THE RELATIONSHIPS OF HISTORICAL LOSS, ACCULTURATION, RACISM AND EMOTIONAL DISTRESS TO BINGE EATING AND BODY MASS INDEX AMONG NATIVE AMERICANS

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CHAPTER I

INTRODUCTION

Ethnic cleansing, relocation, and forced acculturation are discriminatory acts that serve as reminders of a person's "place" in the hierarchies of society (Whitbeck, Chen, Hoyt, Adams, 2004b, p. 416). As Phinney (1996) noted, there are three factors of ethnicity that may be important to one's mental health including ethnic identity, the individual experiences of being a minority, and the unique aspects of one's culture. These three factors must be understood and taken into account when addressing the mental health needs of Native Americans whose experiences in American history are unique and often overlooked, or minimized. As the quest for economic fortune and independence grew among immigrants to what would one day become the United States of America so did the desire to possess lands that were inhabited by the indigenous peoples of North America. As a result of greed, ethnocentrism and lack of human compassion, Native American people were systematically dispossessed of their culture which included their land, language, lifestyle, family systems, and spiritual practices (Adams, 1995; Szasz, 1999).

As more and more immigrants arrived in North America, the lands inhabited by the indigenous peoples became desirable and many policymakers of the time believed that "only a society built upon the broad foundation of private property could guarantee public morality, political independence, and social stability" (Adams, 1995, p. 5). As a

result, the United States government created policies and propaganda that were intended to relieve America's original inhabitants of their real estate. Essentially Native people had two options: civilization or extinction (Adams, 1995; Szasz, 1999). The ethnocentric views of 19th century policy makers created such policies as the Civilization Fund in 1819 and the nation's first superintendent of Indian Affairs was appointed (Adams, 1995; Szasz, 1999). However, there was not enough money to address, or control, the behaviors of the 'civilized' "land-hungry, Indian-hating frontiersmen" (Adams, 1995, p. 6) nor did the creators of policy take into account that perhaps the civilized ways of whites would be rejected by the 'savages'. When these initial endeavors proved to be unsuccessful, philanthropists, assimilationists, reformers and policy makers agreed that perhaps moving the Indians to lands west of the Mississippi would allow them to live peacefully away from overzealous land mongers and would give them an opportunity to perhaps more fully embrace the lifestyle of the more powerful and dominant culture. Unfortunately this idea failed as well as would be gold miners, settlers and frontiersmen continued moving westward and continued to ignore the rights of those indigenous to North America. This continuous encroachment severely disrupted many tribe's nomadic lifestyle as food supplies, namely bison herds, were depleted, followed by the advent of the railroad, telegraph and military outposts at the end of the Civil War (Adams, 1995). By 1871, following years of bloodshed and with the now almost extinct buffalo herds, the reservation system was created and Native Americans became a colonized group of people who had become wards of the U.S. government (Adams, 1995; Szasz, 1999; Lomawaima, 1994). According to Adams (1995), the reservation system created even more problems: it helped to maintain some sense of tribal community; it created a

dependence upon the government for rations and commodities; and it reinforced the reduction of any motivation to farm the land. Experience had taught the Native Americans that no sooner would they cooperate with the most recent government policy and it would be time to move further westward as the urging of white settlers requests to obtain more land besieged Congress.

The late 1870's brought about the first extensive funding that was to go towards the education of Native American children and boarding schools were opened with the idea of educating Indian children in the ways of the white man (Adams, 1995; Szasz, 1999; Lomawaima, 1994; Ellis). The removal of Indian children from their homes and placement in boarding school also served the purpose of weakening the family systems and cultural practices of Native American people. The opportunity to mourn the loss of family, language and a way of life was not given to those taken from their families and placed in boarding schools. These losses were minimized and not seen as important. Boarding schools, based on military ideas and principles, did not allow for individuality or the speaking of one's language (Colmant, Schultz, Robbins, Ciali, Dorton, & Rivera-Colmant, 2004).

The idea behind the boarding school system was to give Indian people the skills such as farming for men or training in the domestic arts for women (Ellis, 1996; Lomawaima, 1994) so as to be successful in the white man's world. However, boarding schools were not the answer either as they were often besieged by funding difficulties, unqualified teachers, poor facilities, and poor management, both by the onsite personnel and government officials (Adams, 1995; Ellis, 1996; Lomawaima, 1994; Szasz, 1999). When the troubled boarding schools were closed, the children were forced to attend

public schools, often at the protest of the White parents and school personnel, making the transition difficult if not non-existent (Ellis, 1996). Presently, in the 21st century boarding schools still exist (Colmant et al. 2004).

So how have these historical events affected Native American people? In summary, as a result of United States policies that upheld forced removal from ancestral lands, reservation systems, boarding school attendance, land allotments and urban relocation programs, many Native Americans have been far removed from their communities and traditional cultures resulting in experiences of loss, acculturative stress, racism and increased feelings of distress as a result of the government's attempts at assimilation.

Removal from ancestral lands was an arduous process where many died along the way and those in charge did not allow for the proper burial of those who died en route. Upon arrival at their new homes, culturally accepted rituals of mourning were banned. The inability to participate in culturally relevant mourning rituals is a component of historical loss among Native Americans (Brave Heart & DeBruyn, 1998). Emotions associated with historical loss are those feelings of unresolved grief that have been passed down from those who initially experienced trauma, related to the many historical events mentioned above, to current generations of Native American adults (Whitbeck, Adams, Hoyt, & Chen, 2004a).

Historical loss, or grief over the loss of Native American culture, is a relatively new concept and area of study (Whitbeck et al. 2004a; Whitbeck, et al. 2004b). In addressing the mental and physical health needs of Native people, it is important to understand how unresolved grief is related to experiences of acculturation,

discrimination, and emotional distress. It is important to understand the unique experiences of Native American people as these are factors that may influence behaviors such as binge eating as a coping mechanism, which may lead to obesity and ultimately to more life-threatening diseases such as diabetes, heart disease and hypertension.

Few researchers have examined the prevalence rates or symptom expression of eating disorders in relation to experiences of acculturation and racism among ethnic minority groups. Streigel-Moore and Smolak (2000) noted that current theoretical models of eating disorders support the notion that personality, family and culture are three interrelated risk factors that contribute to eating disorders, but what it is about specific cultures that influence eating behaviors is still relatively unknown. While genetic factors may influence one's propensity to be overweight or obese, one's environment is also an important factor. "As native populations become Westernized, their risk of obesity rises dramatically" (Wing & Polley, 2001, p. 266) when a more Western diet is adopted and physical activity decreases. The Pima Indians are a good representation of these effects as it can be seen that those living a more acculturated lifestyle experience higher rates of diabetes, a disease that has been linked to a more Westernized diet. In contrast, Pimas who were able to remain where their culture, lifestyle and diet were left intact have not experienced the effects of this debilitating disease (Wing & Polley, 2001). This provides some evidence to support the negative effects of Westernization or acculturation on the physical and mental well-being of the indigenous people of North America.

The Westernization or acculturation process has been a painful one for many Native people (Glendinning, 1994). Psychological or emotional distress is found in over 30% of Native people presenting for mental health services. Many researchers (Brave

Heart, 2003; Brave Heart & DeBruyn, 1998; Colmant et al. 2004; Duran & Duran, 1995; Schultz, 2005; Whitbeck et al. 2004a; Whitbeck et al. 2004b; Winterowd, Miville, Willmon, Dudley, Schultz, Sheader-Wood, Warner, Big Foot, & Cannon, 2001) have tried to capture the essence of the emotional and psychological wounding Native American people have experienced.

Several researchers have attempted to capture the meaning of emotional distress based on the experiences of Native people. Duran and Duran (1995) uses the term soul wound and describes this as being the result of over five hundred years of suffering and neglect that has contributed to the high rates of alcoholism, suicide, anxiety, depression and school dropouts among Indian people. Others have termed this emotional/spiritual experience as one of post-colonial stress (Schultz, 2005; Winterowd et al. 2001). This psychological distress often times becomes externally manifested in the form of violence or internalized in the form of self-hatred. These feelings of self-hatred may be acted out in the form of overindulgence with alcohol or food or ultimately, acts of suicide. Others such as Brave Heart (2003) consider the experiences of forced acculturation to be ones of historical trauma. The experiences of historical trauma lead to responses such as depression, anger, and the inability to express emotion, the symptoms of which may be passed from one generation to the next because they are never truly resolved. These feelings of unresolved grief are known as historical loss (Whitbeck et al. 2004a; Whitbeck et al. 2004b). The current generations of Native American adults have thoughts related to perceived historical losses and experience emotional responses such as anger, depression and anxiety (Whitbeck et al. 2004a).

Acculturation for Native Americans refers to their level of identification with

traditional or tribal culture versus the dominant White culture (Choney, Berryhill-Paapke, & Robbins, 1995). Native people who are highly acculturated tend to adhere to a lifestyle that is in keeping with the dominant culture where as traditional native people tend to participate or engage in a lifestyle that is more in keeping with their tribal culture. Maintaining ties to tribal activities, language or practices can provide a source of support and acceptance for Native American people.

The ability to maintain close ties to one's culture has been shown to be an important buffer against the physical and mental effects of being exposed to White culture and assimilation efforts (Office of Minority Health (OMH), 2002; Sue, 2000). As Native people attempt to live more acculturated lifestyles, they often encounter discrimination or experiences of racism which can be described as "beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation" (Clark, Anderson, Clark & Williams, 1999, p. 805). Perceived racism is the "subjective experience of prejudice or discrimination while attitudinal racism is represented through attitudes and beliefs" (Clark et al. 1999, p. 808). Behavioral racism "denies equitable treatment" to people based on a perceived association with an ethnic group based on appearance (Clark et al. 1999, p. 805). Among Native American people racism has been associated with feelings of loss (Whitbeck et al. 2004b).

In their attempts to numb the pain of their losses, many Native American individuals and families have turned to substances (Cain, 2007) resulting in further emotional and physical health problems. Pain numbing substances include not only

alcohol and drugs, but food as well. When food is used to alleviate emotional pain, it is often done in the form of binge eating.

Binge eating is considered to be engaging in at least three of the following behaviors: (1) eating at a rapid rate; (2) eating until uncomfortably full; (3) consuming large amounts of food when not physically hungry; (4) eating alone due to embarrassment about the amount of food being consumed; or (5) feeling disgusted, depressed, or very guilty after overeating (American Psychiatric Association,(2000), Diagnostic and statistical manual of mental Disorders (4th ed.). Text Revision, (DSM-IV-TR); Gormally, Black, Daston, & Rardin, 1982).

Statement of the Problem

No research to date has been conducted to explore the factors associated with binge eating and body mass index among Native American adults. While binge eating behaviors (DSM-IV-TR, 2000, p. 787) in and of themselves may or may not lead to obesity, which is defined as having a body mass index $\geq$ 30 (BMI, n.d.; Wing & Polley, 2001), obesity continues to be a significant health issue for many Native people (Barnes, Adams, & Powell-Griner, 2005; Denny, Holtzman, Goins, & Croft, 2005; Pine, 1985; Story, Evans, Fabsitz, Clay, Holy Rock & Broussard, 1999) one that often leads to diabetes, a disease that is all too common in many native communities (Barnes et al. 2005; Daniels, Goldberg, Jacobsen & Welty, 2006; Denney et al. 2005).

Purpose of the Study

The purposes of this study are to explore 1) the relationships between and among historical loss, acculturation, racism, emotional distress, binge eating, and obesity among Native American people; 2) the significant predictors of binge eating behaviors among

Native American people, and 3) the relationships of significant predictors of obesity (as measured by body mass index) among Native American people.

Significance of the study

During and following the colonization of North America, Native American people have experienced a great deal of cultural losses, including the removal from ancestral lands, loss of language, and loss of traditional ways, all of which are manifestations of racial discrimination. The emotional distress related to these experiences, sometimes termed the soul wound, post-colonial stress or historical trauma (Duran & Duran, 1995; Schultz, 2005; Winterowd et al. 2001; Brave Heart, 2003), has been passed down from one generation to the next and can be evident in direct as well as more subtle ways such as alcoholism, domestic abuse and violence, poverty, and health problems. Obesity and psychological distress have been identified as pressing health issues for Native American people. Unresolved grief and emotional distress related to experiences of a history of cultural losses and racial discrimination may affect the health and well-being of Native American people, including obesity and diabetes. It is important for psychologists to understand the personal, cultural, and historical factors that are related to Native American people's experiences that have impacted their physical, emotional, spiritual, and collective well-being.

Research Questions

1) What is the relationship between and among historical loss, acculturation, racism, emotional distress, binge eating and body mass index in Native American people?

2) What are the significant predictors of binge eating among Native American people? In particular, are the variables of historical loss, acculturation, racism, and/or emotional distress significant predictors of binge eating among Native American people?

3) What are the significant predictors of body mass index among Native American people? In particular, are the variables of historical loss, acculturation, racism, distress, and/or binge eating significant predictors of body mass index among Native American people?

Research hypotheses

The null hypotheses tested in this study were:

1) There will be no statistically significant bi-variate relationships between and among historical loss, acculturation, racism, emotional distress, binge eating and body mass index in Native American people.

2) Historical loss, acculturation, racism, and emotional distress will not contribute significantly to the understanding of binge eating among Native American people.

3) Historical loss, acculturation, racism, emotional distress, and binge eating will not contribute significantly to the understanding of body mass index among Native American people.

Assumptions

1) Participants were equally motivated to answer the questions openly and honestly.

