that have created and shaped American Indian healthcare services and diabetes prevention programs.

Chapter 5

History of American Indian Health Care and Creation of Diabetes Programs

The purpose of this chapter is to examine the federal and tribal responses to the diabetes epidemic. Hundreds of prevention programs have been established throughout American Indian Nations and communities. This chapter first examines the American political climate that has limited the resources as well as the urgency to address American Indian health problems. The focus then turns to the federal policies and legislative acts that have shaped the American Indian healthcare system and established the Indian Health Service (IHS). The chapter then discusses the emergence of diabetes as an epidemic among the Pima Indians and how the prevention strategies that evolved from this crisis formed the first models used to address the diabetes epidemic among American Indian nations. Over time a complex web of organizations, funding, and legislation supporting American Indian diabetes prevention programs emerged, culminating in two major federal programs, Special Diabetes Program for Indians (SDPI) and the Native Diabetes Wellness Project (NDWP). The chapter ends with case studies of the diabetes prevention programs and initiatives of the Prairie Band Potawatomi and the Eastern Band of Cherokee Nations. The case studies demonstrate how two American Indian Nations are addressing the obesity and diabetes epidemics in their communities.

There are huge inequalities in health status for American Indians despite the fact that they are the only population born with a legal right to health care in the United States.²³⁷ As the previous chapters have demonstrated, federal policies are responsible for the poor health that American Indian people have experienced in the 1800's, 1900's and today.

²³⁷ Donald Warne, "The state of indigenous America series: ten Indian health policy challenges for the new administration in 2009.(Report)," *Wicazo Sa Review* 24, no. 1 (2009).

It has been estimated that violence and foreign disease had killed at least 90 % of all Indigenous populations from the early sixteenth century up to the twentieth century.²³⁸ Following exposure to European contagious diseases, devastating epidemics of smallpox, measles, cholera, and tuberculosis threatened the existence of whole tribes.²³⁹ Federal policies of removal and the clearing of land for “progress” and agriculture were devastating to American Indian health. Gregory R. Campbell characterizes the medical history of American Indians as an ‘unnatural history of disease’. The change was unnatural because the natural trajectory of American Indian health and epidemiology within American Indian societies was forcefully altered as a result of European contact.²⁴⁰

American Indian health disparities have endured in part to a poorly funded and a slow to evolve healthcare system. The federal governments neglect to address the well-being of extremely vulnerable “survivors” of colonization added to their trauma. The devastation of removal and the total disruption of a way of life exposed American Indians to terrible living conditions. Compounded by the absence and quality of health services, the health status of American Indians was horrific compared to that of whites. David DeJong’s²⁴¹ critical examination of federal efforts to provide health services reveals that health care provided to American Indians during the nineteenth and twentieth century was overwhelmingly “curative and crisis oriented”. He cites the persistence of health disparities as a result of a forced culturally insensitive health care system. Valuing assimilation and biomedicine, white health

²³⁸ Waziyatawin Angela Wilson and Michael Yellow Bird, *For Indigenous Eyes Only A Decolonization Handbook*.

²³⁹ Ibid.

²⁴⁰ Gregory R. Campbell, "The Changing Dimension of Native American Health: A Critical Understanding of Contemporary Native American Health Issues " *American Indian Culture and Research Journal* 13, no. 3, 4 (1989).

²⁴¹ David H. DeJong, *"If you knew the conditions." A chronicle of the Indian medical service and American Indian healthcare 1908-1955* (Lexington Books, 2008).

officials and policy makers made little or no effort to understand American Indian beliefs or understanding of health and disease.²⁴² Western health officials' belief in a linear progression model left no room for ambiguity or syncretism.²⁴³ Emily K. Abel and Nancy Reifel in their essay "*Interactions between Public Health Nurses and Clients on American Indian Reservations during the 1930's*" documented letters, memoirs, and monthly and annual reports to Washington. Nurses armed with scientific 'truths' dismissed American Indian beliefs as arbitrary and bizarre.²⁴⁴ Nurses frequently described American Indians they worked with as 'ignorant, 'primitive', 'prejudiced', and 'superstitious'.²⁴⁵ Any improvement in health status would need a system defined from the bottom up, designed to fit the lived experience of American Indian people.²⁴⁶

Federal policies have dictated the medical structures in place in American Indian Nations and communities; these policies support the systems that ignore American Indian problems and have helped create a society that oppress American Indian people, leaving them vulnerable to a wide array of health problems. At several points in the federal-tribal history, federal policies fostered malnutrition and led to conditions conducive to the spread of disease. Assimilation polices outlawed traditional healing and forced American Indians to accept a system more concerned with their integration or eradication than the increasing mortality within American Indian Nations. The Boarding School era further destroyed traditional family structures, leaving

²⁴² David DeJong

²⁴³ Emily K. Abel and Reifel Nancy, "Interactions between Public Health Nurses and Clients on American Indian Reservations during the 1930s," *Social History of Medicine* 9, no. 1 (1996).

²⁴⁴ Ibid.

²⁴⁵ Ibid.

²⁴⁶ Ironically, the latest research which western medicine is now only beginning to understand resounds with Indigenous epistemologies some still consider as ignorant and superstitious, the importance of mind/body interactions on health.

its' own legacy of psychological damage. The Termination era rhetoric in the 1950's and early 60's further exposed an American sentiment that American Indians were a burden on America and that the U.S. government intended to relieve themselves all together of their trust responsibility. This was a cause for anxiety and panic and a reminder that the United States government still dominated them. Today, despite federal promises to the contrary, the federal government has failed to provide necessary structures, funds, and commitment needed to overcome these early policies. The United States Commission on Civil Rights Report attributes the current health and illness disparities to these policies and states the following:

This is the result of the nation's lengthy history of failing to keep its promises to Native Americans, including the failure of Congress to provide the resources necessary to create and maintain an effective health care system for Native Americans...and cultural, social, and structural barriers continue to exist and limit Native American access to health care
²⁴⁷

Inadequate funding has defined healthcare for American Indian nations, severely restricting progress. In the 2005 federal budget, per capita expenditures for IHS were \$2,130, a fraction of the federal funding for other health care programs such as Medicare (\$7, 631), Veterans Administration (\$5,234), Medicaid (\$5,010), and even the Bureau of Prisons who provide \$3,985 per inmate.²⁴⁸

Warwick Anderson in his article "The Colonial Medicine of Settler States: Comparing Histories of Indigenous Health" sees difficulty for dominant societies to invest seriously in people whose existence is a reminder of the illegitimacy and violence that their nation was

²⁴⁷ United States Commission on Civil Rights Report to Congress (2004). Broken Promises: Evaluating the Native American Health Care System. Retrieved April 4, 2011 from <http://www.usccr.gov/pubs/nahealth/nabroken.pdf>

²⁴⁸ Warne, "The state of indigenous America series: ten Indian health policy challenges for the new administration in 2009.(Report)."

founded upon.²⁴⁹ Sovereignty and self-determination issues raised by tribes exhibit their intentions to remain a distinct people, evading a complete assimilation. Dominant societies are more comfortable intervening to correct health disparities the more readily they recognize sufferers as similar to ordinary white citizens.²⁵⁰ American Indians have not been a high priority, evident in the severe underfunding of American Indian programs that affect the facilities, staff, and services provided to American Indians.

Cost limitations make advanced technology offered by numerous medical specialties unavailable to American Indians. For example, once-a-day medications for diabetes are not on the medication formulary in many IHS facilities simply because of the cost.²⁵¹ The once-a-day dose has been shown to be more effective than 2-3 daily doses of a similar drug needed for the same affect that are typically available at Indian Health Service.²⁵² Lack of funding also limits the amount of qualified health care professionals at facilities and makes it difficult to recruit and retain health professionals in a competitive hiring market. The isolated rural areas where many American Indian health facilities are located makes it unappealing to many outside of these communities, keeping a full staff is a challenge. Not only has the Indian Health Service and tribal programs been underfunded throughout the end of the twentieth and twenty first centuries, but American Indian programs received a greater than average funding decrease during the recession.

Other policies such as the damming of rivers and the loss of land and resources have led to significant lifestyle changes. The dispute of fishing rights between tribes and states in

²⁴⁹ Anderson, "The Colonial Medicine of Settler States: Comparing Histories of Indigenous Health."

²⁵⁰ Ibid.

²⁵¹ Donald Warne, "Research and Educational Approaches to Reducing Health Disparities Among American Indians and Alaska Natives," *Journal of Transcultural Nursing* 17, no. 3 (2006).

²⁵² Ibid.

Washington and in Wisconsin where heated racial violence has erupted has damaged relationships. This story pervades throughout Native America, clashes of unrest and violence between American Indians, states, and counties over resources due both to a lack of knowledge of American Indian rights to these resources, and blatant racism. A failure of court systems to uphold American Indian sovereignty and treaty rights continue the systematic oppression of American Indians. It fosters a message to mainstream society that American Indian justice is of little importance today. It forces American Indians to constantly fight for rights and recognition. Fewer freedoms along with discrimination worsen health disparities.²⁵³

The government's lack of adequate health care to American Indians has had a much greater impact on health than genetics or other physical causes of the disease.²⁵⁴ Because traditional American Indian healing methods were outlawed,²⁵⁵ American Indians were left no choice but to endure disease and suffering while American Indian health policy slowly evolved. Traditional healing targeted spiritual imbalances and its impact on the physical body. The imbalances were entirely the result of the forces of colonization. Confinement to reservations left American Indians to squalor in dismal conditions for decades. Malnutrition, poor or non-existent medical assistance and treatment for infectious diseases led to thousands of deaths. Crooked superintendents appointed to look after the "well-being" of American Indians on reservations stole and withheld money, food, and materials earmarked for American Indians, creating even greater hardships.

²⁵³ Warne, "The state of indigenous America series: ten Indian health policy challenges for the new administration in 2009.(Report)."

²⁵⁴ Ibid.

²⁵⁵ Robbins J.A. Dewar J., "Traditional Indigenous Approaches to Healing and the modern welfare of Traditional Knowledge, Spirituality and Lands: A critical reflection on practices and policies from the Canadian Indigenous Example. ," *The International Indigenous Policy Journal* 2, no. 4 (2011).

The federal government's provisions of health care to American Indians, like all federal policies, were the result of laws fashioned more for the non-Indian than for Indians. Rather than analyzing tribal need and legal rights and developing programs suitable for tribal cultures, federal health care for tribes' today results from a series of hastily passed congressional laws.

For example, the first priority of the federal government was to prevent communicable diseases and to speed up the assimilation process of American Indian (traditional healing to western medicine).²⁵⁶ The original act of health care service provided to American Indians were smallpox vaccinations given to tribal nations living on or near American military forts.²⁵⁷ Although Congress transferred responsibility for tribes, including American Indian health from the War Department to the Bureau of Indian Affairs (BIA) in 1849, decades passed before any other significant steps were taken.²⁵⁸

In 1867 and again in 1910, Congress and the American public received externally commissioned reports detailing the extreme health conditions of the tribes. The horrible health conditions, evident by the extremely high death rate and infant mortality rate reported in the 1867 Peace Commission Report²⁵⁹ and later the Valentine Report in 1910²⁶⁰ should have opened eyes. Instead, it would be decades before any substantial resources would be appropriated by the U.S. government for American Indian healthcare. Relatively little change

²⁵⁶ An article by Judith Thierry, George Brenneman, Everett Rhoades, and Lance Chilton, provides an outline and demonstrates how wording within legislative acts form the foundation for health care delivery to AMERICAN INDIANS.

²⁵⁷ Judith Thierry, "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children," *Pediatric Clinics of North America* 56, no. 6 (2009).

²⁵⁸ Ibid.

²⁵⁹ Benjamin Franklin Republican Butler and U. S. Congress. House. Committee on Appropriations, "Support of Indians. February 22, 1869. -- Ordered to be printed, and committed to the Committee of the Whole House on the State of the Union," (1869).

²⁶⁰ University of Wisconsin Digital Collections, "United States. Office of Indian Affairs / Annual report of the commissioner of Indian affairs, for the year 1910 ([1910])," (2010).

occurred in American Indian health policy during the period between the General Allotment Act of 1887 and the 1934 Indian Reorganization Act.²⁶¹ However, towards the end of this period, two events would help shape future American Indian health policy.

In 1921, Congress passed the Snyder Act²⁶² which became the principle legislation authorizing federal funds for American Indian health services. The Act's brief language contained three points which would greatly impact American Indian health policy and distinguish the Indian Health Service from other federal programs.²⁶³

*The Bureau of Indian Affairs shall expend such moneys as the Congress from time to time may appropriate ... for the benefit, care and assistance of Indians throughout the United States ... for the relief of distress and conservation of health ... and for the employment of physicians*²⁶⁴

Rather than establishing a fully funded and developed Indian health care program, the Act gave the BIA the authority to, "... expend such moneys as the Congress from time to time may appropriate ...," Indian health services are discretionary rather than entitled like other federal programs.²⁶⁵ The BIA essentially operated under a funding cap forcing strict attention to priorities in planning for health programs. A second point to be made from the language, "... of Indians throughout the United States ..." lacks a clear definition of who is eligible for federal

²⁶¹ Thierry, "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children."

²⁶² *An Act: Authorizing appropriations and expenditures for the administration of Indian affairs, and for other purposes*, P.L. 67-85.

²⁶³ Thierry, "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children."

²⁶⁴ *An Act: Authorizing appropriations and expenditures for the administration of Indian affairs, and for other purposes*.