2) A true representation of a participant's thoughts and feelings about historical loss, acculturation, racism, emotional distress, and binge eating was assessed by the chosen measures.

3) Participants in this study were considered to be Native American based on their self-reported information.

4) It was assumed that many Native American people have experienced historical loss. However, every tribe's experience with the government can be different in that some tribes have been able to maintain larger parts of their culture while others have not which may influence thoughts, feelings and experiences of historical loss, acculturation and racism. The level of historical loss, acculturation and racism experienced by an individual or their tribe or nation may vary greatly and therefore Native American participants sample in this study may not be representative of all Native American people.

5) Because this was an internet based study, it was assumed that participants have access to a computer and the internet, are technologically literate, have an e-mail account, and can read English and follow instructions well.

6) It is assumed that participants completed the survey in one sitting and were not interrupted by external factors.

Definition of Terms

Native Americans/Native people/Indian people: are defined as those who self-identify as Native American and/or maintain membership in a tribe recognized by the state or federal government. A Native person may also be one who is considered to have an affiliation with a tribe and/or is recognized by the Native community (Garrett & Pichette, 2000). Native American status will be self-reported by each participant on the demographic form.

Historical loss: the unresolved grief or loss associated with loss of culture which includes land, language and spiritual practices (Whitbeck et al. 2004a; Whitbeck et al. 2004b). Historical loss will be measured by the Historical Loss Scale (Whitbeck et al. 2004a).

Acculturation: Acculturation is defined as the level one participates within one culture or another. For this study it will be measured across a continuum that ranges from traditional Native American to assimilated mainstream American (Garrett & Pichette, 2000). Acculturation will be measured by the Native American Acculturation Scale (NAAS; Garrett & Pichette, 2000).

Racism: Racism will be defined as "beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation" (Clark, Anderson, Clark & Williams, 1999, p. 805). Perceived racism will be defined as the "subjective experience of prejudice or discrimination" (Clark et al. 1999, p. 808). Attitudinal racism is represented through attitudes and beliefs while behavioral racism "denies equitable treatment" to people based on a perceived association with an ethnic group based on appearance (Clark et al. 1999, p. 805). Racism will be measured by the Schedule of Racist Events-Generic (SRE-G; Lang, 2001).

Emotional distress: Emotional distress is defined as general feelings of stress or feelings of depression, anxiety, anger, hopelessness, and helplessness. Emotional distress will be measure by the Depression, Anxiety, Stress Scale (DASS-21, Lovibond & Lovibond, 1995).

Binge Eating: Binge eating as outlined in Criterion B in the DSM-IV-TR (2000) is defined as engaging in at least three of the following behaviors: "(1) Eating much more rapidly than normal; (2) Eating until feeling uncomfortably full; (3) Eating large amounts

of food when not feeling physically hungry; (4) Eating alone because of being embarrassed by how much one is eating; (5) Feeling disgusted with oneself, depressed, or very guilty after overeating" (p. 787). Criterion E is defined as: "binge eating not being associated with the regular use of inappropriate compensatory behaviors (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of Anorexia Nervosa or Bulimia Nervosa" (p. 787). Binge eating behavior will be assessed by the Binge Eating Scale (BES; Gormally et al. 1982) to assess for diagnostic characteristics of binge eating disorder as outlined in Criterion B in the DSM-IV-R. The Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000) will be used to identify those meeting criteria for anorexia nervosa, bulimia nervosa, and binge-eating disorders.

Body Mass Index: Overweight is defined as having a BMI of 25-29.9, while obesity is defined as a BMI greater than 30 (BMI, n.d.; Wing & Polley, 2001).

CHAPTER II

REVIEW OF LITERATURE

Obesity

In the United States, one out of every two people is overweight or obese. The 1999-2002 National Health and Nutrition Examination Surveys (National Center for Health Statistics, 2005) showed that 65 percent of adults between the ages of 20 and 74 were overweight and 31 percent of them were obese.

The Center for Disease Control (CDC) uses Body Mass Index (BMI) to provide a reliable indicator of body fatness when screening for weight categories that may lead to health problems. Body mass index (BMI) is weight (kg) divided by height (meters) squared and is highly correlated with measuring body fat. Overweight is defined as having a BMI of 25-29.9, while obesity is defined as having a BMI greater than 30 (BMI, n.d.; Wing & Polley, 2001). Among adults, body mass indexes above 27 contribute to increased health risks associated with obesity (diabetes, heart disease, high blood pressure). In one longitudinal study, women with BMIs between 19-21 had the lowest mortality rates; women with BMIs under 19 had less risk of mortality from heart disease and cancer than women with BMIs of 32 or higher (Wing & Polley, 2001).

Obesity has been associated with increased rates of morbidity and mortality and increased risk of heart disease, diabetes, hypertension and certain types of cancer (Sue, 2000). The severity of the symptoms of hypertension, arthritis, and other musculoskeletal problems increase in relation to excess body weight (National Center for Health

Statistics, 2005). The same study showed that sex, race, and ethnicity are variables that influence obesity. Of those 31 percent who were obese, 34 percent were women and 28 percent were men. Additionally, 33% of non-Hispanic White women were obese compared to 50% non-Hispanic Black women.

Incidence of Obesity Among Native Americans

Health statistics reveal that diabetes and obesity are health problems for Native American people. One of the leading causes of death among Native Americans is diabetes (OMH, n.d.; Sue, 2000). The chances of developing diabetes are related to the amount of weight gained since the age of 18 and overweight adults are 3 times more likely to develop the disease than non-overweight adults (Wing & Polley, 2001). It was not until the 1930's that diabetes among Native Americans became a common diagnosis. Type II diabetes mellitus is now diagnosed in epidemic proportions in these populations and can mostly be attributed to obesity (Story et al. 1999).

Native American men and women have higher rates of obesity than people in the general population. Native Americans are 1.6 times as likely to be obese when compared to Caucasian adults and 2.3 times as likely to be diagnosed with diabetes (OMH, n.d.; Sue, 2000).

In the National Medical Expenditure Survey, 1987 (U.S. Dept. of Health and Human Services, 2006), Native American males self-reported to be 34% overweight and females 40%. This was in comparison to the overall U.S. rates which were 24% and 25% respectively.

Among the Pimas, a tribe that has undergone extensive studies of their nutrition and lifestyle habits, males were found to be 61%-78% overweight and women 81%-87%.

Males and females in the Navajo tribe reported 33% of males ages 20-39 and 50%, ages 40-59, were overweight but less than 10% of males older than 60 were overweight. Sixty-six percent of women across all age groups in this tribe were overweight (Wing & Polley, 2001).

Men and women, ages 45-74 years, representing thirteen tribes living in Arizona, Oklahoma and the Dakotas were surveyed as part of The Strong Heart Study. The prevalence rate of obesity for males and females respectively were as follows: Arizona: 67% and 80%; Oklahoma: 65% and 71%; the Dakotas: 54% and 66%. Interestingly these statistics reflect that those living in more urban areas report higher rates of being overweight. Comparatively speaking, the Third National Health and Nutrition Examination Survey (NHANES III) Public-Use Data Files (n.d.) rates reflected only 27% of men and 28% of women across all races, but of the same ages, were overweight.

Another group of researchers (Story et al. 1999) examined archival data (1981-1998) on the prevalence of obesity and its associated risk factors across all ages and taken from several different Native American communities. Obesity across tribes varied considerably but overall, Native Americans of all ages were more obese compared to the general population. They recommended that prevention programs should be targeted for children given these obesity statistics as well as the low success rates in obesity treatment programs for the general population.

According to the 1999-2003 National Health Interview Surveys conducted by researchers at the National Center for Health Statistics (Barnes et al. 1995), American Indian/Alaskan Native (AIAN) adults experience health care problems such as obesity, hypertension, diabetes, and severe psychological distress at higher rates than other racial

groups. AIAN adults (30.4%) were as likely as Black adults (30.8%) to be a healthy weight but were less likely to be at a healthy weight when compared to Whites (40.9%) and Asians (62.8%). Among females, Whites (20.3%) and Asians (5.8%) were less likely than AIANs (29.4%) and Blacks (36.6%) to be obese. AIANs (13.2%) were more likely than any other racial group to have ever been told they had diabetes (Blacks 10.1%, Whites 5.7%, and Asians 5.5%). While AIANs were less likely than Blacks to have been diagnosed with hypertension, (29.7% compared to 33.9%), they were more likely than Whites (22.8%) and Asians (19.3%) to have high blood pressure. In addition, AIAN adults were two to five times more likely to have experienced severe psychological distress, or to have felt hopeless or worthless, most or all of the time, in the last 30 days, compared to White, Black, Asian, and Hispanic adults.

Factors Contributing to Obesity Among Native Americans

The health disparities of Native Americans compared to other racial groups may be influenced by a number of factors including culture, genetics, socioeconomic status, and behaviors/choices (The Office of Minority Health (OMH), 2002; Osvold & Sodowsky, 1993; Story et al. 1999). Cultural barriers, geographic location, and low income have been shown to be factors that may prevent some Native Americans from receiving quality medical care (OMH, n.d.; Story et al. 1999).

Acculturation For Native American people, environmental risk factors to health, such as poverty, can be correlated to the political and historical events that have influenced the geographical location of many tribes (Glendinning, 1994). Geographical location often dictates the availability of economic resources to purchase foods high in nutritional value. For example, approximately 33% of Native Americans live on

reservations or historic trust lands, limiting financial or job opportunities that could provide the economic resources necessary to purchase food such as fruits and vegetables. Topographically, these areas of the United States provide limited resources to grow and produce fruits and vegetables. Additionally, it is estimated that approximately 50% of those who identify as Native American currently live in urban areas (Story et al. 1999). Those relocated to urban areas may be far removed from their tribal communities and living in mainstream culture exposing them to potential stressors related to acculturation (e.g., discrimination, racism) (Sue, 2000). These types of forced acculturation, which for Native Americans has meant losing aspects of their culture, including their traditional diets (Sue, 2000), along with experiences of racism, can create feelings of distress, which may lead to use of food as a coping mechanism. The historical events of the removal and relocation of Native American tribes not only changed the dietary habits of many tribal communities but these events also placed Native people at higher risk for stress and experiences of racism. Moving entire tribes or nations of people also impacted their ability to retain their lifestyle and decreased their ability to engage in economically profitable activities.

Culture and socioeconomic status. Ethnic minority groups are more likely than non-ethnic groups to live at or below poverty level. Low socioeconomic status has been associated with poor nutrition, limited access to health care resources and few practices of preventive health care (Sue, 2000). Many factors, such as the availability of high fat foods and more sedentary lifestyles, have contributed to the increased rates of obesity over the last one to two generations of Native Americans. However from a historical perspective, the removal from ancestral lands affected the availability of foods and food

groups that were once a part of traditional diets. As part of the relocation policy, many Native communities were supplied with commodities that typically included foods that were high in fat and energy such as butter, lard, whole milk, flour, sugar, powdered eggs, and cheese. So, instead of being able to access the natural resources provided by their natural habitat, Indian people were forced to prepare foods that were conducive to the use of commodities. Other factors associated with the types of food available were cost, availability and shelf life. Opportunities for economic gain were limited in many areas as was the selection of foods available for consumption. Often times, the availability of refrigeration and/or electricity were issues that affected food choices.

Behaviors. In a population based survey, Hudson, Hiripi, Harrison, and Kessler (2007) confirmed earlier studies and found that those who were severely obese (BMI $\geq$ 40) tended to have lifetime histories of binge eating disorder. They also found that after controlling for age, sex and ethnicity, those with binge eating behaviors had a greater propensity to also meet criteria for mood, anxiety, impulse-control, and substance abuse disorders, as defined by the DSM-IV, than those without binge eating behaviors.

In their study of 47 undergraduate women, the researchers compared the emotional reactivity and emotional overeating patterns of 30 normal weighted women to 17 overweight women. Participants were to record their moods prior to the consumption of food or liquid over a period of 13 days. Investigators looked at the number of negative emotions between the two groups as well as positive emotions and no emotion. They also considered meals and snacks to be "two distinct forms of eating" (p. 141). While both groups ate approximately the same number of positive meals and positive snacks there was an insignificant trend toward negative meals and negative snacks being consumed by

the overweight group. They found that the more overweight a subject was the greater the emotional intensity before consuming a snack but not a meal. Consumption of negative snacks was also higher among overweight participants. Overall, obese participants consumed 6% more calories with a larger percent of calories being consumed after experiencing a negative mood state and fewer calories being consumed following positive, or no emotion, moods.

There was no relationship between body mass index with the frequency of negative snacks and only a few of the obese participants stated their negative emotional state was related to feelings or thoughts about getting ready to consume a negative snack. Overall these investigators found that obese participants tended to be more emotionally reactive than their normal weighted counterparts based on their findings that higher body mass indexes were correlated with more negative caloric intake suggesting that "emotional eating may be an important contributing factor to obesity" (p. 147). Their findings suggest that assessing levels of distress may be an important factor in differentiating between diagnosable levels of binge eating and sub-thresholds of clinical binge eating.

Lowe & Fisher (1983) reported that, when compared to normal weighted people, obese people experience negative emotions more frequently and intensely and become more emotionally distressed when exposed to negative events. The investigators concluded that assessing the emotional influences, rather than the habits, of eating is key when working with obese clients.

There are health behaviors related to obesity, for example, lack of exercise or a sedentary lifestyle, eating choices, as well as binge eating. Of interest in this study is

binge eating and obesity among Native American people. However, few researchers to date have examined binge eating behaviors among Native Americans. In the next section, binge eating behaviors will be defined and discussed in more detail.

Binge Eating

Binge eating is defined as excessive eating or consuming large quantities of food over a short period of time (DSM-IV-TR, 2000). Binge eating disorder has been associated with psychological distress (Grilo, 2002). In particular, binge eating has been shown to be a coping mechanism, or causal factor, for the reduction of stress and emotional distress. Negative emotional states may also trigger binge eating. The blocking of emotions may be the goal of binge eaters who experience aroused physiological and affective states which have become painful (Waller, 2002).

Loro and Orleans (1981), using a functional analysis approach, examined data from 280 overweight participants which assessed the emotional and appetitive factors of binge eating in obese persons. Their data reflected that precursors to binge-eating were: feelings of increased anxiety related to external stressors; interpersonal conflicts; inadequate coping skills; boredom, hunger and preoccupation with food due to excessive food restriction. Access to habitual settings for binge eating along with frustration and disappointment about unrealistic weight goals were also precursors to binging. Loro and Orleans (1981) also reported that binge eaters experienced relief from negative experiences and emotions such as stress, anxiety, hunger, boredom. They observed that binge eaters often experience poor stress management skills, low self-esteem, and deficits in their interpersonal abilities (Loro & Orleans, 1981). In addition, external stressors such as school, work or interpersonal relationships often precipitate binge eating (Loro &

Orleans, 1981). The thoughts and emotions connected to these stressors may increase feelings of emotional distress in general as well as anxiety and depression specifically (p. 159). Food may provide an immediate, though temporary, relief from emotional distress, so those with poor stress management skills may use food as a way to reduce stress.

A comprehensive model examining predisposing factors and specific triggers to binge eating was proposed by McManus and Waller (1995) who asserted that binge eating behavior is often preceded by either intolerable emotional states or appetitive cues. The immediate consequences of reduced negative affect and food craving help to maintain binge eating behaviors as a coping mechanism (McManus & Waller, 1995).

Womble, Williamson, Martin, Zucker, Thaw, Netemeyer, et al., (2001) found that negative affects, restricting food intake, teasing from others, weight fluctuation and dissatisfaction with one's body acted together, suggesting a particular causal pathways of binge eating among both males and females. The differences between the genders was negative affect was only associated with binge eating among males whereas, among females it was associated with dietary restraint as well. Body dissatisfaction was associated with binge eating among males, whereas, among females it was associated with negative affect and dietary restraint. Among men these variables accounted for 61-72% of the variance of binge eating symptoms and accounted for 70% of the variance in females suggesting these variables are important factors to be considered when developing programs for the prevention of binge eating.

Kohlmaier (2003) conducted a path analysis on a stress-related health behavior model to determine if acculturation, racism, and emotional distress were significant predictors of binge eating and obesity among African Americans. Working in the

Houston area, the researcher recruited 325 African American adults from a local university (n = 268), two sites within the community (n= 20), and 97 participants from the Veterans Administration Hospital. Participants ranged in age from eighteen to sixty and included 187 females with a mean age of 28.59 (SD = 11.47) and 138 males, with a mean age of 30.67 (SD =13.06). The mean percent of body fat for each gender was 34.86 (SD = 9.74) and 21.73 (SD = 9.14) respectively.

Kohlmaier found that "acculturation was positively associated with racism, racism was positively associated with emotional distress, and emotional distress was positively associated with binge eating. Acculturation was directly and positively associated with emotional distress, and this relationship was even stronger than that which was mediated by racism" (p.82). The more traditional a participant was, the more stressful racist events were. Obese African Americans who were more traditional experienced more emotional distress and engaged in more binge eating than those who were less traditional or more acculturated. Additionally, more emotional distress was experienced by those who were less acculturated (more traditional).

Kohlmaier's research seems to support past studies linking level of acculturation and racism to psychiatric symptoms among more traditional African Americans (Landrine & Klonoff, 1996a) who may use denial as a coping mechanism as opposed to more acculturated African Americans who may engage in self-blame as a form of coping. Kohlmaier's work, which demonstrates a strong relationship between acculturation level and emotional distress among African Americans, supports the findings of past researchers (Grilo, 2002; Loro & Orleans, 1981; Waller, 2002; Womble et al. 2001) who found that emotional distress has been closely linked to binge eating. Kohlmaier also

found African Americans use less effective coping skills, such as denial, which supports Loro and Orleans (1981) work which found precursors to binge eating included increased anxiety brought on by external stressors, interpersonal conflicts and a lack of coping skills.

Fitzgibbon, Spring, Avellone, Blackman, Pingitore and Stolley (1998) conducted a study assessing the association of weight, depression and ideal body image with binge eating among Hispanic (n=117), Black (n=179), and White (n=55) women. While severe binging was engaged in by those who were heavier and more depressed across all three ethnic groups, Hispanic women ranked highest. Binge eating among Black women was not significantly influenced by body mass index, ideal body image or depression but was predicted by depression among Whites. A more slender body image was favored by all three ethnic groups.

Lyubomirsky, Casper, and Sousa (2001) conducted a study exploring dissociative experiences and abnormal eating with 92 non-clinical (no history of meeting DSM-III-R criteria for any eating disorder) females, mean age 24.3, from a large university and its surrounding community and 61 women, mean age 25.6, seeking treating for an eating disorder at a university hospital. The non-clinical population was 57% Caucasian, 18% Asian, 13% Latina, 10% African-American and 2% other and had a mean body mass index of 22.5 while the clinical population consisted of 83% Caucasian, 17% Latina or other and had a mean body mass index of 22.7. The researchers also had a non-clinical sub-sample (n=27) of "occasional binge eaters" who self reported meeting the DSM-III-R guidelines for binging which was defined as "an episode of impulsive and rapid consumption of a large amount of food within a short period of time" (p. 225). This sub-

group had a average body mass index of 25.36 and reported binging any where from once a week to several times per month.

Occasional bingers reported experiencing negative states such as fear, panic, disgust along with negative affects such as helplessness, anger, shame, depression, and guilt. Anxiety may be reduced through binge eating among occasional binge eaters who are not bulimic (Lyubomirsky et al. 2001).

Only one study to date has been conducted to explore the binge eating behaviors of Native Americans. Among a group of adolescent Native American girls, binge eating was found to be associated with body weight dissatisfaction, perceptions of being overweight, decreased body pride, decreased family connectedness, concern about peer acceptance and emotional distress (French et al. 1987). While binge eating was prevalent in 29% of the AIAN adolescent sample in this study, emotional distress was not associated with binge eating for this group. Poor body image was the strongest correlate of binge eating across all ethnic groups, which included White, Black, Hispanic and Asian (p. 320). The study also suggested binge eating may be a means of rebelling against authority or helping figures or others who have the ability to impose constraints. This "symbolic striking out" (p. 160) may be a means of coping with feelings of deprivation.

The aforementioned past research seems to indicate that binge eating is often in relationship to increased feelings of stress, anxiety, depression and/or other types of negative emotional states. Several past researchers (French et al. 1997; Markey, 2004; Mastria, 2002; Pine, 1985; Smith, 1995) have confirmed the need for further research with obese ethnically diverse clients as we strive to create greater understanding about

the development and proper treatment of binge eating behaviors with non-Caucasian populations.

Emotional Distress

AIAN adults are two to five times more likely to experience severe psychological distress, or to have felt hopeless or worthless, most or all of the time, in the last 30 days, compared to White, Black, Asian, and Hispanic adults (National Center for Health Statistics, 2005). Correlates to the soul wound, post-colonial stress and historical trauma, which will be explained more fully in the next few paragraphs, include alcoholism, anger, binge eating, racism, discrimination, and suicide.

For Native American people, emotional distress has been defined in many ways. Duran and Duran (1995) defined experiences of emotional and psychological distress as a soul wound, while others termed this concept post-colonial stress (Schultz, 2005; Winterowd, et al. 2001). To fully understand the meaning of soul wound, one must first understand the holistic worldview of many of the indigenous people of North America. Duran (1995) defines this as "unified awareness or perception of the physical, psychological, and spiritual phenomena that make up the totality of human existence or consciousness" or "to experience the world as a totality of which they were an integral part" (p. 44). In other words, Native people tended to view life as being in harmony with their surroundings and to accept their existence simply as being part of the mystery of the universe, a direct contrast to the Western logical positivist worldview. This awareness of being centered in the universe is the core from which the soul, psyche, myths, dreams and culture of Native people emerges. When this core was wounded through the processes of

genocide, removal, assimilation, acculturation and loss of culture there became a collective soul wound for all Native people.

Brave Heart (2003) labels the experiences of genocide, removal, assimilation, acculturation as historical trauma (HT). She defines historical trauma as being massive group trauma experiences that Native American people experienced over several generations, resulting in an accumulation of emotional and psychological wounds. The experiences of HT, generation after generation has lead to an historical trauma response (HTR) defined as difficulty recognizing or expressing emotions, suicidal thoughts and gestures and self-destructive behaviors. HTR may also include feelings of depression, anxiety, anger and low self-esteem. As it relates to self-destructive behaviors and Native people there is an abundance of literature on the use of alcohol and its detrimental effects upon the physical and mental well-being of Native communities. However, there is a paucity of research on binge eating, a behavior that can be considered self-destructive when it leads to obesity and its concomitant effects. Food, like alcohol can be considered a form of self-medication against feelings too painful to deal with.

The inability to express emotion, a symptom of HTR, can be an affective trait Brave Heart calls historical unresolved grief. The concept of historical unresolved grief will be explored further in the discussion on historical loss a concept whose theory is based upon Brave Heart's theory of historical trauma.

Historical Loss

No researchers to date have explored the relationship of historical loss with emotional distress, binge eating and obesity among American Indian people. The historical trauma and the generational transmission of trauma responses, which have been

documented in other cultures (e.g., survivors of the Jewish Holocaust, ancestors of World War II Japanese internment camp survivors) have also occurred for American Indian/Native American people (Brave Heart, 2003). 'Historical loss' is another term, given by Whitbeck, Adams, Hoyt & Chen (2004a), to the phenomenon of European contact and colonization, which resulted in loss of land, lives and culture. The first generations of Native Americans who initially experienced removal from their homeland experienced many personal, social, and cultural losses including separation from family and tribal members, loss of language, and spiritual/religious practices which resulted in significant post-traumatic stress. Some theorists (Brave Heart, 2003; Brave Heart & DeBruyn, 1998; Duran & Duran, 1995) suggest that through the intergenerational transmission of post traumatic stress disorder and its associated symptoms of depression, anxiety, disassociation, and hopelessness, these losses have never been properly mourned by AIAN people.

Brave Heart (2003) suggests that historical unresolved grief or unmourned loss is a result of the historical trauma response to the historical traumas experienced by Native people. The grief literature describes this type of grief as disenfranchised grief. Disenfranchised grief occurs when a loss cannot be publicly mourned or acknowledged which may result in more intense emotions such as anger, guilt, sadness, and helplessness (Doka, 1989). In any culture, there are rituals associated with dying. In the United States, the rituals related to death such as funerals and burials are mostly prescribed by the beliefs of the dominant culture. When European contact occurred many of the rituals or spiritual practices used to facilitate the mourning process were banned, making the resolution of grief impossible (Brave Heart & DeBruyn, 1998). In addition to the loss of

rituals, Native Americans also became stereotyped or socially defined as "stoic" or as people who had no feelings, which added to the notion that perhaps they did not want or need to mourn their losses. Thus the dominant society "disenfranchise[d] the legitimacy of grief" which contributed to the inhibition of emotional expression and created an atmosphere of shame, for being Native American, and guilt which is sometimes associated with, and relieved through, the grieving process. Feelings of helplessness, powerlessness, feelings of inferiority, and disorders in the identification of the self can occur as a result of the dynamics of grief, shame and guilt (Kaufman, 1989). Disenfranchised grief occurs when previous experiences of grief are not recognized, or are unsanctioned, by the dominant culture. Unsanctioned grief is feeling as though one's loss is not sanctioned by mainstream society. In other words the loss is minimized as being unimportant and is not acknowledged or validated by society at large. Thus losses are not fully mourned which introduces the idea of an historical unresolved grief that is passed on for generations (Brave Heart & DeBruyn, 1998). Transposition is defined as a means to convey the influence of major historical events through generations. It is experienced as living in the present as well as the past and is transferred to other generations through culture and identity (Kestenberg, 1989). One study found that "the current generation of American Indian adults have frequent thoughts pertaining to historical loss and that they associate these losses with negative feelings" (Whitbeck et al. 2004a, p. 119). The researchers in this study also found that feelings of anger and depression increased when the perception of historical loss was strongly felt. The prevalence of perceived historical loss was remarkable among those surveyed as it demonstrated that these thoughts influence the current generation of adults not just the

elder population. The study also found that there appears to be a relationship between emotional distress and thoughts about historical loss, with the most noted emotional responses being anger/avoidance and anxiety/depression (Whitbeck et al. 2004a).

Historical loss is one of four contributing factors to alcohol abuse among Native American people (Whitbeck et al. 2004b). A sense of historical loss may occur for those who experience discriminatory acts given that being discriminated against may prompt memories of events leading to loss of traditional Native American culture. While discrimination is not eliminated by the level of participation in traditional cultural practices, being more involved in traditional Native American culture may serve as a buffer against reminders of loss. However, those who are highly involved in their culture report increased levels of historical loss as immersion in the culture may make one more sensitive to cultural losses (p. 416). The strong association of alcohol abuse with historical loss in the 2004 study appears to support Whitbeck et al's findings that negative emotional responses are attributed to thoughts of historical loss among Native American adults (p. 416). These findings suggest that some may use alcohol to numb or reduce intrusive thoughts or feelings about historical loss. Overall this study suggests that many stressors experienced by Native Americans may be "culturally specific nuances" (p. 417) that need to be taken into account when addressing risk and resiliency factors associated with stress.