²⁶⁵ Thierry, "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children."

health services.²⁶⁶ Congress authorized care for Indians regardless of their location of residence.²⁶⁷

A final point out of the language, "...for the relief of distress and the conservation of health ...", allowed program planners to build programs unlike any for the general population.²⁶⁸ Emphasis was placed on health promotion and wellness, and prevention. Subsequent programs included making home visits, reporting communicable diseases, inspecting water supplies, and examinations of students at the beginning of the school year.²⁶⁹

Seven years later, the 1928 Merriam report, a major study commissioned by the federal government, indicated little advancement in health care had occurred. The Merriam Report highlighted the poor health status of American Indians when compared to the U.S. general population, citing the lack of federal appropriations that severely limited the amount and quality of health staff and equipment. The report further pointed to the poor living conditions, including diets severely lacking in nutritious foods, overcrowded housing, poor sanitation and no private water supply or toilet facilities as conducive to the spread of disease.

Establishment of the Indian Health Service

The Transfer Act P.L. 83-568²⁷⁰ of 1954 transferred Indian health services out of the Department of Interior to the Department of Health, Education, and Welfare.²⁷¹ In 1955,

²⁶⁶ Ibid.

²⁶⁷ The current limitations in service, such as to those residing in metropolitan areas, originates in a longstanding IHS policy of giving first priority to Indians living on or near reservations. These priorities are the result of limited resources, not congressional definition of eligibility.

²⁶⁸ Thierry, "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children."

²⁶⁹ Ibid.

²⁷⁰ *An Act: To transfer the maintenance and operation of hospital and health facilities for Indians to the Public Health Service, and for other purposes*, P.L. 83-568.

²⁷¹ Now the Department of Health and Human Services

Congress established the Indian Health Service. This took responsibility for American Indian health services out of the hands of the BIA, the administering of facilities and programs, and placed it under the direction of the Surgeon General of the United States Public Health Service (USPHS). Discussion and debate calling for a transfer had gone on for years prior to the passage of this vital legislation.

Another piece of legislation having a huge impact upon future American Indian Health policy was the Indian Sanitation Facilities Construction Act of 1959.²⁷² Initiated by the newly appointed director of IHS to address acute gastroenteritis, a cause of many deaths, particularly among children and infants, assured American Indians the availability of safe water and sewage disposal.²⁷³ The act contained policies of major importance. Section C of the act states: "the Surgeon General shall consult with, and encourage the participation of, the Indians concerned, States and political subdivisions thereof, in carrying out the provisions of this section."²⁷⁴ By requiring consultation with tribes on local programs, the act created an important partnership between tribal governments and the IHS, and helped restore the view that Congress possessed a government to government relationship with tribal nations. American Indian self-determination became more of a reality as tribes began taking on the responsibility for the operation of the water treatment facilities and had the benefit of preferential employment of local Indians.²⁷⁵ In 1976, Congress passed the Indian Health Care Improvement Act. Section 3 of the act states:

²⁷² *An Act: to amend the Act of August 5, 1954 (68 Stat. 674), and for other purposes*, P.L. 86-121.

²⁷³ Thierry, "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children."

²⁷⁴ *Ibid.*

²⁷⁵ *Ibid.*

*The Congress hereby declares that it is the policy of this Nation, in fulfillment of its special responsibilities and legal obligation to the American Indian People, to meet the national goal of providing the highest possible health status to Indians and to provide existing Indian health services with all resources necessary to effect that policy.*²⁷⁶

With passage of this act and The Indian Self-Determination Act and Educational Assistance Act of 1975²⁷⁷ the previous year, Congress signaled its intention to allow tribes greater control over the funds and the federally funded programs that controlled American Indian life. These acts sought to decrease federal domination of Indian service programs by giving American Indians the opportunity to develop leadership skills and a role in planning and implementation of programs benefiting American Indian Nations. Tribes were now in a position to oversee healthcare services provided to their tribal members. Although tribes received monetary and advisory support for the transition, ultimate responsibility for success or failure was now on American Indian tribes who chose to take control of their health services.

Along with the Snyder Act, the IHCA are major legislative acts establishing a statutory basis for health care delivery to American Indians by the Indian Health Service.²⁷⁸ The Indian Health Service (IHS) now makes health care services available to nearly two million American Indians and Alaska Natives who are members of 562 federally recognized Tribes. Health care is administered through a nation-wide system of twelve area offices and one hundred sixty one IHS and tribally managed service units. As of 2012, tribes administered more than 50% of the

²⁷⁶ *An Act: To implement the Federal responsibility for the care and education of the Indian people by improving the services and facilities of Federal Indian health programs and encouraging maximum participation of Indians in such programs, and for other purposes, P.L. 94-437. P.L. 94-437*

²⁷⁷ *An Act: To provide maximum Indian participation in the Government and education of the Indian people; to provide for the full participation of Indian tribes in programs and services conducted by the Federal Government for Indians and to encourage the development of human resources of the Indian people; to establish a program of assistance to upgrade Indian education; to support the right of Indian citizens to control their own educational activities; and for other purposes, P.L. 93-638.*

²⁷⁸ "National Indian Health Board," <http://www.nihb.org/legislative/ihcia.php>.

IHS budget through self-determination contracts or self-governance compacts.²⁷⁹ The obligation for providing healthcare to American Indian is based on the unique historical legacy of treaty obligations and the trust relationship between the sovereign nations of the U.S. and American Indian Nations.²⁸⁰

Creation of American Indian Diabetes Programs

Primary funding and programming for the majority of diabetes programs in American Indian communities comes from two federal agencies, Indian Health Service and the Center for Disease Control (CDC). As previously noted, diabetes was rare among American Indian populations before the 1940's and 1950's.²⁸¹ National recognition of an emerging diabetes epidemic began with the Pima of the Gila River community when health officials noted that the tribe had twenty one reported cases of diabetes in 1940. By 1967, the National Institute of Health had diagnosed 359 cases on the reservation and by 1977, 510 cases, a 42% increase.²⁸²

Gila River became one of five communities to receive a diabetes model program in 1979. The model diabetes programs were established by both the National Commission on Diabetes in 1979 and the Indian Health Care Improvement Act of 1976.²⁸³ These programs were designed to develop affective approaches to diabetes care, prevention, education, and have the ability to translate and develop new approaches to diabetes control. Although the programs greatly increased an understanding of diabetes, the rates of diabetes continued to rise.

²⁷⁹ U.S. Department of Health & Human Services, "Indian Health Service," <http://www.ihs.gov/index.cfm>.

²⁸⁰ Thierry, "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children."

²⁸¹ BA Broussard, "Toward comprehensive obesity prevention programs in Native American communities.," *Obesity Research* 3 Suppl 2, no. 1071-7323 (1995).

²⁸² Carolyn Smith-Morris, "Community Participation in Tribal Diabetes Programs," *American Indian Culture and Research Journal* 30, no. 2 (2006).

²⁸³ U.S. Department of Health & Human Services, "Indian Health Service".

In response to the lack of progress in lowering the rate of diabetes, Congress in 1997 established the Special Diabetes Program for Indians (SDPI) in 1997.²⁸⁴ The Act directed the Indian Health Service to pursue three objectives: establish Community-Directed Programs, Demonstration Projects, and enhance the IHS diabetes infrastructure.²⁸⁵

Community-Directed Diabetes Programs implement diabetes treatment and prevention services and programs that focus on evidence-based intervention strategies based on the Indian Health Diabetes Best Practices findings.²⁸⁶ The program is designed to support tribes' identification and development of services and activities that address their own specific local concerns and needs.²⁸⁷ The second objective is the Demonstration Projects component which seeks to prevent diabetes in high-risk individuals and prevent cardiovascular disease among those who already have diabetes. The Demonstration Projects implement the Diabetes Prevention Program (DPP) curriculum. The Diabetes Prevention Program, a major multicenter clinical research study, published their findings in the February 7, 2002, issue of the *New England Journal of Medicine*. According to the study, losing a modest amount of weight through dietary changes and increased physical activity sharply reduced the chances of developing

²⁸⁴ Originally funded through the Balanced Budget Act of 1997, it has since received augmented support through the Consolidated Appropriations Act of 2001 and House Resolution 5738 in 2004 resulting in a \$150 million a year budget. The program provides funding for diabetes treatment and prevention services to 404 IHS, Tribal, and Urban Indian health programs.

²⁸⁵ The increased funding for SDPI in 2004 was used to develop and implement projects in two specific areas, diabetes prevention in high-risk individuals (36 grant programs) and cardiovascular disease prevention (30 grant programs) in people who already have diabetes (cardiovascular disease is a serious complication of diabetes and is the number one cause of death among American Indians). Funding for these projects ended in FY 2009, however, the Diabetes Prevention Program and Healthy Heart Initiatives (DP-HHI) secured funding in FY 2010 to continue or newly implement these programs, to document activities and outcomes and disseminate information and best practices from the original Demonstration Projects.

²⁸⁶ Consensus-based approaches, developed by Indian health system professionals, that anyone in clinical and community settings can use to implement or improve diabetes treatment and prevention

²⁸⁷ U.S. Department of Health & Human Services, "Division of Diabetes Treatment and Prevention".

diabetes.²⁸⁸ The third objective to improve American Indian diabetes data collection and analysis was accomplished with the establishment of the IHS Electronic Health Record System. The introduction of this electronic patient and data management system, now used in many American Indian health care facilities has helped health care providers improve care to patients.²⁸⁹

The second federal agency with authority to conduct research and provide programming for diabetes among American Indians is the Center for Disease Control and Prevention, under the Department of Health. In 2004, the Center for Disease Control established The Native Diabetes Wellness Program (NDWP). As explained,

*The mission of the Native Diabetes Wellness Program is to work with a growing circle of partners to address the health inequities so starkly revealed by diabetes in Indian Country. With social justice and respect for Native and Western science as grounding principles, we strive to support community efforts to promote health and prevent diabetes.*²⁹⁰

The “circle of partners” with whom they collaborate include American Indian and Alaska Native communities (rural and urban), the Tribal Leaders Diabetes Committee, IHS’ Division of Diabetes Treatment and Prevention, and Head Start Program, the National Institutes of Diabetes and Digestive and Kidney Diseases, National Institutes of Health, CDC’s Tribal Consultation Advisory Committee, tribal colleges and universities, and other universities. Internally, collaborative efforts with CDC divisions, centers, and their own Division of Diabetes

²⁸⁸ U.S. Department of Health & Human Services, "National Diabetes Information Clearinghouse (NDIC)," <http://diabetes.niddk.nih.gov/dm/pubs/preventionprogram/>.

²⁸⁹ U.S. Department of Health & Human Services, "Division of Diabetes Treatment and Prevention".

²⁹⁰ "Center for Disease Control and Prevention Diabetes Public Health Resource," <http://www.cdc.gov/diabetes/projects/diabetes-wellness.htm>.

Translation work to develop programs designed to improve the health status of American Indians and Alaska Natives.”²⁹¹

Since its establishment, the NDWP has developed the Eagle Books series for children, Diabetes Education in Tribal Schools (DETS), environmental/ecological interventions, and provided traditional foods grants. A common theme among these various programs is to embrace the traditional culture; planting gardens with traditional foods, sharing messages of healthy lifestyles through dialogue between elders and youth, talking circles, and promoting traditional activities that require physical activity such as gardening.

The remainder of the chapter examines two case studies, the Prairie Band Potawatomi and Eastern Band of Cherokee Indians who have used the programs and funding from these federal programs to combat diabetes in their communities. The Prairie Band Potawatomi utilizes funds and programs developed from both the Indian Health Service’s Special Diabetes Program for Indians and the CDC’s National Diabetes Wellness Program. Primary funding for Eastern Band of Cherokee Indians diabetes programs come from the CDC’s Racial and Ethnic Approaches to Community Health 2010 (REACH 2010) funds.

Case Study: Prairie Band Potawatomi

The Great Lakes region was the aboriginal homelands of the Prairie Band Potawatomi. Generations of agricultural subsistence, lush hunting and fishing grounds, and peace with the traditional enemies of the Potawatomi, the Iroquois, had ushered in a time of great prosperity for the Potawatomi. Their social, physical, and spiritual worlds were thriving.

²⁹¹ Center for Disease Control and Prevention, "Diabetes Public Health Resource".

The Potawatomi removal from original homelands in and around the Great Lakes Region broke up the tribe into several different bands. The treaty of Chicago in 1833 saw the Potawatomi relinquish twenty-eight million acres of their homelands in the Great Lakes area.²⁹² Some fled into Canada, others hid out in the woodlands of Northern Wisconsin and the people who were to become known as the Prairie Band Potawatomi were forced by the U.S. military to walk hundreds of miles to their eventual reservation in northeast Kansas. Known as the “Walk of Death” by these Potawatomi, their only incentive was the promise of a new home away from the intrusion of the white man in their lives, and monetary compensation. These Potawatomi wished to hold on to their traditional teachings and way of life as much as possible.

The initial move west included stops in Missouri and Iowa before the final destination in Kansas was reached. Left in hiatus, without a true homeland, the Potawatomi grew dependent upon government handouts of food. Flour, lard, bacon, sugar, and syrup and other canned and processed foods became their diet along with whatever they may have been able to hunt or gather, though it was discouraged by the U.S. government.²⁹³

The environment in Kansas was much different than what their former homelands had been. The Potawatomi no longer had the woodlands and lakes that had offered a variety of nourishing foods. In their new lands, they would be forced to adapt and find other sources of food. Although they brought with them the seeds of their Indigenous plants that they had come to depend on, efforts to reestablish these crops proved difficult at first due to differences in soil

²⁹² James A. Clifton, *The prairie people : continuity and change in Potawatomi Indian culture, 1665-1965*, An expanded ed. (Iowa City: University of Iowa Press, 1998).

²⁹³ Linda Murray Berzok, *American Indian food*, Food in American history, (Westport, Conn.: Greenwood Press, 2005).

and rainfall. The establishment of their crops would take time, and in the meantime, they would continue to depend on the government handouts of food.

Between 1837 and 1846, the Potawatomi settled on their new reservation west of present day Mayetta, Kansas.²⁹⁴ Life was harsh in these early reservation years. The Potawatomi had given up much and had received little in return. Lands in the Great Lakes area, especially around Chicago, were valuable and the treaties signed should have set them up with a more comfortable existence. However, the government rarely followed through on the promises within these treaties. There was an understanding that food rations would be provided and no Potawatomi should go hungry. This was not the case. Unable to practice their traditional subsistence to the degree they were accustomed, government food was needed. Federal food rations were foreign to their bodies and generally inadequate.²⁹⁵ Added to their burden in Kansas, the Bureau of Indian Affairs superintendent's presence was a constant reminder of the loss of their former way of life and placed an added stress on an already difficult situation.²⁹⁶

The meals of the poorest Potawatomi consisted of dried beans, rice, potatoes, bread, and syrup.²⁹⁷ Cabbage, corn, tomatoes, wild berries, and grapes were available in season. About half consumed virtually no milk and several reported only having it occasionally. Most families had some type of meat with the majority eating it at least once a week. Fruit and vegetable consumption was lacking with just over half of the families consuming little or no vegetables.²⁹⁸

The diets of the poorest Potawatomi's were filled with carbohydrates which accounted for

²⁹⁴ Clifton, *The prairie people : continuity and change in Potawatomi Indian culture, 1665-1965*.

²⁹⁵ Berzok, *American Indian food*.

²⁹⁶ Clifton, *The prairie people : continuity and change in Potawatomi Indian culture, 1665-1965*.

²⁹⁷ Corbett James, "A History of the Diet of Prairie Band Potawatomi".

²⁹⁸ Ibid.

close to 80% of the total caloric intake.²⁹⁹ Protein and fats made up only about 22% of total caloric intake. Protein and fat intake increased while carbohydrates decreased in higher income households.

Physical labor was still a major part of their lives. Very few had cars in the early part of the twentieth century making walking a necessary activity. Most heated homes with wood stoves, requiring the constant cutting and gathering of wood. Those without indoor plumbing had to carry water from wells, creeks, or streams. In many ways, daily life remained simple. The full toll of the physical and psychological consequences of removal and loss had yet to be realized. There was limited contact with the mainstream society besides occasional trips to town for supplies. The exposure and immersion into western society, the foods and greater acculturative stress would change the habits, lifestyle and increase the psychological stress burden of the Prairie Band Potawatomi.

Life began to change in the late 1930's and 40's as tribal members increasingly left the reservation to work in nearby towns. Tribal members began to acquire and depend upon automobiles, bringing the Potawatomi into more contact with the local towns and the products and lifestyle of mainstream America.³⁰⁰ Working meant less time spent gardening or tending to household chores. With less time and more money, tribal members depended on food purchased from local grocery stores. Hunting, gathering, and gardening became more of a leisure activity than one of necessity.³⁰¹

²⁹⁹ Ibid.

³⁰⁰ Judy Wabaunsee, 2009.

³⁰¹ Ibid.

By the mid-1960's, the incorporation of western processed foods into the diet of the Prairie Band Potawatomi began to negatively affect the health of the community. The diet at this time was described as consisting primarily of starches like rice, bread, corn, beans, and potatoes. A consistent protein source was not available unless families raised chickens that provided meat and eggs.³⁰² As the statistics below indicate, over the next three to four decades, poor diet, reduced physical activity, and the culmination of previously discussed historical trauma and socio-political factors on health and well being became more evident.

Today there are 4,762 enrolled Prairie Band Potawatomi members, of whom 2,396 live in Kansas. In 2011, out of 2,900 patients seen at the Prairie Band Potawatomi Health Center, 338, or 11.66% were diagnosed as diabetic.³⁰³ As the charts below demonstrate, the percentage of Prairie Band Potawatomi tribal members who are either overweight or obese has remained consistently higher than both state and national general populations. (See Table 2)

³⁰² Corbett James, "A History of the Diet of Prairie Band Potawatomi ".

³⁰³ Prairie Band Potawatomi Health Center, "Diabetes Prevalence Report," (2011).

Table 2: Comparison of Potawatomi/State/National Diabetes and Obesity Rates			
Adult Obesity aged 20 and up			
<i>Year</i>	<i>Prairie Band Potawatomi</i>	<i>State of Kansas</i>	<i>U.S. general population</i>
1996	37.2% ³⁰⁴	14% ³⁰⁵	Under 20% ³⁰⁶
2010	51.7% ³⁰⁷	29.4% ³⁰⁸	35.7% ³⁰⁹
Children and Adolescent Obesity			
<i>Year</i>	<i>Potawatomi aged 2-19</i>	<i>State of Kansas</i>	<i>U.S. general population aged 2-19</i>
2010	34.6% ³¹⁰	16.2% ³¹¹ aged 10-17	17% ³¹²
Diabetes rates all ages			
<i>Year</i>	<i>Prairie Band Potawatomi</i>	<i>State of Kansas</i>	<i>U.S. general population</i>
2010-2011	11.66% ³¹³	8.4% ³¹⁴	8.3% ³¹⁵

In the mid-1990's, the tribe voted to open a casino on tribal lands with the express goal of generating revenues to compensate for the inequalities of the past. Opened in 1998, the casino revenues have allowed the Prairie Band Potawatomi to repurchase national lands within reservation boundaries, provide employment, improved infrastructure, strengthen federal

³⁰⁴ Prairie Band Potawatomi Health Center, "Risk for Overweight Prevalence Report," (1996-2010).

³⁰⁵ Center for Disease Control and Prevention, "Overweight and Obesity".

³⁰⁶ Ibid.

³⁰⁷ Prairie Band Potawatomi Health Center, "Risk for Overweight Prevalence Report."

³⁰⁸ Center for Disease Control and Prevention, "Overweight and Obesity".

³⁰⁹ Ibid.

³¹⁰ Prairie Band Potawatomi Health Center, "Risk for Overweight Prevalence Report."

³¹¹ Center for Disease Control and Prevention, "Overweight and Obesity".

³¹² Ibid.

³¹³ Prairie Band Potawatomi Health Center, "Diabetes Prevalence Report."

³¹⁴ Kaiser State Health Facts, "Kansas: Diabetes,"

<http://www.statehealthfacts.org/profileind.jsp?cat=2&rqn=18&sub=22>.

³¹⁵ American Diabetes Association, "Diabetes Basics".

programs, fund education, and improve the quality of life for all members of the nation.³¹⁶

Unemployment is down, newer and more comfortable housing options exist, and more are entering higher education programs; from the outside, the situation looks promising. More jobs, higher incomes, along with greater mobility allow tribal members more access to grocery stores with healthy foods, fitness centers, and resources like libraries. This standard of living also gives them the same access to more fast food establishments and restaurants. Gaming has also provided revenues for the construction of a new health and wellness center open to all ages, and offering a pool, weight room, cardio machines, and a basketball court.

Although great strides have been made in several areas, the obesity and diabetes epidemic has grown or remained consistently at higher rates compared to state and national rates. Determined to improve the health of tribal members, the PBP currently operates four programs from three grants. In 2004, the tribe implemented the Special Diabetes Program for Indians (SDPI) followed by the Diabetes Prevention Program (DPP) in 2005; both are administered by the tribe along with the KDHE Diabetes and Hypertension Quality of Care programs. In 2009, in collaboration with the CDC's Native Diabetes Wellness Project, the Prairie Band Potawatomi Nation was awarded a "traditional foods" grant.

Unfortunately, the tribe has experienced difficulty in maintaining participation in the various diabetes programs in the community. This difficulty stems in part to a change in the leadership at the Prairie Band Potawatomi Health Center and within the diabetes programs leaving these programs mostly dormant from late 2009 to early 2012. Without clear leadership, many participants drop out or do not complete the follow up visits after the program ends,

³¹⁶ Prairie Band Potawatomi Nation, "Welcome to the Home of the Prairie Band Potawatomi Nation," <http://www.pbpindiantribe.com/default.aspx>.

creating gaps in the data collection. In 2011, for example, out of one hundred and twelve files for diagnosed pre-diabetics, only twelve are active in the Diabetes Prevention Program.

Traditional healthy foods once consumed by the Potawatomi are for the most part only eaten at ceremonies and feasts. The Potawatomi like much of America have become too dependent upon or prefer fast foods, easy boxed dinners, and other processed foods. There have been various physical activity initiatives such as community volleyball and softball nights, walks and runs, water aerobics classes and cooking demonstrations. Similar to the SDPI and DPP classes, maintaining participants has been an obstacle.

Perhaps with so much going on around them, all the economic and infrastructure development, recognition of an obesity/ diabetes problem and participation and completion of programs is not a high priority for individuals. The Prairie Band Potawatomi are fortunate, more so than other more isolated reservations in truly having healthy diet and exercise options. There has also been a push for greater self-management of health services provided to tribal members, a step towards more self-determination and empowering them to identify and address health needs on their own terms. However, the obesity and diabetes epidemic has grown, along with cardiovascular diseases and cancer. It appears many have not yet been able to make lifestyle changes. The resources exist for the Prairie Band Potawatomi to make a significant impact helping its members to lead healthier lives. However, the evidence that higher socio economic status, increased healthy food and physical activity options have not improved the obesity and diabetes rates among the Prairie Band Potawatomi Nation supports this thesis's argument that there may be a significant factor to diabetes causation that is going unaddressed.

Case Study: Eastern Band of Cherokee Indians

Cherokee Choices, the diabetes prevention program administered by Eastern Band of Cherokee Indians (EBCI) has proven to be one of the most successful tribal diabetes programs. The EBCI have more than 13,000 enrolled members; with approximately two thirds residing on tribal lands in four counties.³¹⁷ The tribe opened its first casino in 1997 and within a decade, poverty rates decreased from 31% to 22%, and median family income rose nearly 82% to almost \$32,000, which is still less than the state median by nearly \$14,500.³¹⁸

Ironically, as casino revenues positively affected family income, it may have negatively affected the health of tribal members. With more disposable income, families can afford to eat out more often; consuming foods that tend to be high in calories and contain more fats and sugars than home prepared meals. At the same time Cherokee family income rose, the array of fast food choices increased. There are over 19 fast food restaurants within 3 miles of the primary Cherokee district, the Cherokee Boundary. A survey of EBCI children reported 18% ate at fast food restaurants five or more times per week, 52% ate out at least twice a week.³¹⁹

Like the rest of America, poor diet and sedentary lifestyles have contributed to the dramatic increase in both childhood and adult obesity among the Cherokee. Type 2 diabetes has been diagnosed in EBCI children as young as ten years old. The local hospital in 2003

³¹⁷ Eastern Band of Cherokee, "Eastern Band of Cherokee," <http://nc-chokeee.com/>.

³¹⁸ Lisa J Lefler Jeffrey J Bachar, Lori Reed, Tara McCoy, Robin Bailey, Ronny Bell,, "Cherokee Choices: A Diabetes Prevention Program for American Indians," *Preventing Chronic Disease* 3, no. 3 (2006).

³¹⁹ *Ibid.*

reported 61.9% of EBCI boys and 58.6% of girls' aged 6-11 as either overweight or obese.³²⁰

EBCI rates for obesity and type 2 diabetes exceed the rates for the U.S. and the North Carolina general population. In 2002, aged adjusted prevalence of obesity among the U.S. population was 30%.³²¹ In 2003, 45.7% of EBCI men were obese compared to 23.5% of men in North Carolina, 47.9% of EBCI women were obese while 23.6% of women in North Carolina were.³²² The combined diabetes prevalence rate for EBCI men and women was 23.8%, more than three times the combined rate of 7.15% for men and women in North Carolina.³²³

The EBCI developed a community-based intervention to improve the health of the community using the CDC's Racial and Ethnic Approaches to Community Health Funds (REACH 2010). In the first year of the Cherokee Choices program, team members conducted formative research, formed coalitions, and developed a culturally appropriate community action plan for the prevention of type 2 diabetes, particularly among children.³²⁴ The program established three components, elementary school mentoring, work site wellness for adults, and church-based health promotion. Program designers considered many socio-cultural factors and understood that a successful program would need a culturally competent program. Traditional Cherokee values include the importance of spirituality for balance, extended family networks, and the significance of intergenerational support.³²⁵ Unlike most other tribal programs, the Cherokees addressed racism, historic grief and trauma, and mental health.

³²⁰ Ibid.

³²¹ Ibid.

³²² Ibid.

³²³ Ibid.

³²⁴ Ibid.

³²⁵ Ibid.

One of the Community's initial and important findings was that because diabetes affected so many Cherokee families; the Community had developed an almost fatalistic acceptance of diabetes as an "inevitable fact of Cherokee life". Community leaders realized that their first mandate involved changing this sense of fatalistic indifference. Towards this end, researchers developed television advertisements and a documentary series to change attitudes and to market the program's three components. The community action plan included three strategies: engage individuals interested in a school intervention for children; target tribal employees interested in losing weight and improving health; and create opportunities for increased physical activity and nutritional information among church members.³²⁶

Community mentors worked within the Cherokee elementary school to increase awareness of diabetes as an epidemic, promote physical activity and the importance of nutrition, demonstrate stress-management techniques and coping skills, develop teachers as healthy role models through faculty fitness activities, and encourage healthy food choices and general well-being.³²⁷ Lesson plans to enhance self-esteem, cultural pride, conflict resolution, emotional well being, and health knowledge were implemented in the curriculum.³²⁸

The worksite wellness program challenged tribal workers to increase time spent in physical activity and participate in weekly educational and support activities. Tribal offices competed for prizes earned by attending healthy cooking demonstrations, classes on exercise techniques, nutritional assessments, supermarket tours, and stress-management workshops in

³²⁶ Ibid.