Research indicates that responses to trauma are less debilitating when there are traditions in place that encourage mourning and healing (Doka, 1989). It needs to be acknowledged that native communities who were relocated or whose children were sent to boarding schools were not allowed to fully mourn their losses. In the case of Native

Americans, there was no culture in which to mourn loss. Cultural practices for mourning that were still in existence were not accepted by the dominant culture and were therefore minimized and discouraged. When one's culture is minimized, this can lead to feelings of shame and guilt over wanting to mourn which can lead to feelings of depression. Oftentimes depression can lead to binge eating. This information can be used in developing more culturally appropriate theories that address how cultural loss, acculturation, racism, and emotional distress, influence eating behaviors, which affects weight and may increase the possibility of becoming diabetic. This may have meaningful implications for culturally appropriate counseling interventions with Native American people.

Acculturation

In many studies conducted with ethnic minority groups, results have shown that determining level of acculturation is important to many of the mental health concerns of ethnic minority people (Organista, Organista, & Kurasaki, 2003). Both physical and mental health issues, as well as generational status, can be influenced by level of acculturation (Sue, 2000). As is relates to Native American people, determining level of acculturation is important in understanding factors that influence mental and physical health issues (Choney, Berryhill-Paapke & Robbins, 1995). These researchers define acculturation as "the degree to which [Native Americans] accept and adhere to both majority and tribal cultural values" across cognitive, behavioral, and affective domains (p. 76). This definition of acculturation captures the essence of what all acculturation instruments attempt to measure which is at what level does a person ascribe to what might be described as their traditional customs and norms and to what level have they

adjusted to new customs and norms. Three important aspects of acculturation and mental health are 1) whether or not the new lifestyle was voluntary or imposed; 2) how receptive is the mainstream culture; and 3) how similar are the old and new cultures to one another. It is therefore important to understand the acculturation history of ethnic minority groups when addressing mental and physical health issues (Berry & Kim, 1988). There is also a growing body of literature on culture-specific disorders, as evidenced in the appendix of the DSM-IV (1994). The inclusion of these types of disorders in the DSM-IV grew out of awareness that psychological distress is defined by one's definition, experience and expression of culture (Organista et al. 2003). While there are several acculturation measures assessing acculturation among Native Americans no one instrument has been widely accepted as being generalizable to all Indian people.

The more acculturated an ethnic minority person is to the majority culture, the more mental and physical health issues they incur (Wing & Polly, 1993). Among Native people, geographical location, whether urban, rural or reservation, can be an influential factor in level of acculturation and amount of exposure to those from the majority culture (Wing & Polley, 1993). In contrast, research has shown that maintaining a connection to traditional tribal customs serves as a buffer against acculturative stress and emotional distress (OMH, n.d.; Sue, 2000).

As it relates to emotional distress, binge eating and obesity among Native Americans no studies have been published to date exploring how level of acculturation may be related to these psychological and physical health issues.

As discussed earlier, the more acculturated Native people become to a majority culture lifestyle, the more obese they become. It is difficult to sort out which came first,

acculturative stress or change in diet. Do the stressors of being acculturated into mainstream society increase emotional/psychological distress causing many Native people to turn to food as a coping mechanism in the form of binge eating? Or does the change in diet from traditional foods to foods high in fat, such as those given in commodities, influence the change in diet and eating behaviors? Or is it a combination of both? There is evidence that physical health decreases and the risk of diabetes, a correlate of obesity, increases among Westernized immigrants as their level of acculturation increases. These changes could be attributed to decreased physical activity and consumption of fiber along with increased caloric intake and foods high in fat (Organista et al. 2003). Certainly these changes can be seen among indigenous populations as they were forced to adopt a more sedentary lifestyle and were no longer able to access low fat, high fiber foods.

Not only did the process of acculturation affect the diets, lifestyles, languages and spiritual practices of Native American people, it increased their exposure to racism.

Racism

"Issues of racism, ignorance, and prejudice must be recognized and validated as significant issues to address the internalized oppression of an eating disorder" along with the "impact of culturally significant history and events" (Harris & Kuba, 1997, p. 346).

Racism has been associated with a number of psychosocial and cultural problems for oppressed groups of individuals and can have direct and indirect influences on health. Direct racism causes personal suffering and psychological distress and may also limit access to products that promote healthy lifestyles. Indirect racism affects health in more institutionalized ways such as hiring practices and segregation (e.g. reservations, Sue,

2000). Clark, Anderson, Clark and Williams (1999) define racism as "beliefs, attitudes, institutional arrangements, and acts that tend to denigrate individuals or groups because of phenotypic characteristics or ethnic group affiliation" (p. 805) and perceived racism as the "subjective experience of prejudice or discrimination" (p. 808). Within the scientific literature, racism has been conceptualized as being attitudinal or behavioral in nature. Attitudinal racism is represented through attitudes and beliefs while behavioral racism "denies equitable treatment" to people based on a perceived association with an ethnic group based on appearance (p. 805).

This study was based on a model examining how Black people cope with stress and examined the biopsychosocial effects of African Americans who experience racism. They hypothesized that sociodemographic factors and coping skills would be at least two factors that influence the psychological and physiological responses to perceived racism. Helplessness/hopelessness, anxiety, anger, fear, resentment and frustration may be some of the initial psychological responses to perceived racism (Belcourt-Dittloff & Stewart, 2000) which may preclude the use of coping mechanisms such as hostility, aggression or the use of substances to avoid the feelings. Overeating, avoidance, and passivity may be behaviors utilized in response to these psychological stressors (Clark et al. 1999). Lifetime experiences of racial and ethnic discrimination, such as perceived unfair treatment, were predictors of psychological distress, chronic health conditions and overall well-being for African Americans.

Whitbeck, McMorris, Hoyt, Stubben, and LaFromboise (2002) found three factors linked to depression and depressive symptoms among a sample of 287 Native American adults in the Upper Midwest. First, those who experienced discrimination were two times

more likely to indicate symptoms of depression. Secondly, attending powwows, speaking their traditional language and participating in traditional activities reduced susceptibility to depressive symptoms. Third, depressive symptoms were reported more frequently by those who participated with less than average frequency in traditional activities and had weaker cultural ties than those who participated with above average frequency and had above average ties to their culture. Therefore, the psychological effects of discrimination can become more harmful as participation in traditional activities decreases and emotional distress may increase in relation to stress induced by conflicting cultural values (p. 412).

No researchers to date have explored how experiences of racism are related to binge eating and obesity among Native Americans, which is one of the purposes of the present study.

Summary

In summary, no researchers to date have explored personal and cultural factors associated with binge eating and obesity (as measured by body mass index) among Native American adults.

The emotional distress literature for Native Americans seems to be based primarily in theory, such as the soul wound, post-colonial stress and historical trauma with very little empirical research to support these theories. Experiences of discrimination are linked to feelings of loss, which are associated with use of alcohol whose use, much like food, is often associated with attempts to numb the experiencing of negative emotions (Whitbeck et al. 2004b).

The Native American experience of racism may occur at various levels and may be connected to one's level of acculturation with both experiences sometimes being dependent upon geographical location. Regardless, there seems to be an overall consensus that ethnic minority groups benefit from maintaining their unique cultural practices and tend to suffer in a multitude of ways when those practices are minimized or lost altogether.

As is evidenced by the above referenced literature, culture seems to plays a multifaceted role in the physical and mental well-being of people from ethnic minority backgrounds. However, more research is needed to explore the personal and cultural factors associated with binge eating among Native Americans. For health services to be their most effective, the specifics of how these personal and cultural factors influence binge eating and body mass need to be taken into consideration.

CHAPTER III

METHODOLOGY

Participants

Participants in this study were 297 Native American adults whose voluntary participation was solicited by utilizing a snowball effect which was initiated though personal contacts. Potential participants were contacted by electronic mail. The e-mail message invited people to participate in this study. Those who elected to participate could click on the URL link, connecting them to the web-based survey.

Of the 297 responses, 13 were missing significant amounts of data and 6 were duplicates and thus were eliminated from the final data file. In addition, nine participants met criteria for bulimia nervosa and were not included in the final sample.

Therefore, the final sample included 269 participants. Approximately 75% of the participants were female (n=203; 75.5%) and 25% were male (n=66; 24.5%). The mean age of respondents was 43.03 (sd = 12.47) years of age, with a range of 19-70 years of age (see Table 1).

All of the participants identified themselves as Native American (see Table 2). The top five reported tribes were Cherokee (n=29), Kiowa (n=27), Dine'/Navajo (n=20), Apache (n=15) and Comanche (n=13). In terms of blood quantum (see Table 1), 20% identified themselves as full blooded (n = 55); 20% identified themselves as three quarter blood (n = 54); 26 % (n=70) identified themselves as one-half Indian; and 20% identified themselves as one-quarter blood quantum (n = 56). The rest identified themselves as one-

eighth Indian (n=15, 5.6%), one-sixteenth Indian (n =15, 5.6%), or less than one sixteenth Indian (n=3, 1.1%).

In terms of marital status (see Table 1), the majority were either married (n = 115, 42.8%) or single (n = 76, 28.3%). Other groups included those who were divorced (n = 33, 12.3%). Partnered or common law (n=29, 10.8%), widowed (n=9, 3.2%), and separated (n=6, 2.2%).

As shown in Table 1, the majority of the participants in this study had college education experience. The educational level of the participants were as follows: 58% (n=157) had college education (12-16 years of education); 34.6% (n=93) had upper level college and/or graduate education (i.e., 17 or more years of education); 6.7% (n=18) had secondary education experience (i.e., 6-12 years of education); and 4% (n=1) had elementary education experience (i.e., 1-6 years of education).

Participants were asked to indicate the types of schools they had ever attended throughout their lifetimes. Table 1 reflects that the majority of the participants attended public school (n = 248, 92.2%); 16.7% (n=45) attended private school, 11.2% (n=30) attended boarding school, and 7.8% (n = 21) attended schools run by the Bureau of Indian Affairs.

Over half of the sample reported living in urban areas (n=176, 65.4%) and rural areas (n=140, 52%) during their lifetime. Over a third of the sample reported living on tribal lands/reservation areas (n=101, 37.5%) (see Table 1).

Participants were asked to indicate who they had been raised by during their childhood (see Table 1). Two-thirds of the sample were raised by both parents (n=181, 67.3%). About a third of the sample were raised by their grandparents (n=79, 29.4%).

About a quarter of the sample were raised by their mothers (n=66, 24.5%). The rest of the participants were raised by other significant people including aunt and/or uncle (n=38, 14.1%), others (n=31, 11.5%), extended family (n=20, 7.4%), their fathers only (n=7, 2.6%), or friends, (n=7, 2.6%) each respectively.

Measures

All participants completed a demographic section, the Historical Loss Scale (HLS; Whitbeck et al. 2004a), the Historical Loss Associated Symptom Scale, (HLASS; Whitbeck et al. 2004a), the Native American Acculturation Scale (NAAS; Garrett & Pichette, 2000), the Schedule of Racist Events-Generic (SRE-G; Lang, 2001), the Depression, Anxiety, Stress Scale (DASS-21, Lovibond & Lovibond, 1995), Binge Eating Scale (BES; Gormally et al. 1982), and the Eating Disorder Diagnostic Scale (EDDS; Stice et al. 2000).

Demographic Section. At the beginning of the web survey, participants completed questions related to their age, gender, level of education, occupation, marital status, tribal affiliation and blood quantum. Participants were also asked questions about the types of schools they attended, the types of communities they have lived in, who raised them during their childhood, and the number of siblings in their family. A few questions asked them about their identification with traditional Indian culture and being Indian and American.

Historical Loss Scale (HLS; Whitbeck et al. 2004a). The HLS is a 12-item measure developed to measure how often thoughts pertaining to historical loss occur. Some examples of the types of historical losses included in this instrument are loss of land, language, culture and traditional spiritual ways as well as loss of family/family ties,

loss of self-respect, loss of trust, loss of people through early death, and loss of children's respect for elders and traditional ways. Participants rate each item using a 6-point Likert-type scale (1 = several times a day to 6 = never). A total score is calculated and higher scores indicate a greater frequency of thoughts about historical loss while lower scores indicate fewer thoughts about historical loss.

The HLS has strong internal consistency reliability in the original study (Cronbach alpha = .94, Whitbeck et al. 2004) as well as in the current study (Cronbach alpha = .92 for this sample). The HLS has only been used in two previous studies (Whitbeck et al. 2004a; Whitbeck et al. 2004b). There is no information available on the test-retest reliability of the HLS. The normative sample included adults from two reservations in the upper Midwest section of the United States and two reservations in Ontario, Canada ranging from ages 28-59, with a mean age of 38.2 for females and 41.7 for males. The HLS appears to have good construct validity. An exploratory factor analysis was conducted on the HLS. According to the results only one factor, Perceived Losses, accounted for 58% of the variance. All 12 items loaded significantly on that factor with item loadings ranging from .62 to .86. The factor analysis of Perceived Losses were as follows: losses related to family ties because of boarding schools (.62), loss of families due to government relocation (.63), loss of respect by children/grandchildren for elders (.63), loss of people through early death (.66), loss of land (.70), loss of self-respect (.72), losses due to alcoholism (.73), loss of trust in Whites due to broken treaties (.78), loss of language (.82), loss of respect by children for traditional ways (.81), loss of traditional spiritual ways (.84), and loss of culture (.86). The HLS has good convergent validity as evidenced by statistically significant correlation between the HLS total score and the

Anxiety/Depression and Anger/Avoidance subscales from the Historical Loss Associated Symptoms Scale (Whitbeck et al. 2004a)

Historical Loss Associated Symptoms Scale (HLASS; Whitbeck et al. 2004a). The HLASS is a 17-item measure of the frequency with which certain emotions are experienced when thinking about or being reminded of historical losses of Indian people and culture. Affective symptoms include: feelings of sadness or depression, feelings of anxiety, feelings of anger, feelings of shame, loss of concentration, feeling isolated/distance from others, loss of sleep, feelings of rage, feelings of being uncomfortable around Whites, and fear or distrust of the intentions of White people. Participants rate the frequency of each emotion or symptom experienced on a 5-point Likert scale (1 = never to 5 = always).