³²⁷ Ibid.

³²⁸ Ibid.

addition to meeting physical activity and dietary change goals.³²⁹ Of eighty six individuals who participated in the program for at least once year from June 2002 to June 2005, all but one continued to participate in the worksite program.³³⁰

Five churches participated in activities to improve diet and food preparation, raise awareness of tribal health-related services, and increase physical activity. The churches provided venues for healthy cooking demonstrations, exercise classes, and stress management lessons.

The Cherokee Choices initiative has reported success within each of the three program components. Systems changes in the school have generated increased physical activity among students and staff, increased the fresh fruit and vegetable options in the school lunch menus, and increased parental participation in student activities. Children who were mentored both during and after school reported doing much better or a little better in the following categories: interest in school (71.8%), learning (82.1%), and ability to talk more easily with friends (66.7%).³³¹ Children who spent time with mentors during school only reported doing much better or a little better in the same categories but at lower rates: interest in school (56.3%); learning (43.8%), and ability to talk more easily with friends (56.3%).³³²

The worksite wellness program reported the percentage of people meeting physical activity recommendations, losing weight, and decreasing body fat increased among worksite wellness participants.³³³ Almost two thirds of participants lost weight and maintained weight

³²⁹ Ibid.

³³⁰ Ibid.

³³¹ Ibid.

³³² Ibid.

³³³ Ibid.

loss and one third lost one or more points in body mass index.³³⁴ Other highlights include a decrease or elimination of diabetes medications, high blood pressure medications or both for some participants and policy changes that allow employees time off for exercise.³³⁵

The church component reported success with the development of sermons that underscore the importance and connection between the physical as well as the spiritual self. One-hundred and fifty-one participants walked an average of 211 miles totaling more than 31,600 miles within six months.³³⁶

The philosophy underlying the Cherokee Choices intervention is that community and system changes can be accomplished through multiple, not necessarily linear, courses of action.³³⁷ An initiative starting with the community, which is contrary to historically top-down programs, generates more wide-spread interest and better meets the needs and comfort level of local communities. Social marketing of all phases of the intervention through television can be a major asset to both promote and legitimize a program.

An aspect that should be noted, though not statistically measureable, is the program's priorities that address racism, historic grief and trauma, and mental health. Though data on current diabetes and obesity rates for the EBCI is currently unavailable to non-members of the ECBI, results such as increased participation in the programs, increased physical activity and greater consumption of fruits and vegetables by participants are promising.

Diabetes prevention programs generally follow guidelines established by the major federal programs and the results from the more recent Diabetes Prevention Program study. The

³³⁴ Ibid.

³³⁵ Ibid.

³³⁶ Ibid.

³³⁷ U.S. Department of Health & Human Services, "Division of Diabetes Treatment and Prevention"; Jeffrey J Bachar, "Cherokee Choices: A Diabetes Prevention Program for American Indians."

next chapter evaluates the components of these programs – especially in terms of targeting American Indian adolescents.

“To put it more bluntly, we simply cannot view ‘if we just get those poor, uneducated folks to eat better and exercise’ as the treatment paradigm for the communities we serve.”

*Dr. Redford Williams*³³⁸

Chapter 6

Assessment of Diabetes Programs

A fundamental element in virtually all prevention programs and the entire sample of prevention programs in this paper is to educate and foster a greater understanding of diet and exercise and its role in diabetes and obesity, and to put this into practice by consistently staying physically active and making healthier food choices. The Diabetes Prevention Program study has further legitimized this approach to diabetes and obesity interventions both among mainstream American programs and tribal nations.³³⁹ However, as this paper has discussed in previous chapters, poor diet and lack of physical activity is just one of several contributing factors to the American Indian diabetes epidemic. Yet, most American Indian diabetes prevention programs continue to focus only on diet and exercise, making little or no connection of the disease to stress and traumatic experiences, clearly an element within the lived experiences of American Indians. The previous chapters have argued that to effectively reduce

³³⁸ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

³³⁹ U.S. Department of Health & Human Services, "National Diabetes Information Clearinghouse (NDIC)".

diabetes and obesity among American Indians, programs must target and attract adolescents, and address the relationship between stress/trauma and diabetes.

The purpose of this chapter is to determine the extent to which existing programs accomplish these objectives. To do this, the chapter analyzes six American Indian diabetes prevention programs, all of which but two (Kahnawake and Zuni programs) have evolved and receive funding from the 1997 established Special Diabetes Program for Indians (SDPI) and the Native Diabetes Wellness Program (NDWP). (See Table 3)

The first section of the chapter examines how well existing programs draw adolescents and maintains the interests of adolescents. As discussed, few programs are either designed for or successfully involve American Indian adolescents. The second section of the chapter explores the success of diabetes programs that are advertised as culturally tailored and relevant to attract American Indians. Best intentions aside, this paper suggests that these programs, while “dressed up in tribal symbolism” remain focused on diet and exercise leaving important cultural and historical factors unaddressed that may be even more fundamental to American Indian obesity and diabetes.

Ages Targeted

Before analyzing tribal diabetes programs, it is useful to remember the history of tribal and federal diabetes programs discussed in the previous chapter. Both the Special Diabetes Program for Indians and the Diabetes Prevention Program, utilized by SDPI as a major part of

their prevention component, mandated that participants were over the age of eighteen³⁴⁰, with the latter also requiring individuals to possess blood sugar readings considered pre-diabetic.³⁴¹

Not surprisingly given the mandate of federal funding, few diabetes prevention programs targeted adolescents and young adults. Only recently, with the publication of a 2009 Centers for Disease Control report that found 31.2% of American Indian/Alaska Native four year olds are currently obese, a rate higher than any other racial or ethnic group studied, have federal and tribal programs begun to develop programs for children.³⁴² Two recent surveys of tribal and federal diabetes prevention programs revealed that improvements have occurred in the number of programs directed at children, but little improvement in the number of programs directed at adolescents.

An examination of the intervention programs reviewed for this paper shows only two programs designed specifically for American Indian adolescents -- the Zuni Diabetes Prevention Project (see Table 3) and the Native Diabetes Wellness Project's "Health is Life in Balance". As discussed above, federally funded diabetes programs have focused on tribal members over the age of eighteen -- in particular adults and elderly. While participants, age nineteen and in their twenties, were eligible, the design of the programs, at a minimum were uninviting and at a maximum, "turned off" younger adults. Interventions and dissemination of information typically were held in tribal clinics, elder centers, and youth centers. Although youth centers would seemingly reach adolescents, in fact, most programs in youth centers focus on children, not young adults. Many of the activities intended for families are not typically enticing for

³⁴⁰ The PBP has allowed anyone who is interested participate in his or her DPP program, those who meet the eligibility criteria have first priority.

³⁴¹ A1C range for pre-diabetes of 5.7%-6.4%, fasting blood sugar between 100 to 125 mg/dl, blood sugar readings 2 hours after a meal of 140 to 199 mg/dl, and obtaining an Albumin/Creatinine (A/C) ratio

³⁴² National Indian Health Board, "Public Health," <http://www.nihb.org/>.

teenagers. Diabetes education classes, education booths at community events, competitive weight loss contests, healthy cooking demonstrations, “fun runs” and walks, talking circles, and “culture camps”, are common interventions throughout American Indian diabetes prevention programs around the country. (see Table 3) The delivery of the prevention, the manner and method in which it is presented to community members can have a significant impact on who attends and the message and dialogue it creates. These events though intended for the community as a whole, often do not attract high numbers of adolescent participation.³⁴³

Cultural Symbolism versus Addressing Contemporary and Historical Trauma

Federal and American Indian health officials have recognized a need to address diabetes via “culturally appropriate” or “culturally tailored” interventions. These programs are mostly fabricated from existing programs to fit the needs and comfort level of American Indian people. Greater than 90% of grant programs under SDPI report implementing culturally appropriate diabetes education activities,³⁴⁴ most of which are science-based lessons discussing nutrition and exercise with traditional American Indian names and symbols as a background. While such programs are a recognized improvement over simply importing diabetes programs designed for non-Indians into American Indian communities, two problems remain. Too often, the “pan-Indian”³⁴⁵ themes fail to recognize local beliefs in healing and the causes of diabetes by broadly categorizing American Indian cultures under one culturally relevant model. More importantly, too often cultural symbolism is mistaken as addressing the life experiences of oppression and social inequality that are aggravated by historical trauma factors.

³⁴³ Program organizers have stated very few adolescents participate in programs.

³⁴⁴ U.S. Department of Health & Human Services, "Division of Diabetes Treatment and Prevention".

³⁴⁵ Synthesizing the collective spiritual reality and traditional wisdom of more than one American Indian Nation

The following section examines the approach used in four specific programs – the NDWP’s *Eagle Books Community Outreach Campaign*, *Diabetes Education in Tribal Schools (DETS)*, *Talking Circles* and *Traditional Foods Gardening Projects*. Specifically analyzed are those program elements labeled as culturally tailored, including to what degree issues of social inequality and historical trauma are discussed as stressors affecting individual health, obesity, and diabetes.

Eagle Books Community Outreach Campaign

The Eagle Books Community Outreach Campaign’s central message, intended for children, tells a story of how modern processed foods have replaced healthier ‘whole’ foods and how technology (television, internet, video games) greatly decreases the opportunity for physical activity, once an integral part of everyday life for American Indians. This program has implemented a “pan-Indian” theme to promote programs in their communities that include American Indian pageantry and color wrapped around diet and exercise information. American Indian symbols and animals prevalent in customary traditional American Indian stories such as the eagle and coyote are used as characters who offer guidance to American Indian youth. This format, intended to explain diabetes and obesity to grade school aged youth, is the same message that prevails in adult programs, the idea that poor American Indian diets and the lack of physical activity alone have created the American Indian obesity and diabetes epidemics.

Diabetes Education in Tribal Schools: Health is Life in Balance

The *Diabetes Education in Tribal Schools: Health is Life in Balance* curriculum in tribal high schools consist of two units that encourage understanding of health, diabetes, science, community knowledge, life in balance, and health professions among American Indian

students.^{346 347} The purpose of the DETS project was to develop and implement a diabetes curriculum that bridges American Indian cultural and community knowledge with diabetes-related scientific knowledge.³⁴⁸ Lessons and units that are devoted to an American Indian cultural theme includes a reoccurring phrase, “Life in Balance” and the “Circle of Balance” which recognizes the interdependence and the concepts of physical, emotional, psychological, and spiritual well being. Although these are stated, only the physical is clearly covered with diet and exercise information. The abstract spiritual, emotional, and mental realms lack a clear marker of attainment.

The educator’s guide lists diabetes risk factors as; age, ethnicity, family history, amount of physical activity, and obesity. The educator’s prompts cite having one or more multiple risk factors increases the chance of developing diabetes. There is little discussion of why ethnicity is a risk factor other than statements like “being American Indian increases your chances of developing diabetes”. In lesson four, *History: Changes in Environment and Diet*, information such as the forced reliability on government food, “commodities”, and that American Indians are no longer as physically active as they once were is presented in graphs and charts. There is no reference to U.S. government policies of forced removal and the taking of land and resources, the calculated eradication of buffalo and hunting and fishing rights and other

³⁴⁶ Center for Disease Control and Prevention, "Diabetes Education in Tribal Schools "
<http://www3.niddk.nih.gov/fund/other/dets/currsupplements.htm>.

³⁴⁷ The health education unit challenges students to define diabetes, identify risks for type 2 diabetes, and explore five professions involved in the treatment/preventions of type 2 diabetes. The science unit consists of seven lessons focused on: the impact on the Circle of Balance, with personal stories of two American Indian teens with diabetes; blood glucose, with a hands-on experiment; keeping blood glucose in balance and homeostasis; how insulin works and insulin receptors; reducing the chance of developing diabetes and the complications associated with high blood glucose; evaluation, with the story of another young American Indian woman; and health careers related to diabetes for which students may have knowledge or interest. Discussion, role playing, and graphs and charts are utilized to incite discussion and understanding of diabetes prevention.

³⁴⁸ Center for Disease Control and Prevention, "Diabetes Education in Tribal Schools ".

oppressive acts that have placed a huge physical, emotional, and spiritual burden upon American Indians. They have essentially produced a lesson in American Indian history that continues to ignore injustices and the plight of today's American Indians.

Tribal schools that have integrated a diabetes prevention curriculum are reaching the adolescent age group with diet and exercise information. However, this curriculum is another intervention that does not specifically address or directly recognize stress, microaggressions, or colonization's impact on health and social problems in American Indian communities.

Diabetes Talking Circles

A talking circles model is recognized by the U.S. Indian Health Services as a culturally appropriate way to share knowledge and bring about behavioral changes that increase wellness among American Indians.³⁴⁹ The CDC's Native Diabetes Wellness Program's *Talking Circles* are inspired by American Indian cultures where cooperative discussions are promoted as opposed to the more competitive-style of western communication. The Diabetes Talking Circles Model is a science-based, twelve-session curriculum combining American Indian traditions with the current scientific understanding of diabetes.³⁵⁰ It has demonstrated some success with increased knowledge of diet, exercise, and reducing fatalistic attitudes about diabetes, common in American Indian communities. Most of the information provided by a facilitator is science pertaining to diet and exercise. An examination of the facilitators manual show that objectives for each session are dominated by treatment and behavior modification strategies produced by scientific knowledge with the inclusion of one "traditional story".

³⁴⁹ Seva Foundation, "Diabetes Talking Circles," http://www.seva.org/site/PageServer?pagename=News_talking_circles.

³⁵⁰ Ibid.