The HLASS had good internal consistency reliability in the original study (Cronbach alpha = .90, Whitbeck et al. 2004) as well as in the present study (Cronbach alpha = .91 for this sample). There is no information available on the test-retest reliability of the HLASS. The normative sample included adults from two reservations in the upper Midwest section of the United States and two reservations in Ontario, Canada ranging from ages 28-59, with a mean age of 38.2 for females and 41.7 for males. The HLASS has good construct validity. A principle components analysis was conducted on the HLASS. Two factors emerged for the Emotional Response to Loss scale, Anxiety/Depression and Anger/Avoidance, which accounted for 56% of the variance. Item loadings on the anxiety/depression factor ranged from .57 to .76; item loadings on the anger/avoidance factor ranged from .59 to .80. The five items that significantly loaded on the general anxiety/depressed affect factor included depression (.57), loss of concentration, (.63), loss of sleep (.72), isolation (.73), and anxiety (.76). The items that

significantly loaded on the anger/avoidance factor were shame (.59), anger (.62), re-experiencing ("like happening again", .62), avoidance ("avoiding places", .63), rage (.69), discomfort around White people ("uncomfortable around White people", .70, and fear/distrust ("fearful and distrust", .80). The confirmatory factor analysis confirmed the two-factor solution and the significant item loadings associated with these factors.

The HLASS has good convergent validity as evidenced by statistically significant correlation between the HLS total score and the Anxiety/Depression and Anger/Avoidance subscales from the Historical Loss Scale (Whitbeck et al. 2004a)

The Depression Anxiety Stress Scale 21 (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a 21-item scale measuring features of "depression, hyperarousal and tension in clinical and non-clinical groups" (Antony, Beiling, Cox, Enns, & Swinson, 1998, p. 181). It is a shorted version of the 42 item DASS (Lovibond & Lovibond, 1993). Participants read each of the 42 symptoms and rated the extent to which they experienced each symptom over the last week, using a four-point Likert scale (0=did not apply to me at all; 1=applied to me some of the time; 2-applied to me a good part of the time; 3=applied to me most of the time).

The overall score can be used as well as the three subscales. The Depression subscale is intended to measure feelings often associated with dysphoric moods such as worthlessness or sadness. The Anxiety subscale measures symptoms such as trembling or faintness that are often related to states of physical arousal, panic attacks, and fear. The Stress subscale measures overreaction to stressful events, irritability and tension.

In the original study, the DASS-21 had good internal consistency reliability on all three subscales and the total scale as follows: Depression scale, Cronbach alpha = .94;

Anxiety scale, Cronbach alpha = .87; Stress scale, Cronbach alpha = .91 and a Cronbach alpha of .93 for the Total scale (Antony et al. 1998). For the present study, the internal consistency reliability coefficients for the Overall Scale as well as the Depression, Anxiety, and Stress subscales were .93, .90, .77, and .88 respectively. For the purposes of this study, the overall score was used given its strong internal consistency reliability.

The DASS-21 has good concurrent validity with the Beck Depression Inventory (BDI), the Beck Anxiety Inventory (BAI) and the State-Trait Anxiety Inventory-Trait version (STAI-T). The DASS21-Depression (DASS21-D) correlated with the above scales as follows: DASS21-Anxiety, .46; BDI, .79; BAI, .51; STAI-T, .71. The DASS 21-Anxiety (DASS21-A) correlated with the same scales as follows: BDI, .62; BAI, .85; STAI-T, .55. The DASS 21-Stress (DASS21-S) correlated as follows: DASS21-D, .57; DASS21-A, .72; BDI, .69; BAI, .70; STAI-T, .68 (Antony et al. 1998).

Eating Disorder Diagnostic Scale (EDDS; Stice et al. 2000). The EDDS is a 22-item self-report instrument designed to diagnose anorexia nervosa, bulimia nervosa, and binge-eating disorders. Using DSM-IV-R criteria and information from the EDDS a diagnosis of anorexia nervosa is given when a) a BMI of less than 17.5 is reflected by Items 19 and 20; b) Item 2 reflects a score of 4 or more; c) Items 3 or 4 reflect a score of 4 or more; d) a score of 3 is given on Item 21. Bulimia nervosa is assessed if a) the subject responds yes to Items 5 and 6 and gives a response greater than 2 on Item 8; b) if the sum of Items 15, 16, 17, and 18 is 8 or greater; c) if a score of 4 or more is obtained on either Items 3 or 4. Subjects will be determined to meet the DSM-IV-R criteria for binge eating disorder if a) the subject responds yes to Items 5 and 6 and give a response greater than 2 on Item 7; b) a response of yes if given to at least three of the features

described in Items 9, 10, 11, 12, and 13; c) Item 14 receives a yes response and d) Items 15, 16, 17 and 18 are given a response of 0. A scoring algorithm is used for the EDDS and is set up so that bulimia nervosa diagnoses preempt binge-eating disorder diagnoses, and anorexia nervosa diagnoses preempt bulimia nervosa diagnoses.

Stice et al. (2000) found the overall symptom composite of the EDDS to have adequate test-retest reliability (r = .87) over a one week interval and internal consistency (mean alpha = .89) indicating it may be "useful as a continuous measure of overall eating disorder symptomatology" (p. 127). Convergent validity was established with other eating disorder scales, such as the Eating Disorder Examination, Yale-Brown-Cornell Eating Disorder Scale, and the Three-Factor Eating Questionnaire (Stice et al. 2000). Criterion validity of the EDDS was shown with interview diagnoses (mean kappa = .83).

In the current study, the internal consistency reliability estimates (Cronbach alphas) for the 5 subscales were as follows: Body Image, .93; Overeating, .75; Binge Eating, .83, Behaviors/Feelings .84 and Food Restriction, .30. The food restriction subscale was not used given its low internal consistency reliability.

Participants who met the criteria for anorexia nervosa or bulimia nervosa, as described above, were removed from the study.

The Native American Acculturation Scale (NAAS; Garrett & Pichette, 2000). The NAAS is a 20-item multiple-choice scale designed to measure level of acculturation along a continuum that ranges from traditional Native American to assimilated mainstream American. Multiple-choice questions inquire about language and generational/geographic background (5 items each), behaviors (4 items), friendships (3 items), identity (2 items), and attitudes (1 item). Lower scores indicate higher Native

American identity) while higher scores indicate high acculturation to mainstream American identity. Middle scores reflect a "bicultural" level of acculturation. All 20 items are summed together to obtain a total value for each participant. A mean score is calculated by dividing the total value by 20 to obtain final acculturation score; hence, a mean score ranging from 1 (low acculturation) to 5 (high acculturation) is obtained. The cut-off point on the scale is 3, which serves to differentiate those who culturally identify as Native American or more traditional from those who do culturally identify as Native American or are assimilated. Mean scores below 3 indicate that the respondent culturally identifies as Native American; mean scores above 3 indicate that the respondent is more assimilated or identifies more with mainstream American culture.

These cut-off scores were determined by 10 experts who were consulted from the disciplines of medicine, public health, counseling, education, social work, and psychology representing such organizations as Indian Health Service, the Native American Research and Training Center, and the University of North Carolina at Pembroke. Also included in the panel of experts were persons from several tribes including the Paiute, Chippewa, Comanche, Creek, Eastern Band of Cherokee, Cherokee Nation, Crow, and Lumbee.

The NAAS has good internal consistency reliability, with a Cronbach alpha coefficient of .91 based on the normative sample of 139 Native American high school students. The author of the original study did not give any further demographic information about the normative sample as far as tribal affiliation or gender. The internal consistency reliability estimate of the NAAS for this sample was .85.

Garrett modeled the NAAS after the Acculturation Rating Scale for Mexican Americans (ARSMA) and the Suinn-Lew Asian Self-Identity Acculturation Scale revising items on the ARSMA and the SL-ASIA to reflect appropriate references to Native American culture.

The author did not give information on the validity of the NAAS but acknowledged that further research is needed to determine its psychometric properties. This instrument has not been used in any other published studies to date. The NAAS was used in a recent dissertation study to explore the relationship of personal and cultural factors associated with alcohol use (Cain, 2007). In this study, the NAAS was internally consistent. Of interest, acculturation was not significantly related to alcohol use with the Native American sample in that study. The NAAS has also been used in another unpublished study (Winterowd et al. 2004) examining the core beliefs of Native people in Oklahoma. While the results of that study are not immediately available they will be at a future date for further comparison to this study.

The Schedule of Racist Events-Generic (SRE-G; Lang, 2001). The SRE-G is an 18-item self-report inventory assessing the frequency and evaluation of racist experiences by ethnic minorities, namely Native Americans, African Americans, Hispanic Americans, and Asian Americans. The SRE-G includes three subscales including 1) SRE-G Recent, which measures to the frequency of racist events in the past year, 2) SRE-G Lifetime which measures the extent to which racist events have been experienced over one's entire life, and 3) SRE-G Appraisal, which measures the extent to which racist discrimination is appraised as stressful.

There are three questions related to each of the 18 items. “How many times in the past year” and “How many times in your entire life?” are two of the three questions assessing frequency of racist events. Participants answer each of these questions using a 6-point Likert scale (1 = this has “Never happened to you,” to 6 = this has happened “almost all of the time” or more than 70% of the time). The third question for each of the 18 items assesses one’s evaluation of how stressful the discrimination was, “How stressful was this for you”? Participants answer this question using a 6-point Likert scale for the third question ranges from 1 = not at all to 6 = extremely.

Higher scores on these subscales of the SRE-G indicate more experiences of racism; lower scores on these subscales of the SRE-G indicate fewer experiences of racism.

The internal consistency reliability coefficients for the total sample were found to be very high for all three subscales (.90 for recent racist events, .92 for lifetime racist events, .94 for appraised racist events) of the SRE-G. Cronbach alpha reliability coefficients for the three subscales with the Native American participants were .95 for SRE-G Recent, .97 for SRE-G Lifetime, and .97 for SRE-G Appraisal. In the current study, the internal consistency reliability coefficients for all three subscales were as follows: .94 for SRE-G Recent, .95 for SRE-G Lifetime, and .96 for SRE-G Appraisal.

The statistically significant correlations between scores on the SRE-G (culture-specific stress associated with racism), the Hopkins Symptom Checklist (HSCL) (general stress) and the PERI-Life Events Scale (PERI-LES) (measurement of general life hassles) provides evidence of the concurrent and convergent validity of the SRE-G as a measure of stress (Lang, 2001). In order to determine the validity, or to what degree the SRE-G

measured the construct of culturally specific stress, Lang examined the relationship between the SRE-G and the Hopkins Symptom Checklist, which was used to assess psychiatric symptoms related to stress, and a stress related behavior such as smoking a cigarette. The SRE-G Recent (past year) scores were significantly correlated with the HSCL-interpersonal ($r = .61$, $p < .01$) and total scores ($r = .47$, $p < .05$) as well as the somatization ($r = .47$, $p < .05$) and obsessive-compulsive scales ($r = .49$, $p < .05$). The SRE-G Lifetime (over the lifetime) scores were significantly correlated with the HSCL-interpersonal ($r = .46$, $p < .05$), somatization ($r = .45$, $p < .05$) and obsessive-compulsive scales ($r = .43$, $p < .05$) as well as the PERI-LES-total ($r = .46$, $p < .05$). The SRE-G Appraisal (stress) scores were significantly correlated with all of the HSCL subscales as follows: somatization ($r = .65$, $p < .01$), obsessive-compulsive ($r = .56$, $p < .01$), interpersonal ($r = .51$, $p < .05$), depression ($r = .50$, $p < .05$), anxiety ($r = .49$, $p < .05$), and total ($r = .59$, $p < .01$). Racism and stress related to racism was not associated with recent stressful events (as measured by the PERI-LES-total) such as divorce, death, moving or financial strains. Among Native Americans in Lang's study ($n = 23$), racist events were significantly related to psychiatric symptoms (Lang, 2001).

Binge Eating Scale (BES; Gormally et al. 1982). The BES is a 16-item questionnaire that assesses binge eating. The BES describes behavioral aspects of binge eating, such as eating large amounts of food, along with feelings and cognitions, such as guilt, that are associated with binge eating. Participants are asked to select the best statement that reflects their attitudes and behaviors about eating. Each statement is weighted with the total score being the sum of the 16 weighted items, which ranged from 0=no binge eating problem to 3=severe binge eating problems. A total score was

calculated by summing the 16 responses. Higher scores on the BES indicate more binge eating behaviors, with severe binge eating being reflected by scores of 27 or greater while scores of 17 or less reflect mild or no binge eating problems.

In creating the BES, the normative sample consisted of middle class Caucasian men (n = 15) and women (n = 97) between the ages of 24 and 67, who were seeking behavioral obesity treatment. After completing the 16-item questionnaire, participants underwent a structured interview. The interview, which focused on overt behaviors, such as a recent binge, the emotions following the binge and the ability to control eating urges, was used as an external criterion to assess severity of binge eating. Severity of the binge was based upon how often and how much food a person ate in conjunction with the degree of emotions experienced about binging.

A rater manual was devised and five hours of rater training was given to interviewers. Reliability of this process was tested by almost half of the participants being independently rated by a second interviewer. Binge eating scale scores were not available to the interviewers during the rating process. Raters discussed their findings, coming to a consensus on items where they were disagreements, with 67% being in perfect agreement and 100% being with one point.

The BES was shown to differentiate individuals with no (22%), moderate (55%), and severe (23%) binge eating behaviors (Gormally et al. 1982). Being able to control food urges and enjoyment of eating was used to describe those with no binge eating behaviors. Non-bingers did not see their overeating as a loss of control, but rather an enjoyable activity and so therefore had low emotional response levels to their overeating. Moderate binge eaters were described as those who have sporadic episodes of binge

eating and are able to exercise constraint over consumption during those times giving them a greater sense of emotional tolerance about these momentary failures. Severe binge eaters reported feeling a constant struggle to maintain control over their food consumption and described feelings of self-hate and guilt following a binge eating episode.

The test-retest reliability of the BES is adequate ($r = .87$, $p < .001$; Greeno et al, 1995). The internal consistency estimate of the BES in the original study was .85. The internal consistency reliability estimate of the BES for the current sample of Native Americans was .92.

Severity of binge eating, as measured by the BES was significantly and positively related to restrictive dieting standards (sample 1: $r = .56$, $p < .001$; sample 2: $r = .53$, $p < .00$) and food records (r's range from .20 to .40, $p < .05$), however, severity of binge eating was not related to body mass index (Timmerman, 1999).

Procedure

The principal investigator gathered data utilizing a snowball effect by inviting personal contacts, via electronic mail (Appendix B), to participate in this study. Initial personal contacts included friends, family, and a board member for the Society of Indian Psychologists.

In the e-mail invitation, they were told that participation in this study would involve completing some demographic information and seven questionnaires which should take no more than 45 minutes to complete. If interested, people could click on the URL contained in the e-mail, to be directed to the webpage for the study. If they were

not interested, they were asked to forward the e-mail message, including the URL address for the study, to others who might be interested in participating in this study.

After clicking on the URL contained in the email, contacts next read an Information Sheet (Appendix C) describing the nature of the study and giving them the opportunity to 'accept' or 'decline' to participate. By voluntarily selecting and clicking 'accept', participants were directed to the web-based survey site which included the demographic information section as well as the measures in this study including the Historical Loss Scale (HLS; Whitbeck et al. 2004a), the Historical Loss Associated Symptom Scale, (HLASS; Whitbeck et al. 2004a), the Native American Acculturation Scale (NAAS; Garrett & Pichette, 2000), the Schedule of Racist Events-Generic (SRE-G; Lang, 2001), the Depression, Anxiety, Stress Scale (DASS-21, Lovibond & Lovibond, 1995), Binge Eating Scale (BES; Gormally et al. 1982), and the Eating Disorder Diagnostic Scale (EDDS; Stice et al. 2000). At the end of the survey, participants clicked the "submit" button and were then directed to a webpage thanking them for their participation in the study. They were informed that if they had any questions about the study or if they were interested in counseling services in their area, they could contact the primary investigator (contact information was provided) [See Appendix D]. Participants were given the option of registering, on a separate website, for a Pendleton blanket to be given away in April 2007 [See Appendix E]. The separate website was created so that no identifying information used in registering for the Pendleton blanket could be connected to any one survey.

At the end of the data collection phase, the on-line survey was removed from the web site. The original data files were saved to disks. A summary of this study will be provided to participants who requested the results of the study.

CHAPTER IV

RESULTS

The purposes of this study were to explore: 1) the relationships between and among historical loss, acculturation, racism, emotional distress, binge eating, and body mass index among Native American people; 2) the significant predictors of binge eating among Native American people, and 3) the significant predictors of body mass index among Native American people. Pearson correlations, multiple regression, and forward regression analyses were conducted to explore bivariate and linear relationships among the main study variables, in accordance with the research questions. The criterion variables in the regression equations were binge-eating behaviors and body mass index. The predictor variables in the regression equation for binge-eating were thoughts related to historical loss, feelings associated with historical loss, acculturation level (average score), experiences of racism in the past year, experiences of racism over one's lifetime, stress associated with racism, and emotional distress (overall score). The predictor variables in the regression equation for body mass index included thoughts related to historical loss, feelings associated with historical loss, acculturation level (average score), experiences of racism in the past year, experiences of racism over one's lifetime, stress associated with racism, emotional distress (overall score), and binge-eating behaviors.

The results will be presented according to the research questions for this study. See Table 3 for the means, standard deviations, and score ranges for the main study

variables (i.e., historical loss, acculturation, racism, emotional distress, binge eating, and body mass index).

Research Question One: What is the relationship between and among historical loss, acculturation, racism, emotional distress, binge eating, and body mass index in Native American people?

The null hypothesis was that there would be no significant bivariate relationships between and among body mass index, thoughts related to historical loss, feelings associated with historical loss, acculturation level (average score), experiences of racism in the past year, experiences of racism over one's lifetime, stress associated with racism, emotional distress (overall score), and binge-eating behaviors. To answer this research question, Pearson correlational analyses (two-tailed) were conducted. See Table 4 for the correlation matrix.

Correlates of Body Mass. Body Mass Index scores were not significantly related to any of the other main study variables (see Table 4).

Correlates of Binge Eating. Binge eating was significantly and positively related to symptoms of emotional distress ($r = .41$, $p < 0.01$), stress associated with racism ($r = .26$, $p < 0.01$), experiences of racism over one's lifetime ($r = .13$, $p < .05$), and frequency of feelings associated with historical loss ($r = .30$, $p < .01$). Native American people in this sample who engaged in binge eating were more likely to experience feelings associated with historical loss, emotional distress, experiences of racism over their lifetime and stress resulting from those experiences (see Table 4).

Correlates of historical loss. Thoughts about the historical losses of Native American people were significantly and positively related to acculturation levels ($r = .18$,

$p < .01$), but were significantly and negatively related to feelings associated with historical loss ($r = -.47$, $p < .01$), symptoms of emotional distress ($r = -.26$, $p < .01$), experiences of racism over the last year ($r = -.49$, $p < .01$) and over the lifetime ($r = -.51$, $p < .01$), and the level of stress related to racist experiences ($r = -.46$, $p < .01$). Native American people in this sample who reported more frequent thoughts about the historical losses of Native Americans reported less emotional distress overall and less frequent feelings associated with historical loss, had fewer experiences of racism and less stress associated with racism, and were less traditional in their acculturation levels (see Table 4).

Frequency of feelings about historical loss was positively and significantly related to emotional distress ($r = .50$, $p < .01$), binge eating ($r = .30$, $p < .01$), level of stress associated with racism ($r = .47$, $p < .01$), and experiences of racism over the last year ($r = .42$, $p < .01$) as well as over one's lifetime ($r = .44$, $p < .01$). In this sample, those who reported more frequent feelings associated with historical loss experienced more emotional distress, binge eating, experiences related to racism over the last year and over the lifetime as well as more stress related to racist experiences (see Table 4).

Correlates of emotional distress. Symptoms of emotional distress were positively related with the frequency of feelings about historical loss ($r = .50$, $p < 0.01$), binge eating ($r = .41$, $p < 0.01$), experiences of racism in the last year ($r = .27$, $p < .01$) and over one's lifetime ($r = .33$, $p < .01$) and stress associated with those racist experiences ($r = .36$, $p < .01$); symptoms of emotional distress were negatively associated with thoughts about historical loss ($r = -.26$, $p < .01$). The Native American people in this sample who reported more emotional distress tended to experience more frequent feelings about

historical loss, engaged in more binge eating, experienced more racism in the last year and over their lifetime, and more stress associated with racism, yet less frequent thoughts about historical loss (see Table 4).

Correlates of racism and stress related to racism. Experiences of racism in the past year were significantly and positively associated with experiences of racism over the lifetime ($r = .80$, $p < .01$) and stress from this racism ($r = .63$, $p < .01$) as well as emotional distress in general ($r = .27$, $p < .01$) and feelings associated with historical loss ($r = .42$, $p < .01$). Experiences of racism in the past year were significantly and negatively associated with frequency of thoughts about historical loss ($r = -.49$, $p < .01$) and acculturation ($r = -.19$, $p < .01$) Participants in this study reporting more frequent experiences of racism in the past year reported more racism over their lifetime, more stress related to racist, more emotional distress in general, more frequent thoughts and feelings about historical loss, and more identification with traditional ways (in terms of acculturation levels).

Racism over one's lifetime was significantly and positively associated with experiences of racism over the past year ($r = .80$, $p < .01$), stress associated with racism ($r = .76$, $p < .01$), and feelings associated with historical loss ($r = .44$, $p < .01$). Racism over the lifetime was significantly and negatively related to frequency of thoughts about historical loss ($r = -.51$, $p < .01$) and acculturation ($r = -.28$, $p < .01$). Native people reporting more experiences of racism over the lifetime were more likely to report experiencing more racism over the last year, more stress related to racist experience, more frequent feelings associated with historical loss, less frequent thoughts about historical loss, and more identification with traditional ways.

The level of stress associated with racist experiences was significantly and positively correlated with experiences of racism over the past year and over one's lifetime, as mentioned earlier, in addition to other variables including symptoms of emotional distress ($r = .36$, $p < 0.01$), binge eating ($r = .26$, $p < .01$), and feelings associated with historical loss ($r = .47$, $p < .01$). Stress associated with racism was significantly and negatively associated with thoughts about historical loss ($r = -.46$, $p < .01$). Native people who reported more stress related to experiences of racism were more likely to report more experiences of racism in the past year and over their lifetime as well as more emotional distress and binge eating behaviors as well as more frequent feelings related to historical loss, yet less frequent thoughts about historical loss (see Table 4).

Correlates of acculturation. Level of acculturation was significantly and positively associated with frequency of thoughts about historical loss ($r = .18$, $p < .01$) and negatively associated with experiences of racism in the past year ($r = -.19$, $p < 0.01$) and over one's lifetime ($r = -.28$, $p < 0.01$). Participants who were more traditional tended to think about the historical losses of Native American people less often and were more likely to have experienced racism in the last year or over their lifetime (see Table 4).

In summary, there were a number of statistically significant relationships among the main study variables. In most cases, the null hypothesis was rejected. There were no statistically significant relationships between body mass index and the other variables. Therefore, the null hypothesis was not rejected in this case.

Research Question Two: What are the significant predictors of binge eating among Native American people? In particular, are the variables of historical loss, acculturation,

racism, and/or emotional distress significant predictors of binge eating among Native American people?

The null hypothesis was that historical loss, acculturation, racism, and emotional distress would not be significantly and linearly related to binge eating behaviors. To test this hypothesis, multiple regression and forward regression analyses were conducted.

Results of the multiple regression analysis indicated that historical loss (thoughts and feelings), acculturation, racism (past year, lifetime, stress-related), and emotional distress significantly entered the equation, $F(7, 232) = 9.29$, $p < .01$. These variables together accounted for 21.9% of the variance in binge eating behaviors of the Native American people in this sample. See Table 5 for the multiple regression results.

A forward regression was conducted to identify which of these variables are significant predictors of binge eating behaviors among Native American people in this sample. Historical loss (thoughts and feelings), acculturation, racism (past year, lifetime, stress-related), and emotional distress were the predictor variables. Results of the forward regression analysis indicated that emotional distress, stress related to racism, and experience of racism over one's lifetime were the significant predictors of binge eating behaviors among the Native American people in this sample. Symptoms of emotional distress significantly entered the equation first, $F(1, 238) = 52.38$, $p < .01$, and accounted for 18% of the variance in binge eating scores. Levels of stress related to racism significantly entered the equation next, $F(2, 237) = 28.48$, $p < .01$ and accounted for an additional 1.3% of the variance in binge eating scores (F change = 3.93, $p < .05$). Experiences of racism over one's lifetime significantly entered the equation next, $F(3, 236) = 20.98$, $p < .01$), and accounted for an additional 1.7% of the variance in binge

eating scores (F change = 5.02, $p < .05$). See Table 6 for a summary of the forward regression results.

In summary, when considered together, historical loss (thoughts and feelings), acculturation, racism (past year, lifetime, stress-related), and emotional distress were found to be significantly and linearly related to binge eating behaviors of the Native American people in this sample and accounted for 21.9% of the variance. In the forward regression analysis, emotional distress, stress related to racism, and experiences of racism over one's lifetime were the significant predictors of binge-eating behaviors, with emotional distress accounted for the majority of the variance in binge-eating scores (18%). Therefore, the null hypothesis was rejected.

Research Question Three: What are the significant predictors of body mass index among Native American people? In particular, are the variables of historical loss, acculturation, racism, distress, and/or binge eating significant predictors of body mass index among Native American people?

The null hypothesis was that historical loss, acculturation, racism, and emotional distress would not be significantly and linearly related to body mass index. As mentioned earlier, there were no statistically significant bivariate correlations between Body Mass Index and the other variables of interest in this study. To test this hypothesis, a multiple regression analysis was conducted. A forward regression analysis was planned if the multiple regression analysis resulted in significant findings.