The use of traditional talking circles provides group support and traditional food in a spiritual milieu in a comfortable platform for discussion and the absorption of information. It is stated to have empowered many to take steps to control or prevent diabetes. However, it is merely encouragement to become more physically active and maintain a healthier diet, a strategy that focuses blame on individual behavior; failing to raise an awareness of the impact of stress, and the political, environmental, and social structures in place that have created and continue to feed the obesity and diabetes epidemic in these communities. The absence of this information could potentially hinder progress and discourage individuals who may “relapse”³⁵¹.

Traditional Foods Gardening Projects

Traditional food grants, a component of NDWP, have established community and individual garden projects that have reintroduced traditional Indigenous foods to tribal communities. The traditional gardening projects directly address the historical disruption in diet and physical inactivity among American Indians. *A Return to the Healthy Past* (Prairie Band Potawatomi), *Siletz Healthy Traditions Project* (Confederated Tribes of Siletz Indians) and the *Native Gardens Project: An Indigenous Permaculture Approach to the Prevention and Treatment of Diabetes* (Standing Rock Sioux Tribe), have raised awareness that modern processed foods and lack of physical activity have created health problems. These projects draw upon the wisdom of American Indian culture by recording and sharing stories about healthy, traditional ways of living. Culture camps (Siletz Tribal Diabetes Program) provide youth with adult role models, combining traditional foods and physical activities through gathering and fishing; and the processing, preserving, and preparation of traditional foods.

³⁵¹ Period of binge eating and choosing not to be physically active

There has been, to an extent, recognition of factors that impede progress to addressing diet and physical activity which includes structural barriers such as access to supermarkets. American Indian Nations, aided by federal grants, gaming and other successful business initiatives have created pathways to wellness with new or upgraded fitness/wellness centers, walking and biking paths, and playgrounds. Although these are positive and needed in these communities, it addresses only a fraction of the determinants that contribute to American Indian obesity and diabetes discrepancies. A proactive response that recognizes and addresses historical trauma, stress, and emotions unique to the American Indian life experience is vital to American Indian health and wellness. Whether it is due to a lack of resources or perhaps variability among individual tribes' beliefs about what contributes to their high obesity and diabetes rates, addressing these factors are typically not included as objectives or goals for prevention programs. The narrow focus on diet and exercise remains. Programs such as the Cherokee Choices and the Zuni Prevention Project had specific goals of managing stress and building self-esteem. No program with the exception of the Cherokee Choices program has specifically identified addressing both stress and historical unresolved grief as a goal or objective. Most programs have reported only moderate success with increased knowledge of diet and exercise and its role in diabetes.

The reintroduction of Indigenous foods through the garden projects funded by grants through the CDC's Native Diabetes Wellness Program promote healthier eating habits, physical activity, and dialogue between elders and youth about healthier ways of living. This perhaps, is the most efficient intervention yet that tackles the historical disruption of life and culture that occurred through the colonization of American Indian People. The initiative places value and

instills pride in the Indigenous foods, once a major part of American Indian life. Gardens and the foods they produced provided nourishment, a physically active existence and mental and spiritual purpose. More of these types of programs that target and attract American Indian adolescents are drastically needed in American Indian Nations and communities.³⁵²

³⁵² Colonization forced tribes who may have not traditionally gardened to do so. In some American Indian communities, there may be reluctance to participate in this national program.

Chapter 7

American Indian Adolescent Diabetes Programs: Including Trauma and Healing

The next chapter first discusses plausible reasoning for a sustained diabetes epidemic among American Indians. The chapter then makes suggestions for comprehensive programs for American Indian adolescents that meet their emotional, mental, physical, and spiritual needs. Indigenous healing frameworks are then examined for their relevance in American Indian adolescent health and wellness programs.

Why does there continue to be an emphasis on diet and exercise when the etiology of diabetes among American Indians is far more complicated? Nancy Scheper-Hughes in what she refers to as “everyday violence” is the tendency of government and societies to ‘normalize’ suffering, disease, and premature death among certain excluded or marginalized peoples.³⁵³ The ‘violence’ she alludes to is linked to social and bureaucratic indifference toward the excess morbidity and mortality of certain populations. This indifference has fostered assumptions that alarming statistics are not to be seen as alarming but rather as ‘normal’ to that population and therefore ‘to be expected’.³⁵⁴ The prevailing medical model of diabetes etiology where the focus on faulty genetics, faulty diets, and other unhealthy behaviors place the blame on the American Indian victim of diabetes and obesity continues to be utilized by federal and tribal prevention programs.

³⁵³ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

³⁵⁴ *Ibid.*

American Indian diabetes prevention programs have increasingly added elements that from the outside, appear to address diabetes in culturally appropriate ways that better fit the needs and comfort level of American Indian People. The framework for these models, where traditional American Indian culture through symbols and traditional etiquette, provide the context for the delivery of diet and exercise information does little to inform those most in need of the realization that the problem is rooted in something much bigger.

Those working among the Pima, a community with the highest incidence of diabetes in the world, suggest American Indian communities must initiate an era of structural change in tribal healthcare.³⁵⁵ Tribal health care structures that continue to place an emphasis on the biomedical strategies and explanations for the disease, ignoring relevant local concepts of diabetes, its management, and community values form major barriers to change and understanding.³⁵⁶ A failure to challenge this narrow view of disease leads to a continued emphasis on treatment, behavior modification, and other patient-focused strategies rather than on the economic and political factors. These factors keep AIs in poverty, restrict access to natural resources, promote popular American culture of sedentary living and fast food consumption, and allow AIs to hold highly disproportional amounts of morbidity and mortality.³⁵⁷ American Indian Nations and communities must also recognize the impact colonization has had; the continued disruption it exerts on both entire communities and individuals that have led to the social dysfunction and the deterioration of health in these communities.

³⁵⁵ Smith-Morris, "Community Participation in Tribal Diabetes Programs."

³⁵⁶ Ibid.

³⁵⁷ Ibid.

As previously discussed, American Indian adolescents face many stressors from racism-discrimination, daily microaggressions, poverty and low socio-economic status, violence and traumatic events. Historical trauma compounds these burdens. The damage done to the physical, emotional and mental and spiritual body cannot be healed by eating healthier and exercising alone. A comprehensive obesity and diabetes prevention program or a health and wellness program for American Indian adolescents should: target and attract adolescents, educate and raise awareness of colonization's impact on their physical and mental health and the social problems in their communities, demonstrate how spikes in blood sugar occur during stressful encounters and also provide sound nutrition and exercise education.

American Indians have been conditioned over decades now from western health establishments about what has created their diabetes epidemic. Though federal and tribal efforts have increasingly sought to include culturally relevant diabetes prevention, an examination of a sample of these programs has shown it has for the most part focused solely on nutrition and exercise education, presented in a way that appears to be culturally appropriate for American Indians. The impact of stress on American Indian diabetes and obesity must become a major component of prevention programs.

Tribal Nations now have greater control over their diabetes and obesity prevention programs. Most are able to design and implement elements that fit a local need. Tribal governments, diabetes program managers, and program designers must acknowledge and be willing to enlighten themselves of a legacy of colonization and its destructive impact on a local level. Healthier American Indian communities are ones who recognize the historical (cultural) battles that occur every day and how it impacts young American Indian peoples' view of the

world.³⁵⁸ Identifying how modern forms of colonialism shape the way young American Indian people view themselves, their families, and their communities is an important step in reconstituting local control.³⁵⁹ The opportunity for American Indian adolescents to explore issues like discrimination, to recognize how conflicting value systems impact their choices and how internalizing feelings such as anger, shame, embarrassment, and fear can lead to destructive unhealthy behaviors must be included in diabetes prevention or a healing and wellness program. Such a forum could limit the amount of internalized feelings that lead to unhealthy behaviors like overeating, abusing alcohol and/or other drugs. A greater awareness of how the mainstream American system historically and currently oppresses American Indians can be a tool that alleviates frustration and anger. Understanding modern colonial processes gives American Indian youth a collective purpose, by highlighting traditional meanings, redefining success and failure based on their own belief systems and community norms.³⁶⁰

After school programs would give adolescents a chance to unite, support each other, and to “rebalance” their mind, body, and spirit. Sharing common feelings resulting from oppression and historical trauma would alleviate some of their stress burden. Trained counselors, community members, and elders can provide guidance and information in a comfortable environment for American Indian teenagers. Discussion and educational content should be tailored to fit the American Indian adolescent life experience. At the core should be an open uninhibited discussion about interactions at school with teachers and classmates, home and family life, and friends. Adolescents ought to be encouraged to critically think about

³⁵⁸ Wexler, "Identifying Colonial Discourses in Inupiat Young People's Narratives as a Way to Understand the No Future of Inupiat Youth Suicide.(Brief article)."

³⁵⁹ Ibid.

³⁶⁰ Ibid.

their place in the world and how their relationships and interactions with others impact their feelings about themselves.

American Indian adolescents attending public schools are minorities, even among other minorities. Most tribal schools, in order to meet accreditation, are mandated to model their curriculums and structures after mainstream public schools. Their connection and sense of belonging can be disrupted nearly every day while in school where westernized American ideologies and values are imposed. These sessions would provide adolescents with a sense of belonging that is a concept within the American Indian worldview.³⁶¹ Belonging relates to the psychosocial environment and the relationships among individuals and their community.³⁶² The epistemologies of American Indians derive from their sense of belonging in a world in which they are connected and extensions of family, community, tribe, and the creation/universe.³⁶³ American Indian adolescents given a “safe” place to vent, discuss, and learn healthy ways to deal with stress would gain the sense of belonging that they may not feel they receive in school or other environments outside of the home and American Indian community.

The importance of physical activity and nutrition must remain an element of any American Indian adolescent obesity/diabetes prevention program. American Indian adolescents may need extra motivation to stay physically active; Exercise and its contribution to healing and wellness should be emphasized. Rallying adolescents to exercise for not only themselves but for their ancestors who endured and fought to preserve their distinct identities as American Indian people could be a huge motivator. Exercise and physical activity should be encouraged with

³⁶¹ Doris Leal Hill, "Sense of Belonging as Connectedness, American Indian Worldview, and Mental Health," *Archives of Psychiatric Nursing* 20, no. 5 (2006).

³⁶² *Ibid.*

³⁶³ *Ibid.*

proper guidance where necessary. Communities could inspire more exercise with unique initiatives such as “midnight runs” and “exercise clubs”. Technology in the form of game systems like “Wii” and other game systems requiring physical exertion could be included to keep adolescents more involved. In this way, programs show an openness to embrace and blend modernity with traditional American Indian ideals. Suggested activities from a study that translated the DPP program for American Indian youth included enhancing organized sports programs, adding activities that have a traditional focus, and activities that are fun and easy to start and do not involve contact sports or competition.³⁶⁴ These would include bike riding, berry picking, searching for herbs and other traditional plants, gardening, and dancing.

The importance of family in American Indian communities must be utilized in obesity/diabetes prevention. Parents play a vital role in the health and wellness of their children and should be included and given the same information their children receive. Family nights where entire households are brought together to learn and discuss the information being absorbed by their children in afterschool sessions gives them the opportunity to learn what their role is in creating a healthier environment for their children.

Interventions for adolescents might also consider comfort eating as a food addiction. As discussed in chapter one, studies demonstrating how foods have been engineered in a ways that increase the reward centers in the brain must be seriously considered in diabetes prevention for American Indians. Given the high rates of addictions among American Indians, the over consumption of high calorie nutrient poor foods is a serious threat to health, one that unfortunately is not taken as seriously as alcoholism or drug addiction.

³⁶⁴ Blakely D. Brown et al., "Translating the Diabetes Prevention Program for Northern Plains Indian Youth Through Community-Based Participatory Research Methods," *The Diabetes Educator* 36, no. 6.

The erosion of traditions and culture has devastated the ability of American Indians to weather the very stresses that disrupt them.³⁶⁵ There is a need to incite cultural pride in American Indian adolescents. Having a strong American Indian identity while also being able to function in mainstream social, employment, and educational environments has shown to have a positive effect on health status.³⁶⁶ Much of the work to be done to address healing in American Indian communities centers on reconnecting or making stronger traditional American Indian identities.

Indigenous Healing Frameworks

Indigenous scholars have proposed frameworks that seek to address the health disparities in American Indian communities. Mental health officials and substance abuse counselors who see firsthand the impact of historical trauma, have also contributed to models seeking to address the social, mental, and physical health problems of American Indians in a way that holds American Indian epistemologies on equal footing with western science. Much of the research literature on stress coping is largely irrelevant to American Indian communities because they are based on Eurocentric values, methodologies, and conceptual structures.³⁶⁷ Their use in American Indian communities may unintentionally reenact colonial processes.³⁶⁸ Eduardo Duran, Marie Yellow Horse Brave Heart, Michelle Chino, Lemyra DeBruyn, Karina Walters, and Teresa Evans-Campbell have proposed a “ground up” approach that addresses the

³⁶⁵ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

³⁶⁶ Karina L. Walters, Jane M. Simoni, and Teresa Evans-Campbell, "Substance use among American Indians and Alaska Natives: incorporating culture in an "indigenist" stress-coping paradigm," *Public Health Reports* 117, no. 3 (2002).

³⁶⁷ *Ibid.*

³⁶⁸ *Ibid.*

historical unresolved grief from colonization and recognition of structural problems that have created and continue to keep American Indian health disparities high.