A multiple regression analysis was conducted to explore the linear combination of historical loss, acculturation, racism, and distress in relation to body mass index. Results indicated that there was no statistically significant linear relationships between these

predictor variables and body mass index for the Native American people in this sample, $F(8, 225) = .61$, $p > .05$. These variables together explained about 2% (2.1% specifically) of the variance in body mass index. Therefore, the null hypothesis was not rejected. No forward regression analysis was conducted. See Table 7 for the multiple regression results for body mass index for this sample.

CHAPTER V

DISCUSSION

The results of this study will be discussed in this chapter as well as the implications of these findings, the limitations of the study and suggestions for further research. The purposes of this study were to explore 1) the relationships between and among thoughts and feelings related to historical loss, level of acculturation, experiences of racism and level of stress related to racism, symptoms of emotional distress, which were defined as depression, anxiety and stress, binge eating behaviors, and body mass index, 2) the significant predictors of binge eating behaviors, and 3) the significant predictors of body mass index for Native American people.

Before discussing the findings, some of the unique demographic characteristics of this sample should be noted. The majority of participants in this study were obese married Native American women in their early 40's, from an eclectic representation of tribes and nations, many of whom were highly educated and employed. The majority had lived in urban areas, were raised in two parent households and had attended public school. On average, these participants were bicultural in their level of acculturation, meaning that they identified with traditional Indian ways as well as dominant cultural practices. Bicultural participants tend to function in and among the dominant culture but they also behave in ways that acknowledge the traditions of their culture. Therefore, these findings may not be generalizable to all Native American people.

Predictors and Correlates of Body Mass Index Among Native Americans

The majority of people in this sample were obese (61%) or overweight (16%) based on their self-reported body mass index scores. This reflects that obesity is a health issue for this eclectic sample of Native American adults and that these findings are comparable to other studies that identify obesity as a health issue for many Native Americans, especially Native American women (National Center for Health Statistics (2005; OMH, n.d.; Sue, 2000; U.S. Dept. of Health and Human Services, 1995; Wing & Polley, 1993).

Binge eating, emotional distress, historical loss, racism, and acculturation were not significantly related to, nor were they significant predictors of, the body mass index of this sample of Native American people. These variables only accounted for 2% of the variance in body mass index scores. How much one weighs relative to their height does not appear to be related to the other personal and cultural variables explored in this study. While there were no significant correlates or predictors of body mass index for this group of Native Americans, certain eating behaviors are likely problematic given that the majority (77%) of this sample was classified as overweight or obese based on their body mass index scores.

Of interest, obesity, as defined by BMI levels, did not appear to be a reflection of binge eating behaviors. The insignificant relationship between binge eating and body size was an unexpected finding, but it is consistent with some previous research findings indicating no direct relationship between binge eating and obesity (Grilo, 2002; Hudson et al. 2007; Kohlmaier, 2003; Loro & Orleans, 1981; Lowe & Fisher, 1983; Lyubomirsky et al. 2001**;** Waller, 2002; Womble et al. 2001)**.** The lack of a significant relationship

between binge eating and body mass index may indeed reflect that Native American people with higher BMI scores do not engage in binge eating any differently than those with lower BMI scores. However, this finding could also be due to the restricted range of BMI scores for this sample given that over three-fourths of the participants were overweight or obese. There could also be social desirability factors at play regarding their food intake or eating behaviors such as denial, shame, or there could simply be a lack of insight into their eating behavior. It could also be that perhaps the instruments used in this study simply did not capture the essence of this sample's eating behaviors which may be overeating rather than binge eating. While previous researchers (Grilo, 2002; Hudson et al. 2007; Kohlmaier, 2003; Loro & Orleans, 1981; Lowe & Fisher, 1983; Lyubomirsky et al. 2001**;** Waller, 2002; Womble et al. 2001) did not find one specific correlate or predictor of body mass indexes over 25 or 30, they did find some common factors associated with higher BMI scores such as a lifetime history of binge eating, a tendency to eat more unhealthy type snacks, more negative affect, and a tendency to be more emotionally reactive to negative events. There may be other factors associated with higher BMI scores among Native American people that were not specifically explored in this study, such as availability of high fat foods, quantity of food consumed, type of foods consumed (e.g., high fat versus low fat), level of physical activity (i.e., exercise), and general lifestyles (i.e., sedentary versus active), all of which may be influenced by socioeconomic status and/or type of community in which one lives and works (OMH, n.d.; Osvold & Sodowsky, 1993; Story et al. 1999). In addition, everyday stresses associated with work or family which could be applicable to this sample made up mostly of working women. Participants in this study were asked to

indicate all of the communities in which they had lived over their lifetime and not their current living situation. Therefore, it is unclear how their current living environment and the stresses associated with it might impact their body mass index levels.

In previous research, culture, genetics, socioeconomic status, and behaviors/choices (OMH, n.d.; Osvold & Sodowsky, 1993; Story et al. 1999) are factors that have contributed to health disparities for Native American people compared to other racial groups. Of interest, there was no significant relationship between acculturation and body mass index for Native American people in this study. From a historical point of view, the relocation of Native American people influenced their cultural ways as well as their livelihoods, resulting in loss of culture as well as economic resources, all of which affected their general physical and mental health (e.g., limited food choices due to cost, storage or simply, availability). More research is needed to explore the relationship between obesity and acculturation as well as acculturative stress as well as the relationship between obesity and geographic living (i.e., urban, rural, suburban, and reservation).

While body mass index was not significantly related to cultural (i.e., historical loss) and emotional distress or experiences of racism, it is possible that these variables might have an indirect relationship with body mass index levels. Given that Native American people who live and work among the majority experience greater incidence of emotional distress and racism (Organista et al. 2003; OMH, n.d.; Sue, 2000; Wing & Polley, 1993), more research is needed to explore how these factors might impact health issues, including obesity levels, for Native American people.

Racism in and of itself is a stressful experience. Stress is a precursor to several mood disorders and emotional distress (Hudson et al. 2007) that often precede binge eating (Loro & Orleans, 1981). In other studies, obese people were found to have tendencies to be more emotionally distressed or reactive to negative events or feelings (e.g., depression and anxiety), have a lifetime history of binge eating, and tendencies to engage in addictive behaviors (Hudson et al. 2007; Kohlmaier, 2003; Loro & Orleans, 1981; Lowe & Fisher, 1983; Lyubomirsky et al. 2001; Waller, 2002; Womble et al. 2001), indicating that perhaps those who struggle with their weight also struggle with their emotions. While this was not found to be the case in this study (i.e., no relationship between BMI and emotional distress), factors such as lifetime history of binge eating, co-morbidity mood and/or anxiety disorders, addictive behaviors, and emotional reactivity were not specifically explored in this study. It is recommended that future research focus on other factors associated with obesity among Native American people.

Predictors and Correlates of Binge Eating Behavior Among Native Americans

Native American people in this sample who engaged in binge eating were more likely to have frequent feelings related to historical loss, increased emotional distress, experiences of racism over their lifetime and stress related to those experiences. When considered together, emotional distress, historical loss, and experiences of racism accounted for 22% of the variance in binge eating behaviors. This is statistically and clinically significant and will be discussed shortly. Emotional distress was the most significant predictor of binge eating behaviors among Native American people in this sample (accounting for 18% of the unique variance in binge eating scores) followed by

lifetime incidences of racism (1.3% of the unique variance) and stress associated with racism (1.2% of the unique variance).

Interestingly, binge eating was not significantly related to acculturation levels, thoughts associated with historical loss, or experiences of racism in the past year. This finding seems to suggest that binge eating is not a function of one's level of acculturation, thoughts about historical losses or racism over the past year.

Feelings related to historical loss, emotional distress and stress related to experiences of racism as well as experiences of racism over the lifetime can all be considered indicators of negative emotional states. Previous researchers (Lowe & Fisher, 1983; Lyubomirsky et al. 2001; McManus & Waller, 1995; Womble et al. 2001) have found binge eating to be a coping mechanism in the general population for relief from negative experiences and emotional states such as stress, anxiety, hunger, boredom and general emotional distress. Those with poor stress management skills may use food as a way to reduce stress as food may provide an immediate, though temporary, relief from emotional distress (Grilo, 2002; Loro & Orleans, 1981; McManus & Waller, 1995; Waller, 2002). While Waller (2002) found that the blocking of emotions may be the goal of binge eaters who experience aroused physiological and affective states, Loro and Orleans (1981) found that precursors to binge-eating were feelings of increased anxiety related to external stressors, interpersonal conflicts, inadequate coping skills, boredom and hunger. In a previous study with Native American adults, alcohol was associated with attempts to numb the experiencing of negative emotions or feelings of loss (Whitbeck et al. 2004b). The findings of the current study seem to reflect that food, in the

form of binge eating, may be used in much the same way, as a tool, to numb negative emotions or feelings associated with historical losses of Native Americans.

The findings of current study seems to support past research findings on factors that contribute to binge eating in general and extend it to Native Americans more specifically. The results of this study indicated that Native American people who engage in binge eating experience general emotional distress as well as specific emotional distress related to feelings about the historical losses of Native American people, racism over the lifetime and stress related to experiences of racism. These findings differ from French et al.'s 1987 study with Native American adolescents which found that while binge eating was common among 29% of the AIAN adolescent sample, emotional distress was not associated with binge eating. Among the ethnic groups studied, which also included Whites, Black, Hispanics and Asians, poor body image was the strongest correlate of binge eating, perhaps an area for further research with NA adults. Symptoms of emotional distress, general distress and stress related to racism, such as depression and anxiety, have all been found to be significant correlates of binge eating in other non-Native American samples (Grilo, 2002; Kohlmaier, 2003; Loro & Orleans, 1981; McManus & Waller, 1995; Waller, 2002). Therefore, it is important for health care professionals, including psychologists, to address emotional and cultural distress and experiences of racism in relation to binge eating behavior for racially diverse individuals, including Native American people.

How do Native American people cope with their emotions? The findings of the present study indicate that Native American people experience personal and cultural stress (in the form of historical loss feelings, stress related to racism, and general

emotional distress) and cope with it by binge eating. This has significant cultural, counseling, and educational implications for Native American people.

Given the historical traumas of Indian people, which has been discussed at length in this paper, the question should be asked whether or not Indian people as a group have been allowed to develop healthy coping skills for their emotions. While the original trauma of relocation or boarding school may have happened several hundred years ago, how have coping skills been developed and passed down from one generation to the next? For many, grieving was not allowed, acknowledged or accepted regardless of the type of loss, whether it was related to loss of land or loss of family upon placement in boarding school. This study found that Native people in the 21st century continue to experience stress related to racism which was shown to correlate with racism over the past year and over the lifetime, feelings related to historical loss, binge eating and emotional distress.

This may be the first study that has examined the correlates of binge eating among Native American adults that confirmed that the unique historical and cultural experiences of Native people influence their binge eating behaviors.

Among oppressed groups, racism has been associated with a number of psychosocial and cultural problems that can have direct and indirect influences on health. Both direct and indirect racism induce personal suffering and psychological distress (Sue, 2000). Participants in this study indicated they have experienced both direct and indirect racism over the last year and over their lifetime and that they sometimes cope with these experiences with food. Clark et al. (1999) examined the biopsychosocial effects of racism upon African Americans. Their study found that helplessness/hopelessness, anxiety,

anger, fear, resentment and frustration may be some of the initial psychological responses to perceived racism which may preclude the use of coping mechanisms such as overeating, avoidance, and passivity. This current study seems to corroborate Clark's findings for Native Americans as well. The sample in this study also indicated that lifetime experiences of racial and ethnic discrimination are predictors of emotional distress, chronic health conditions, such as obesity, and overall well-being for Native Americans.

The overall findings of this study seem to suggest that participants use food as a coping mechanism at several levels. While food may be used to soothe general feelings of depression, anxiety and stress for the general population (Lowe & Fisher, 1983; Lyubomirsky et al. 2001; McManus & Waller, 1995; Womble et al. 2001), Native American people may experience more stress related to experiences of racism and more frequent feelings about loss of culture.

It is important to explore the factors that influence the emotional distress of Native American people, including behaviors such as binge eating, given that Native American people are two to five times more likely to experience severe psychological distress, or to have felt hopeless or worthless compared to other racial groups (Barnes et al. 2005). While there were several significant predictors of binge eating, there is still much about binge eating behaviors among Native American people (i.e., 78%) that was unaccounted for by the variables in this study.