Duran and Brave Heart have conceptualized paths to healing that address historical trauma and the unresolved grief afflicting American Indians. Though their seminal work has centered on overcoming alcoholism, drug abuse, and depression, it may have applicability in obesity and diabetes prevention program for American Indians. At the core of these frameworks is a need to remove the belief that social problems, addictions, and poor health are only the result of individuals making “bad” choices who have chosen to live unhealthy lifestyles. Interventions are designed to empower American Indian victims by shifting the blame to the historical and current social and political structures embodied in American society from colonization. Treatment and prevention that ameliorates the Historical Trauma Response includes fostering a reattachment to traditional American Indian values.³⁶⁹ A stronger spiritual and physical connection to ceremonies and American Indian religious practices and beliefs may serve as protective factors. The capacity to deal with acts of discrimination-racism and microaggressions could limit and prevent negative coping mechanisms. Brave Heart also suggests promoting and improving parenting skills and strengthening parent-child relationships to serve as both protection against both negative health behavior and the transfer of Historical Trauma to the next generations.³⁷⁰

³⁶⁹ Yellow Horse Brave Heart, "The historical trauma response among natives and its relationship with substance abuse: A Lakota Illustration".

³⁷⁰ Ibid.

Michelle Chino and Lemyra DeBruyn³⁷¹ in their commentary on the need for Indigenous models for tribal communities incite a need for “frameworks that allow for a continuum of interrelated stages to achieve natural and communal harmony and balance.”³⁷² This model called the Community Involvement to Renew Commitment , Leadership, and Effectiveness (CIRCLE) is a four-step, cyclical, process and philosophy for program design and community development for Indigenous Peoples.³⁷³ It addresses the deeper structures of the cultural, historical, social, and environmental forces that shape health behaviors among Indigenous Peoples. At the foundation of this process is a need for sufficient time for personal and professional relationships to develop, they lead to the development of individual and group skills. These skills in turn then lead to effective working partnerships, ultimately promoting a greater commitment to the issue, the group, and the process.³⁷⁴ The four steps are rooted in traditional concepts of the cycles of American Indian lives, the first step, that is *building relationships* honors the sense of “belonging” and represents infancy and childhood; the second step, *building skills*, honors the concept of “mastery” and represents adolescence, a time of discovery of their capabilities, allowing participants to develop both interpersonal skills and practical skills such as group decision-making.³⁷⁵ The third step, *working together* honors “interdependence” representing adulthood and their place in family, culture, environment, and the social, political, and historical framework of the community.³⁷⁶ The fourth step, *promoting commitment* honors the concept of “generosity” representing elders who give their knowledge

³⁷¹ Michelle Chino and Lemyra DeBruyn, "Building True Capacity: Indigenous Models for Indigenous Communities," *American Journal of Public Health* 96, no. 4 (2006).

³⁷² Ibid.

³⁷³ Ibid.

³⁷⁴ Ibid.

³⁷⁵ Ibid.

³⁷⁶ Ibid.

and teaching to generations of the future. It is a time where program participants give back to their families and communities as advocates and mentors for what they learn and achieve in their program.³⁷⁷

The pressure to show success in tribal programs often overshadows the recognition of previous failures, a lack of time to build sufficient trust, effective communication between all participants, and inclusive working relationships.³⁷⁸ Diabetes prevention programs based on Indigenous frameworks where time lines are of little importance would work better than those based on a western regimented linear format.³⁷⁹ Allowing adolescents to open up at their own pace and on their own terms may require more time than western models typically desire to be considered successful.

Western models pressure programs to show success. Tribal Nations and communities administering diabetes prevention programs under SDPI and the DPP should recognize a need to work programs in ways that allows for participants sufficient time to gain a sense of belonging and mastery of the concepts before results are expected. Programs like DPP that begin and end within 16 weeks may see greater participation and results with the implementation of the CIRCLE concepts within these programs.

An Indigenist Stress-Coping Model presented by Karina Walters PhD, MSW, Jane Simoni, PhD, and Teresa Evans-Campbell PhD, MSW provides an “Indigenist” perspective of health that recognizes the impact of historical trauma and ongoing oppression of American Indians. The model provides a framework for understanding how American Indians cope with traumatic life

³⁷⁷ Ibid.

³⁷⁸ Ibid.

³⁷⁹ Ibid.

stressors in the context of colonization and for assessing the impact of stressors on their substance use and associated health consequences.³⁸⁰ Their model demonstrates that the association between traumatic life stressors and adverse health outcomes are moderated by cultural factors that function as buffers.³⁸¹ Cultural factors such as family/community, spiritual coping, traditional health practices, identity attitudes, and enculturation strengthen psychological and emotional health, decreasing substance use, and mitigating the effects of the traumatic stressors.³⁸² The model may be helpful in understanding life stressors that also impact other unhealthy behaviors such as overeating and lack of motivation to stay physically active.

American Indian communities must continue to build off of existing knowledge of the disease in order to slow and prevent diabetes. This paper has suggested that the colonial legacy and resulting historical trauma and stress that have led to social problems and health disparities among American Indians should be addressed more as a contributor to an extremely high obesity and diabetes rate. American Indians have been torn down physically, emotionally, and spiritually, and then built back up in an attempt to fit the image of a white man, and to their credit, have remained a distinct people. Their fight and perseverance has enabled them to survive hundreds of years of oppression and attempts of total annihilation by the U.S. government. However, the wounds inflicted from this resistance have led to physical, mental, social, and spiritual sickness. In order to heal, to turn the tide of high obesity and diabetes

³⁸⁰ Walters, Simoni, and Evans-Campbell, "Substance use among American Indians and Alaska Natives: incorporating culture in an "indigenist" stress-coping paradigm."

³⁸¹ Ibid.

³⁸² Ibid.

prevalence, American Indians both young and old, must understand how historical and contemporary injustices have led to social problems and health disparities.

Prevention programs that are targeted to American Indian adolescents are needed to slow the prevalence of obesity and diabetes among the American Indian populations. Life skills that provide an ability to recognize and handle stress both through an understanding of the impact of colonization and contemporary stress reduction techniques, promote and guide an understanding of healthy food choices and the importance of exercise must become fundamental. Emotional liberation through an awareness of the colonial legacy and its direct impact on the physical, mental, social, and spiritual environments within their communities has to be realized and understood in order to heal.

The classic determinants of diabetes and obesity such as low socio-economic status, poor diet, and lack of physical activity do not adequately explain the disproportionately high rates of obesity and diabetes among American Indian populations. This thesis has argued that historical trauma and socio-political factors may account for the high incidence of obesity and diabetes among American Indian people. This thesis has found support for a strong correlation between stress, traumatic occurrences and the onset of diabetes. American Indian stress burdens are likely unparalleled as the result of poverty, low socio-economic status, discrimination-racism, daily microaggressions, and high exposure to violence and traumatic experiences. The unresolved grief labeled historical trauma aggravates this heightened stress level. American Indian adolescents faced with the natural vulnerabilities of adolescence also endure these inherited stress burdens imbedded in an American Indian identity. This places them at an extremely high risk for becoming obese and or diabetic.

Although the SDPI program cites as one reason for reports of increasing prevalence of diabetes among American Indians is the result of increased screening and a change in the criteria for diagnosed diabetes during the same time period³⁸³, it only highlights and reaffirms that there is a huge problem. An examination of American Indian diabetes prevention programs suggests that current interventions do not address important factors contributing to the American Indian diabetes epidemic. They have also failed to reach American Indian adolescents who may be a key demographic to target in order to slow the prevalence of obesity and diabetes among all American Indians. American Indian diabetes prevention programs have not addressed life experiences that lead to stress episodes or the historical trauma that exasperates this stress. Federal and tribal programs have mostly focused on diet and exercise, a strategy that places fault on individual behavior and not on the historical, social, and political determinants that are even more fundamental to the disease.

In order to combat the obesity and diabetes epidemics plaguing American Indian Nations and communities, American Indian people must find what Indigenous scholars have called an “emotional liberation”.³⁸⁴ Obesity and diabetes prevention programs and interventions must be willing to acknowledge the disruption to the physical, mental, and spiritual health that colonization continues to exert.

³⁸³ U.S. Department of Health & Human Services, "Division of Diabetes Treatment and Prevention".

³⁸⁴ Ferreira Mariana Leal, *Indigenous Peoples and Diabetes Community Empowerment and Wellness*.

Appendix

Comparison of American Indian Diabetes Programs							
Program	Year	Sponsor	Target Age/ Community	Objectives	Delivery/ Intervention	Cultural Relevance	Program's measure of success
Kahnawake Schools Diabetes Prevention Project ³⁸⁵	1994	Kahnawake Memorial Hospital Center & Kahnawake Education System	Mohawk children grades 1-6 & Kahnawake community parents and teachers	Change physical environment & social norms of schools and community by promoting healthy eating and physical activity, reduce the prevalence of obesity, increase self-esteem	Integrated diabetes health education into curriculum, strengthen school nutrition policy, daily 20 minute around the school	Community board advises on objectives, activities and traditions, incorporation of traditional foods and activities, study designed by American Indian	No significant outcomes, target population did not show continued participation in physical activity, and fitness
Cherokee Choices ³⁸⁶	1999	Center for Disease Control's Racial and Ethnic Approaches to Community Health 2010 (REACH 2010) funds	Eastern Band of Cherokee Indians: Elementary children, Adult worksites, Church- based health promotion	Increase knowledge of diabetes and nutrition, promote physical activity, learn stress management and coping skills, develop teachers as healthy role models	Lesson plans implemented in the classroom, tribal workers challenged to increase physical activity and health knowledge, prizes given for attendance at healthy cooking demonstrations, classes on exercise techniques, supermarket tours and stress management workshops	Cherokee community members designed programs including spirituality, extended family systems, addresses racism and historic grief and trauma	Participant success in reduction of body fat, better diet, and increased physical activity

³⁸⁵ Ann C. Macaulay et al., "The Kahnawake Schools Diabetes Prevention Project: Intervention, Evaluation, and Baseline Results of a Diabetes Primary Prevention Program with a Native Community in Canada," *Preventive Medicine* 26, no. 6 (1997).

³⁸⁶ Jeffrey J Bachar, "Cherokee Choices: A Diabetes Prevention Program for American Indians."

Zuni Diabetes Prevention Program ³⁸⁷	1993	Dept. of Community Medicine, University of Arizona, Zuni Public School District	High school aged youth attending two Zuni high schools	Reduce risk factors for diabetes by: Enhance knowledge of diabetes, increase physical activity, increase fruit and vegetable intake, reduce soft drink consumption	Establish support networks, development of a wellness facility, modified food supply, integrated diabetes education	Program developed w/ understanding of existing economic, social, and political structure within Zuni community	Decrease BMI, decrease consumption of sugared beverages, increase consumption of dietary fiber, decrease sitting pulse rates, although only changes in beverage consumption and insulin levels were statistically significant
Blackfeet Tribal Diabetes Program/ Youth Prevention ³⁸⁸	04	SDPI	Youth	Identify obese youth who are high risk for developing diabetes	Youth and families participate in fitness activities and obtain nutrition information twice a week		
Siletz Tribal Diabetes Program ³⁸⁹ ³⁹⁰	04	SPDI, NDWP	Whole community, including diagnosed diabetics, at risk individuals, and youth (grade school)		Siletz Healthy Traditions Project (foods), educational classes focusing on, talking circles, youth culture camps	Talking circles, community garden, elders teach youth Indigenous foods, youth culture camp combines traditional foods and	

³⁸⁷ Nicolette I. Teufel and Cheryl K. Ritenbaugh, "Development of a Primary Prevention Program: Insight Gained in the Zuni Diabetes Prevention Program," *Clinical Pediatrics* 37, no. 2 (1998).

³⁸⁸ U.S. Department of Health & Human Services, "Special Diabetes Program for Indians: State Fact Sheets Montana," http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesFactSheets_MTstate6208.

³⁸⁹ Center for Disease Control and Prevention, "Diabetes Public Health Resource," http://www.cdc.gov/diabetes/projects/eagle_granteemap_con.htm.

³⁹⁰ Confederated Tribes of Siletz Indians, "Healthcare," <http://www.ctsi.nsn.us/Siletz-Tribal-Services-Umpqua-Clackamas-County-warm-springs-Multnomah-Falls-Tillamook/healthcare/health-and-wellness/diabetes-program>.

						physical activities through gathering and fishing; and the processing, preserving, and preparation of traditional foods. Tribal men serve as role models teaching the youth about fishing and gathering and preparing food.	
Standing Rock Sioux Diabetes Prevention ³⁹¹ ₃₉₂	1999	SDPI, NDWP Traditional Foods Grant	Whole community	Prevent diabetes and diabetes complications	Provide screening 4 times a month, provide exercise and diet information, healthy food demonstrations, fitness center available offering individual fitness plans, walking programs with pedometers and incentives, community presentations	Historical change in diet discussed, gardens promote traditional foods	Gardens have become very popular in community

³⁹¹ Center for Disease Control and Prevention, "Native Diabetes Wellness Program Standing Rock Sioux Tribe," http://www.cdc.gov/diabetes/projects/eagle_granteemap_sta.htm.

³⁹² Standing Rock Sioux Tribe, "Tribal Programs," <http://www.standingrock.org/>.

References

- Abel, Emily K., and Reifel Nancy. "Interactions between Public Health Nurses and Clients on American Indian Reservations During the 1930s." *Social History of Medicine* 9, no. 1 (April 1, 1996 1996): 89-108.
- Ackard, Diann M., Dianne Neumark-Sztainer, Mary Story, and Cheryl Perry. "Overeating among Adolescents: Prevalence and Associations with Weight-Related Characteristics and Psychological Health." *Pediatrics* 111, no. 1 (2003): 67.
- An Act: Authorizing Appropriations and Expenditures for the Administration of Indian Affairs, and for Other Puposos.* P.L. 67-85.
- An Act: To Amen the Act of August 5, 1954 (68 Stat. 674), and for Other Purposes.* P.L. 86-121.
- An Act: To Implement the Federal Responsibility for the Care and Education of the Indian People by Improving the Services and Facilities of Federal Indian Health Programs and Encouraging Maximum Participation of Indians in Such Programs, and for Other Purposes.* P.L. 94-437.
- An Act: To Provide Maximum Indian Participation in the Government and Education of the Indian People; to Provide for the Full Participation of Indian Tribes in Programs and Services Conducted by the Federal Government for Indians and to Encourage the Development of Human Resources of the Indian People; to Establish a Program of Assistance to Upgrade Indian Education; to Support the Right of Indian Citizens to Control Their Own Educational Activities; and for Other Purposes.* P.L. 93-638.
- An Act: To Transfer the Maintenance and Operation of Hospital and Health Facilities for Indians to the Public Health Service, and for Other Purposes.* P.L. 83-568.
- Acton K. J. and Bullock A. "American Indians and Physical Activity ". *American Journal of Preventive Medicine* 37, no. 6 (2009).
- Acton, K. J., N. R. Burrows, K. Moore, L. Querec, L. S. Geiss, and M. M. Engelgau. "Trends in Diabetes Prevalence among American Indian and Alaska Native Children, Adolescents and Young Adults." *American Journal of Public Health* 92, no. 9 (2002): 1485-90.
- American Diabetes Association. "Diabetes Basics." <http://www.diabetes.org/>.

- American Psychological Association. "Work, Stress, and Health & Socioeconomic Status."
<http://www.apa.org/pi/ses/resources/publications/factsheet-wsh.aspx>.
- Anderson, Warwick. "The Colonial Medicine of Settler States: Comparing Histories of Indigenous Health." *Health and History* 9, no. 2 (2007): 144-54.
- Angus, Deaton. "Policy Implications of the Gradient of Health and Wealth." *Health Affairs* 21, no. 2 (2002): 13.
- Armsden, Gay, and Mark Greenberg. "The Inventory of Parent and Peer Attachment: Individual Differences and Their Relationship to Psychological Well-Being in Adolescence." *Journal of Youth and Adolescence* 16, no. 5 (1987): 427-54.
- Beals, J., N. Whitesell, Y. Roubideaux, and S. Manson. "Stress Burden and Diabetes in Two American Indian Reservation Communities." *Diabetes Care* 31, no. 3 (2008): 427.
- Berzok, Linda Murray. *American Indian Food*. Food in American History,. Westport, Conn.: Greenwood Press, 2005.
- Block, Jason P., Yulei He, Alan M. Zaslavsky, Lin Ding, and John Z. Ayanian. "Psychosocial Stress and Change in Weight among Us Adults." *American Journal of Epidemiology* 170, no. 2 (July 15, 2009): 181-92.
- Board on Children, Youth, Families, Institute of Medicine, and National Research Council. *Adolescent Risk and Vulnerability: Concepts and Measurement*. edited by Baruch Fischhoff, Elena O. Nightingale and Joah G. Iannotta: The National Academies Press, 2001.
- Brave Heart, Maria Yellow Horse. "Gender Differences in the Historical Trauma Response among the Lakota." *Journal of Health & Social Policy* 10, no. 4 (1999): 1-20.
- Broussard, BA. "Toward Comprehensive Obesity Prevention Programs in Native American Communities." *Obesity Research* 3 Suppl 2, no. 1071-7323 (1995): 289-97.
- Brown, Blakely D., Kari Jo Harris, Jeri Lyn Harris, Martin Parker, Christiana Ricci, and Curtis Noonan. "Translating the Diabetes Prevention Program for Northern Plains Indian Youth through Community-Based Participatory Research Methods." *The Diabetes Educator* 36, no. 6 (November/December 2010): 924-35.

Bullock, Ann, and Ronny A. Bell. "Stress, Trauma, and Coronary Heart Disease among Native Americans." *American Journal of Public Health* 95, no. 12 (2005/12/01 2005): 2122-b-23.

Bureau of Justice Statistics. U.S. Department of Justice. "Ai/Ans and Crime." <http://bjs.ojp.usdoj.gov/content/pub/pdf/aic.pdf>.

Butler, Benjamin Franklin Republican, and U. S. Congress. House. Committee on Appropriations. "Support of Indians. February 22, 1869. -- Ordered to Be Printed, and Committed to the Committee of the Whole House on the State of the Union." 1869.

Campbell, Gregory R. "The Changing Dimension of Native American Health: A Critical Understanding of Contemporary Native American Health Issues ". *American Indian Culture and Research Journal* 13, no. 3, 4 (1989): 1-20.

Cantrell, Betty Geishirt. "Access and Barriers to Food Items and Food Preparation among Plains Indians." *Wicazo Sa Review* 16, no. 1 (2001): 65-74.

Caprio, Sonia, Stephen R. Daniels, Adam Drewnowski, Francine R. Kaufman, Lawrence A. Palinkas, Arlan L. Rosenbloom, and Jeffrey B. Schwimmer. "Influence of Race, Ethnicity, and Culture on Childhood Obesity: Implications for Prevention and Treatment." *Diabetes Care* 31, no. 11 (November 2008 2008): 2211-21.

Center for Disease Control and Prevention. "Diabetes Education in Tribal Schools " <http://www3.niddk.nih.gov/fund/other/dets/curr supplements.htm>.

———. "Diabetes Public Health Resource." http://www.cdc.gov/diabetes/projects/programs_ndwp.htm.

———. "Diabetes Public Health Resource." <http://www.cdc.gov/diabetes/projects/diabetes-wellness.htm>.

———. "Diabetes Public Health Resource." http://www.cdc.gov/diabetes/projects/eagle_granteemap_con.htm.

———. "Overweight and Obesity." <http://www.cdc.gov/obesity/data/trends.html>.

———. "Suicide Data Sources." <http://www.cdc.gov/ViolencePrevention/suicide/datasources.html>.

"Center for Disease Control and Prevention Diabetes Public Health Resource."
<http://www.cdc.gov/diabetes/projects/diabetes-wellness.htm>.

Charles B. Stockdale and Michael B. Sauter. "Eight Products the Facebook Generation Will Not Buy."
<http://finance.yahoo.com/news/eight-products-the-facebook-generation-will-not-buy.html>.

Chino, Michelle, and Lemyra DeBruyn. "Building True Capacity: Indigenous Models for Indigenous Communities." [In English]. *American Journal of Public Health* 96, no. 4 (April 2006): 596-9.

Clifton, James A. *The Prairie People : Continuity and Change in Potawatomi Indian Culture, 1665-1965*. An expanded ed. Iowa City: University of Iowa Press, 1998.

Confederated Tribes of Siletz Indians. "Healthcare." <http://www.ctsi.nsn.us/Siletz-Tribal-Services-Umpqua-Clackamas-County-warm-springs-Multnomah-Falls-Tillamook/healthcare/health-and-wellness/diabetes-program>.

Cora, Lorelei de. "The Diabetic Plague in Indian Country: Legacy of Displacement." *Wicazo Sa Review* 16, no. 1 (2001): 9-15.

Corbett James. "A History of the Diet of Prairie Band Potawatomi ", 2007.

Cullmann, M., A. Hilding, and C. G. Östenson. "Alcohol Consumption and Risk of Pre-Diabetes and Type 2 Diabetes Development in a Swedish Population." *Diabetic Medicine* 29, no. 4 (2012): 441-52.

Dallman, Mary F., Norman Pecoraro, Susan F. Akana, Susanne E. la Fleur, Francisca Gomez, Hani Houshyar, M. E. Bell, *et al.* "Chronic Stress and Obesity: A New View of "Comfort Food"." *Proceedings of the National Academy of Sciences* 100, no. 20 (September 30, 2003 2003): 11696-701.

David Shaffer F.R.C.P., F.R.C. Psych., and Leslie Craft MSW.,. "Methods of Adolescent Suicide Prevention." *Journal of Clinical Psychiatry* 60, no. 2 (1999): 70-74.

DeJong, David H. *"If You Knew the Conditions." A Chronicle Ofthe Indian Medical Service and American Indian Healthcare 1908-1955* Lexington Books, 2008.

Duran, Eduardo. *Transforming the Soul Wound : A Theoretical/Clinical Approach to American Indian Psychology*. Berkeley, CA: Folklore Institute, 1990.

Duran, Eduardo, and Bonnie Duran. *Native American Postcolonial Psychology*. Suny Series in Transpersonal and Humanistic Psychology. Albany: State University of New York Press, 1995.

Eastern Band of Cherokee. "Eastern Band of Cherokee." <http://nc-chokeee.com/>.

Economic Research Service. "The Economics of Food, Farming, Natural Resources, and Rural America." <http://www.ers.usda.gov/Search/?qt=american+indian+poverty>.

Ellaway, A., Macintyre, S., & Bonnefoy, X. "Graffiti, Greenery, and Obesity in Adults: Secondary Analysis of European Cross Sectional Survey." *British Medical Journal* 331 (2005): 611-12.

Emery, Matt. "Caveman Power." http://www.cavemanpower.com/food/caveman_power_diet.html.

Evans-Campbell, Teresa. "Historical Trauma in American Indian/Native Alaska Communities." *Journal of Interpersonal Violence* 23, no. 3 (2008): 316-38.

Fee, Margery. "Racializing Narratives: Obesity, Diabetes and the "Aboriginal" Thrifty Genotype." *Social Science & Medicine* 62, no. 12 (2006): 2988-97.

Ferreira Mariana Leal, Lang Gretchen Chesley, ed. *Indigenous Peoples and Diabetes Community Empowerment and Wellness*, Medical Anthropology Series. Durham North Carolina Carolina Academic Press, 2006.

Fryberg, Stephanie A., Hazel Rose Markus, Daphna Oyserman, and Joseph M. Stone. "Of Warrior Chiefs and Indian Princesses: The Psychological Consequences of American Indian Mascots." *Basic & Applied Social Psychology* 30, no. 3 (2008): 208-18.

Gabriel Cousens, Andreas Moritz, Jack Challem,. "High-Fructose Corn Syrup and Diabetes: What the Experts Say." http://www.naturalnews.com/026468_sugar_Amazon_corn.html.

Gearhardt, Ashley N., Carlos M. Grilo, Ralph J. DiLeone, Kelly D. Brownell, and Marc N. Potenza. "Can Food Be Addictive? Public Health and Policy Implications." *Addiction* 106, no. 7 (2008): 1208-12.

Gittelsohn, Joel, Jean A. Anliker, Sangita Sharma, Amy E. Vastine, Benjamin Caballero, and Becky Ethelbah. "Psychosocial Determinants of Food Purchasing and Preparation in American Indian Households." *Journal of Nutrition Education & Behavior* 38, no. 3 (2006): 163-68.

- Goodkind, Jessica R., Kimberly Ross-Toledo, Susie John, Janie Lee Hall, Lucille Ross, Lance Freeland, Ernest Coletta, *et al.* "Promoting Healing and Restoring Trust: Policy Recommendations for Improving Behavioral Health Care for American Indian/Alaska Native Adolescents." *American Journal of Community Psychology* 46, no. 3/4 (2010): 386-94.
- Hill, Doris Leal. "Sense of Belonging as Connectedness, American Indian Worldview, and Mental Health." *Archives of Psychiatric Nursing* 20, no. 5 (2006): 210-16.
- Hill, Jill S., Michael Y. Lau, and Derald Wing Sue. "Integrating Trauma Psychology and Cultural Psychology: Indigenous Perspectives on Theory, Research, and Practice." *Traumatology* 16, no. 4 (December 1, 2010 2010): 39-47.
- Indian Health Service. "Nc4 National Council of Chief Clinical Consultants."
<http://www.ihs.gov/nonmedicalprograms/nc4/index.cfm?module=fp>.
- Irving N. Berlin, MD. "Suicide among American Indian Adolescents: An Overview." *Suicide & Life-Threatening Behavior* 17, no. 3 (1987): 218-32.
- Islam-Zwart, Kayleen, and Cawston, Alvina "Investigation of Factors Contributing to Diabetes Risk in American Indian/Alaska Native Youth." *American Indian and Alaska Native Health Research* 14, no. 49-58 (2008).
- Jago, R., Baranowski, T., Zakeri, I. & Harris, M. . "Observed Environmental Features and the Physical Activity of Adolescent Males." *American Journal of Preventive Medicine* 29 (2005): 98-104.
- Jeffrey J Bachar, Lisa J Lefler, Lori Reed, Tara McCoy, Robin Bailey, Ronny Bell,. "Cherokee Choices: A Diabetes Prevention Program for American Indians." *Preventing Chronic Disease* 3, no. 3 (2006).
- Jeffrey P. Koplan, Catharyn T. Liverman, Vivica I. Kraak, , ed. *Preventing Childhood Obesity Health in the Balance*. Washington D.C.: Institute of Medicine, 2005.
- Jill Richardson. "How America Is Making the Whole World Fat and Unhealthy."
http://www.alternet.org/food/154464/how_america_is_making_the_whole_world_fat_and_unhealthy?page=entire.
- Jill S. Hill, Michael Y. Lau, Derald Wing Sue. "Integrating Trauma Psychology and Cultural Psychology: Indigenous Perspectives on Theory, Research, and Practice." *Traumatology* 16, no. 4 (2010): 39-47.

Johansen, Bruce E. *The Praeger Handbook on Contemporary Issues in Native America*. 2 vols Westport, Conn.: Praeger, 2007.

Judy Wabaunsee. 2009.

Kaiser State Health Facts. "Kansas: Diabetes."
<http://www.statehealthfacts.org/profileind.jsp?cat=2&rgn=18&sub=22>.

Lake, A.A., Townsend, T. . "Diet, Physical Activity, Sedentary Behaviour and Perceptions of the Environment in Young Adults ". *Journal of Human Nutrition and Dietetics* 22 (2009): 444-54.

Lee, Elisa T., Momotaz Begum, Wenyu Wang, Piers R. Blackett, Kathleen S. Blevins, Martha Stoddart, Bernadine Tolbert, and Petar Alaupovic. "Type 2 Diabetes and Impaired Fasting Glucose in American Indians Aged 5â€“40 Years: The Cherokee Diabetes Study." *Annals of Epidemiology* 14, no. 9 (2004): 696-704.

Lewis Mehl-Madrona M.D. *Coyote Medicine Lessons from Native American Healing*. New York, NY: Simon & Schuster, 1997.

Lieb C. David, Snow E. Rodney, DeBoer D. Mark. "Socioeconomic Factors in the Development of Childhood Obesity and Diabetes." *Clin Sports Med* 28, no. 3 (2009): 349-78.

Live Strong .Com. "Buffalo Meat Versus Beef Nutrition." <http://www.livestrong.com/article/372112-buffalo-meat-versus-beef-nutrition/>.

Louellyn White, Joseph "Jay" H. Stauss, and Claudia E. Nelson. "Healthy Families on American Indian Reservations: A Summary of Six Years of Research by Tribal College Faculty, Staff, and Students ". *American Indian and Research Journal* 30, no. 4 (2006): 99-114.

Macaulay, Ann C., Gilles Paradis, Louise Potvin, Edward J. Cross, Chantal Saad-Haddad, Alex McComber, Serge Desrosiers, *et al.* "The Kahnawake Schools Diabetes Prevention Project: Intervention, Evaluation, and Baseline Results of a Diabetes Primary Prevention Program with a Native Community in Canada." *Preventive Medicine* 26, no. 6 (1997): 779-90.

Mays, Vickie M., Susan D. Cochran, and Namdi W. Barnes. "Race, Race-Based Discrimination, and Health Outcomes among African Americans." *Annual Review of Psychology* 58, no. 1 (2007): 201-25.

Menschik, David, Saifuddin Ahmed, Miriam H. Alexander, and Robert Wm Blum. "Adolescent Physical Activities as Predictors of Young Adult Weight." *Arch Pediatr Adolesc Med* 162, no. 1 (January 1, 2008): 29-33.

Mihesuah Devon L. "Decolonizing Our Diets by Recovering Our Ancestors' Gardens." *American Indian Quarterly* 27, no. 3/4 (2003): 807-39.

Milburn, Michael P. "Indigenous Nutrition: Using Traditional Food Knowledge to Solve Contemporary Health Problems." *American Indian Quarterly* 28, no. 3/4 (Summer/Fall 2004): 411-34.

Morsette Aaron. "Trauma in American Indian Communities."
<http://www.giftfromwithin.org/html/amindian.html>.

Narayan KM. etc. "Randomized Clinical Trial of Lifestyle Interventions in Pima Indians: A Pilot Study." *diabetes medicine* 15 (1997): 66-72.

"National Center for Education Statistics." 2010.

National Center for Educational Statistics. "Status and Trends in the Education of American Indians and Alaska Natives: 2008." http://nces.ed.gov/pubs2008/nativetrends/ind_1_6.asp.

National Humanities Center. "The Expedition of Hernando De Soto in Southeastern North American, 1539-1543."
<http://nationalhumanitiescenter.org/pds/amerbegin/exploration/text1/desoto.pdf>.

"National Indian Health Board." <http://www.nihb.org/legislative/ihtcia.php>.

National Indian Health Board. "Public Health." <http://www.nihb.org/>.

Nonas, Cathy A., and Gary D. Foster, ed. *Managing Obesity a Clinical Guide Second Edition*: American Dietetic Association, 2009.

Oliver De Schutter. "Report Submitted by the Special Rapporteur on the Right to Food." United Nations Human Rights Council, 2011.

Olson, Brooke. "Applying Medical Anthropology: Developing Diabetes Education and Prevention Programs in American Indian Cultures." [In English]. *American Indian Culture and Research Journal* 23, no. 3 (1999): 185-203.

Peters, Achim, Britta Kubera, Christian Hubold, and Dirk Langemann. "The Selfish Brain: Stress and Eating Behavior." [In English]. *Frontiers in Neuroscience* 5 (2011-May-30).

Pine, Charles J. "Anxiety and Eating Behavior in Obese and Nonobese American Indians and White Americans ". *Journal of Personality and Social Psychology* 49, no. 3 (1985): 774-80.

Prairie Band Potawatomi Health Center. "Diabetes Prevalence Report." 2011.

———. "Risk for Overweight Prevalence Report." 1996-2010.

Prairie Band Potawatomi Nation. "Welcome to the Home of the Prairie Band Potawatomi Nation." <http://www.pbpindiantribe.com/default.aspx>.

Prevention, Center for Disease Control and. "Native Diabetes Wellness Program Standing Rock Sioux Tribe." http://www.cdc.gov/diabetes/projects/eagle_granteemap_sta.htm.

Richards, Timothy J., and Paul M. Patterson. "Native American Obesity: An Economic Model of The ?Thrifty Gene? Theory." [In English]. *American Journal of Agricultural Economics* 88, no. 3 (August 2006): 542-60.

Robbins J.A. Dewar J. "Traditional Indigenous Approaches to Healing and the Modern Welfare of Traditional Knowledge, Spirituality and Lands: A Critical Reflection on Practices and Policies from the Canadian Indigenous Example. ." *The International Indigenous Policy Journal* 2, no. 4 (2011).

Roberts, Henry. "Trend Analysis of Diagnosed Diabetes Prevalence among American Indian/Alaska Native Young Adults--United States, 1994-2007." *Ethnicity and Disease* 19, no. 3 (2009): 276-9.

Rogers, Peter J. "Obesity – Is Food Addiction to Blame?". *Addiction* 106, no. 7 (1213-14).

Sanders-Phillips, Kathy, Beverlyn Settles-Reaves, Doren Walker, and Janeese Brownlow. "Social Inequality and Racial Discrimination: Risk Factors for Health Disparities in Children of Color." *Pediatrics* 124, no. Supplement 3 (November 2009 2009): S176-S86.

Sarche, Michelle, and Paul Spicer. "Poverty and Health Disparities for American Indian and Alaska Native Children." *Annals of the New York Academy of Sciences* 1136, no. 1 (2008): 126-36.

Satterfield, Dawn W., Dara Murphy, Joyce D. K. Essien, Gwen Hosey, Melissa Stankus, Pete Hoffman, Kaetz Beartusk, Patricia L. Mitchell, and Ana Alfaro-Correa. "Using the Essential Public Health

- Services as Strategic Leverage to Strengthen the Public Health Response to Diabetes." *Public Health Reports (1974-)* 119, no. 3 (2004): 311-21.
- Seva Foundation. "Diabetes Talking Circles."
http://www.seva.org/site/PageServer?pagename=News_talking_circles.
- Smith-Morris, Carolyn. "Community Participation in Tribal Diabetes Programs." [In English]. *American Indian Culture and Research Journal* 30, no. 2 (2006): 85-110.
- Smith-Morris, Carolyn M. "Reducing Diabetes in Indian Country: Lessons from the Three Domains Influencing Pima Diabetes." *Human Organization* 63, no. 1 (2004): 34-46.
- Sotero, Michelle M. "A Conceptual Model of Historical Trauma: Implications for Public Health Practice and Research ". *Journal of Health Disparities Research and Practice* 1, no. 1 (2006): 93-108.
- Spear, Bonnie A., Sarah E. Barlow, Chris Ervin, David S. Ludwig, Brian E. Saelens, Karen E. Schetzina, and Elsie M. Taveras. "Recommendations for Treatment of Child and Adolescent Overweight and Obesity." *Pediatrics* 120, no. Supplement 4 (December 2007 2007): S254-S88.
- Standing Rock Sioux Tribe. "Tribal Programs." <http://www.standingrock.org/>.
- Steckel, Richard. "Standing Tall: Plains Indians Enjoyed Height Health Advantage."
<http://researchnews.osu.edu/archive/tallind.htm>.
- Story, Mary, Marguerite Evans, Richard R. Fabsitz, Theresa E. Clay, Bonnie Holy Rock, and Brenda Broussard. "The Epidemic of Obesity in American Indian Communities and the Need for Childhood Obesity-Prevention Programs." *Am J Clin Nutr* 69, no. 4 (April 1, 1999 1999): 747S-54.
- Surwit R. S., Feinglos M. "Stress and Diabetes Mellitus ". *Diabetes Care* 15, no. 10 (1992): 1413-22.
- Surwit, R. S., and M. S. Schneider. "Role of Stress in the Etiology and Treatment of Diabetes Mellitus." *Psychosomatic Medicine* 55, no. 4 (July 1, 1993 1993): 380-93.
- Teen Suicide. "Teen Suicide." www.teensuicide.us.
- Teufel, Nicolette I., and Cheryl K. Ritenbaugh. "Development of a Primary Prevention Program: Insight Gained in the Zuni Diabetes Prevention Program." *Clinical Pediatrics* 37, no. 2 (February 1, 1998 1998): 131-41.

Thierry, Judith. "History, Law, and Policy as a Foundation for Health Care Delivery for American Indian and Alaska Native Children." *Pediatric Clinics of North America* 56, no. 6 (2009).

Time. "Why We Conform to the Group: It Gets Your Brain High."
<http://healthland.time.com/2010/11/04/why-we-conform-to-the-group-it-gets-your-brain-high/>.

Timothy Caulfield. "Popular Media, Biotechnology, and the "Cycle of Hype"." *Houston Journal of Health and Law Policy* (2005): 213-33.

Tjaden Patricia., Thoennes Nancy. "Prevalence, Incidence, and Consequences of Violence against Women: Findings from the National Violence against Women Survey. Research in Brief.", edited by Department of Justice. Washington D.C., 1998.

U.S. Census Bureau. "Facts on the American Indian and Alaskan Native Population."
http://www.census.gov/newsroom/minority_links/aian.html.

———. "Poverty: 2008 and 2009." <http://www.census.gov/prod/2010pubs/acsbr09-1.pdf>.

U.S. Department of Health & Human Services. "Division of Diabetes Treatment and Prevention."
<http://www.ihs.gov/MedicalPrograms/Diabetes/>.

———. "Indian Health Service." <http://www.ihs.gov/index.cfm>.

———. "National Diabetes Information Clearinghouse (Ndic)."
<http://diabetes.niddk.nih.gov/dm/pubs/preventionprogram/>.

———. "The Office of Minority Health."
<http://minorityhealth.hhs.gov/templates/browse.aspx?lvl=2&lvlID=52>.

———. "Special Diabetes Program for Indians: State Fact Sheets Montana."
http://www.ihs.gov/MedicalPrograms/Diabetes/index.cfm?module=resourcesFactSheets_MTstate6208.

U.S. Department of Health & Human Services Indian Health Service. "Ihs Fact Sheets Indian Health Disparities." <http://www.ihs.gov/PublicAffairs/IHSBrochure/Disparities.asp>.

United States Department of Health & Human Services. "Healthy People 2010." 12-13: DHHS, 2000.

University of Maryland Medical Center. "Adolescent Development - Overview."
<http://www.umm.edu/ency/article/002003.htm>.

University of Wisconsin Digital Collections. "United States. Office of Indian Affairs / Annual Report of the Commissioner of Indian Affairs, for the Year 1910 ([1910])." 2010.

Walters, Karina L., Jane M. Simoni, and Teresa Evans-Campbell. "Substance Use among American Indians and Alaska Natives: Incorporating Culture in an "Indigenist" Stress-Coping Paradigm." *Public Health Reports* 117, no. 3 (2002): S104(14).

Warne, Donald. "Research and Educational Approaches to Reducing Health Disparities among American Indians and Alaska Natives." *Journal of Transcultural Nursing* 17, no. 3 (July 1, 2006 2006): 266-71.

———. "The State of Indigenous America Series: Ten Indian Health Policy Challenges for the New Administration in 2009.(Report)." *Wicazo Sa Review* 24, no. 1 (2009): 7(17).

Waziyatawin Angela Wilson and Michael Yellow Bird, ed. *For Indigenous Eyes Only a Decolonization Handbook*, Native America Series. Santa Fe: School of American Research Press, 2005.

Wexler, Lisa. "Identifying Colonial Discourses in Inupiat Young People's Narratives as a Way to Understand the No Future of Inupiat Youth Suicide.(Brief Article)." *American Indian and Alaska Native Mental Health Research: The Journal of the National Center* (2009): NA.

Whitbeck, Les B., Gary W. Adams, and Dan R. Hoyt. "Conceptualizing and Measuring Historical Trauma among American Indian People." [In English]. *American Journal of Community Psychology* 33, no. 3/4 (June 2004): 119-30.

William W. Dressler. *Stress and Adaptation in the Context of Culture: Depression in a Southern Black Community*. Albany, New York: State University of New York Press, 1991.

World Health Organization. "Diabetes Fact Sheet #312."
<http://www.who.int/mediacentre/factsheets/fs312/en/>.

Yellow Horse Brave Heart - Jordan M. "The Return to the Sacred Path: Healing from Historical Trauma and Historical Unresolved Grief among the Lakota." Doctoral Dissertation Smith College, 1995.

Yellow Horse Brave Heart, Maria. "The Historical Trauma Response among Natives and Its Relationship with Substance Abuse: A Lakota Illustration ". *Journal of Psychoactive Drugs* 35 (2003): 7-13.

Yellow Horse Brave Heart, Maria., Lemyra M. DeBruyn. "The American Indian Holocaust: Healing Historical Unresolved Grief." *American Indian and Alaska Native Mental Health Research* 8, no. 2 (1998).