The development of coping skills among Native people has its own unique place in history when placed in the context of the social and political treatment of Native Americans over the last five hundred years (Adams, 1995; Duran & Duran, 1995; Ellis,

1996; Glendinning, 1994; Lomawaima, 1994; Szasz, 1999). Native people may experience deficits in being able to cope effectively with personal and cultural stressors. It has been shown that binge eaters often experience poor stress management skills, low self-esteem, and deficits in their interpersonal abilities (Loro & Orleans, 1981). Among Native Americans binge eating could be related to many factors as they are a people who have a history of being denied the ability to be self-expressive. In addition to ethnicity, gender could also play a role, as women, as a group, have also been oppressed and minimized in American society. Perhaps this sample of mostly Native American women have learned over time it is safer to keep their feelings to themselves and they in a sense 'feed', or try to comfort, their emotions through the use of food. Perhaps they have learned over time that 'thinking' about their situation results in feelings of hopelessness or helplessness and therefore they do not give much thought to why their bodies are overweight or obese or to what influences their eating behaviors or food choices. Perhaps they simply have learned that the voices of oppressed groups of people are not heard and therefore do not make a difference. The questions that the findings of this study raise seem to suggest looking at theories on coping, especially the solution focused versus emotion focused coping literature. In examining the coping literature it would seem prudent to begin by exploring how Native people coped with the traumas imposed upon them several generations ago through relocation and boarding school placement. These two events alone significantly affected the fabric of Native American families and communities in ways that would affect an individual's ability to cope effectively with negative events and emotions. If we look at these events as soul wounds (Duran & Duran, 1995), that led to historical trauma responses (HTR) (Brave Heart & Debruyn, 1998),

which include denial, depression, and anxiety followed by disenfranchised grief (Doka, 1989), it does not seem difficult to grasp that perhaps Native people struggle to cope effectively with their personal and cultural stressors, including their emotions. So within the context of historical events and the personality make-up of obese people in general, it could be posited that if denial is a part of trauma and there is no way to move past the denial stage of trauma and/or grief (hence, disenfranchised grief), denial becomes a way of coping or perhaps feeling a variety of emotions but not feeling as though one lives in an environment where it is safe to be emotionally expressive. Within that same context the patriarchal nature of the relationship between the United State's government and Native people was, and perhaps still is, one of dependency. Dependency takes away a sense of personal responsibility, so while there are certainly external factors that influence body mass index, feeling dependent upon 'the great white father' or feeling the 'great white father' is in control, would take away a sense of being able to help one's self resulting in a sense of helplessness or hopelessness. Feeling helpless or hopeless takes away from a sense of empowerment, thereby decreasing self-esteem and sense of self-efficacy. So while the results of this study do not reflect that body mass index is correlated with or predicted by historical loss, acculturation, racism, emotional distress or binge eating, the body mass indexes of the sample population seem to suggest that, when taken in the context of past research on obesity and in combination with the unique historical aspects of Native people, there is much more to learn when addressing factors that influence obesity problems and that perhaps emotional precursors to the eating behaviors are what need to be examined and explored when working with obese or overweight ethnic groups and more specifically, Native Americans.

Other interesting findings

There are some other interesting correlational findings that will be discussed briefly in this section.

Correlates of acculturation In this study, participants who were more traditional tended to think about the historical losses of Native American people less often, but experienced racism in the last year or over their lifetime more so than more assimilated Native American people. Therefore, traditional Native American people appear to have cognitively resolved the historical losses of their people, but are currently dealing with oppressive stressors related to racism.

Native American people in this sample who reported more frequent thoughts of historical loss tended to be more assimilated to the dominant culture. Past research (Organista et al. 2003; OMH, n.d.; Sue, 2000; Wing & Polley, 1993) has shown that as acculturation to the dominant culture increases so do mental and physical health issues given that there are no culturally related buffers to assist in coping with stress related to acculturation. In this study, more assimilated Native Americans thought more about the historical losses of their people as compared to traditional people. Perhaps they have not fully processed the meaning of these losses or perhaps they do not have the cultural supports/buffers in place to deal more emotionally with these thoughts. As more assimilated Native American people begin to participate in their cultural practices, they may become more cognitively aware of their culture, including the losses of Native American people.

Correlates of feelings associated with historical loss. There was significant shared variance between general emotional distress and feelings related to historical loss. The

results of this study, as well as one previous study (Whitbeck et al. 2004a) confirm the positive and significant relationship between feelings of historical loss and general emotional distress among Native American people.

While both of these variables significantly contributed to the understanding of binge eating behavior among Native American people, further research is needed to clarify how feelings of historical loss as measured by the Historical Loss Associated Symptom Scale (HLASS; Whitbeck et al. 2004a) is different from general emotional distress as measured by the Depression, Anxiety, Stress Scale (DASS-21, Lovibond & Lovibond, 1995).

Feelings associated with historical loss were also related to binge eating, experiences of racism (over the last year and over the lifetime) and stress associated with racism. This seems to suggest that feelings about the historical losses related to Native American culture may result in depression, anxiety, and stress or binge eating. It might also suggest that feelings about historical loss occur more frequently when one experiences racism and stress related racism. Feelings of historical loss seem to follow being discriminated against as events of racism may prompt memories of events that have lead to loss of traditional Native American culture (Whitbeck et al. 2004b).

Whitbeck, McMorris, Hoyt, Stubben, and LaFromboise (2002) found those who experienced discrimination were two times more likely to indicate symptoms of depression and that emotional distress may increase in relation to stress induced by conflicting cultural values.

As noted by Clark et al. (1999), people of color often encounter discrimination or experiences of racism based upon their appearance which can include skin color and

perhaps weight. While these may be subjective experiences they are still perceived by the individual to be acts of prejudice or discrimination. People of color may also experience attitudinal racism. An example that is specific to Native people could be the use of mascots who are often depicted as savages or fierce warriors, essentially someone to fear or someone who is not 'civilized'. Among African American people racism has been correlated with feelings of anger, resentment, frustration, and feelings of low self-worth (Clark et al. 1999)—all negative emotional states that have been shown to precede binge eating among the general population as well as among other ethnic/cultural groups (Grilo, 2002; Loro & Orleans, 1981; McManus & Waller, 1995, Waller, 2002).

When examined holistically in relation to the rest of the study, it appears that this sample of Native people continue to encounter racism. Feeling discriminated against clearly induces feelings of emotional distress, stress in relation to these discriminatory experiences and feelings about loss of culture.

Correlates of thoughts of historical loss. Native American people in this sample who reported more frequent thoughts about the historical losses of Native Americans also reported less emotional distress overall, less frequent feelings associated with historical loss, fewer experiences of racism and less stress associated with racism. Regardless of acculturation level, Native American people who think about the historical losses of their people experience less emotional and cultural distress. Being cognitively, rather than emotionally, aware of one's history may indeed be a protective factor against distress.

Overall, those who experienced more frequent thoughts about historical loss were less distressed—that is, they were less likely to experience feelings related to historical loss, have less emotional distress overall, have fewer experiences of racism and therefore,

less stress associated with racism. Unlike previous research findings (Whitbeck et al. 2004a), but similar to a more recent study (Cain, 2007), thoughts and feelings of historical loss were negatively correlated with one another.

Mental and physical health issues may increase as one becomes further removed from their culture (Organista et al. 2003; OMH, n.d.; Sue, 2000; Wing & Polley, 1993). On the other hand, the more immersed one becomes, emotional distress may increase as sensitivity to cultural loss occurs (Whitbeck et al, 2004a). The findings of this current study seem to support both of these past research findings. More research is needed to understand how Native American people resolve the personal and cultural stressors associated with the historical losses of their people.

Correlates of emotional distress Emotional distress was defined as experiencing symptoms related to depression, anxiety and stress. In this study, emotional distress was positively correlated with binge eating, experiences of racism over the past year and over the lifetime, stress related to racist experiences and frequent feelings about historical loss. Past research has shown that depressive symptoms may occur among Native Americans who experience racism (Whitbeck et al. 2002). It is also well documented that binge eating, among the general population, as well as among African American and Hispanic women, can be influenced by feelings of depression, anxiety and stress (Fitzgibbon et al. 1998; Grilo, 2002; Kohlmaier, 2003; Loro & Orleans, 1981; Lyubomirsky et al. 2001; Waller, 2002; Womble et al. 2001).

This was the first study to find that there were significant relationships between emotional distress, experiences of racism over the last year and over the lifetime, and binge eating among Native American people. It was also the first study to find that

emotional distress and stress related to racism are predictors of binge eating among Native Americans. This study also found that among the Native Americans in this sample, emotional distress has a significant relationship with feelings about historical loss. One of the main purposes of this study was to find evidence to support the theories of past researchers (Brave Heart & DeBruyn, 1998; Duran & Duran, 1995) as to the unique historical, cultural and personal experiences of Native American peole that influence their overall health and well-being.

The findings of this study seem to support Brave Heart and DeBruyn's (1998) theory that historical loss trauma may result in feelings of depression, anxiety, anger and low self-esteem, as well as self-destructive behaviors. What can be said is that Native people continue to experience events or feelings that create dissonance within their soul, their soul wound, and that perhaps they lack the skills to cope more effectively with negative emotional states. Again there are many historical events (Adams, 1995; Ellis, 1996; Lomawaima, 1994; Szasz, 1999) that have influenced the personal and cultural experiences of Native people. It has been previously discussed how these events may have influenced the ability of Native people to develop appropriate coping skills. While the assessment of coping skills was beyond the scope of this study, it may be important to assess coping style in future studies as the ability to cope effectively with negative emotional states is most likely important to overall wellness. As it relates to Native people, it seems important to address the significance of how historical events continue to influence Indian people today in the form of racism, struggles with acculturation and emotional distress.

As stated earlier emotional distress for Native American people has been defined in several ways either as a soul wound (Duran & Duran, 1995) or post-colonial stress (Schultz, 2006; Winterowd et al. 2001). Which ever term is used, this study seems to reflect that Native Americans in the twenty-first century continue to experience emotional and psychological distress and that this distress is indeed related to binge eating behavior among Native American people.

Summary of major findings

Native American adults experience health care problems such as obesity, hypertension, diabetes, and severe psychological distress at rates higher than other racial groups and the leading causes of death among Native American adults are heart disease, cancer, accidents, diabetes and stroke (OMH, n.d.; Sue, 2000; Barnes et al. 2005). While obesity is a major health concern for Native American people, the variables of interest in this study—binge eating, historical loss, racism, acculturation, and emotional distress—were not significant predictors of obesity. However, feelings of historical loss, emotional distress, experiences of racism over the lifetime and stress related to racism were significant predictors of binge eating. Of these variables, emotional distress was the most significant predictor of binge eating.

In the next section, the implications of these findings for practice with Native American people will be discussed.

Implications for Practice with Native American People

Native American people, as individuals and as members of their tribes/nations, may have common, yet also distinctive cultural experiences, including their own personal and tribal history of cultural losses, experiences of racism and discrimination, how they

deal with their emotions, as well as how they eat and for what purposes.

It is important for Native American people to acknowledge and grieve the losses of their culture as well as their current experiences of distress and discrimination. At the same time, some Native American people may become stuck in their own emotional distress as a result of these personal and cultural experiences. Therefore, it is important for counselors and psychologists to honor their stories and to listen to their experiences so that they can be heard and understood. Helping clients move through their grief may result in a great deal of healing.

Facing one's thoughts about the historical loss of Native American culture may be a protective factor for Native American people in general, regardless of acculturation level. While thinking may be safer than feeling, the process of cognitive awareness and of verbalizing thoughts about loss may be a way of becoming more in touch with one's feelings about loss and could thereby advance the healing process. Greater cognitive and emotional awareness would perhaps alleviate the need to reach for food for emotional comfort as one develops greater stress management and coping skills when affected by negative events, thoughts or feelings. Facing one's personal and cultural experience both cognitively and emotionally may have healing effects.

To address overweight and/or obesity issues, health care professionals need to understand the importance of food in one's life, how food is consumed, and for what purposes. For Native American people, binge eating may not be as significant of a problem related to obesity as is the types of foods consumed and the possibility of overeating. However, when binge eating does occur, the results of this study emphasize the importance of assessing and addressing emotional and cultural distress, including

feelings of historical loss and experiences and stress related to racism as factors that may contribute to binge eating problems.

Stressors, negative events and negative affects can all influence binge eating. Therefore, it seems important to assess the emotional states that precede binge eating as well as the coping styles of those Native American people who are overweight or obese.

The importance of traditions and traditional healing needs to be incorporated in educational and counseling/psychotherapy interventions with Native American people, especially more traditional individuals. When there are traditions in place that encourage mourning and healing, responses to trauma may be less debilitating (Doka, 1989). If there are no traditions in place for an individual, either personally or within their community, narrative therapy might be utilized as a way to tell the stories of individual, tribal, or community losses as a way to recognize loss and begin the healing process. It might be useful to understand how a person has experienced cultural loss, both as an individual and within their family system. From a family systems perspective, it may be useful for a practitioner to obtain greater understanding of a client's family system in order to address what factors have influenced each generation, perhaps through the use of a genogram. The idea of obtaining a greater understanding of one's family system is based upon Brave Heart and DeBruyn's (1998) theory that unmourned losses, otherwise known as historical unresolved grief, were transposed, or passed on from generation to generation and that today they have become a living presence among today's generation (Whitbeck et al. 2004a).

Providing the most culturally appropriate services is essential. It would also be important to assess whether or not an individual benefits from participating in their

cultural traditions or not, and how identified s/he is with mainstream as well as traditional cultural experiences in determining the most appropriate interventions**.**

Overall, the results of this study suggests that many stressors experienced by Native Americans are not only personal but cultural as well and that this needs to be taken into account when addressing risk and resiliency factors associated with binge eating. To be fully culturally competent, practitioners must understand the meaning of the Native American experience by understanding that collectively Native people have been wounded through the processes of genocide, removal, assimilation, acculturation and loss of culture.

Limitations of the Study

There are limitations to this study in that this sample of Native American people represented an eclectic group of Native American tribes rather than one tribe or nation. Members from different tribes may experience historical loss, acculturation, racism, binge eating and obesity/overweight issues differently

There were some limitations in terms of the recruitment of participants. In using a snowball effect utilizing personal contacts via the internet, the surveys were only accessible to those who had access to the internet and who were referred to this study by acquaintances, friends, and family. This may have limited the demographics of the population to certain education and socioeconomic levels and thereby perhaps not reaching those who might have different types of experiences related to loss, acculturation, racism, emotional distress, binge eating and body mass index. Therefore, the generalizability of these findings to other Native American people is limited.

Additionally, there are a number of factors that may influence the binge eating and obesity problems of Native American people that were not explored in this study, such as access to economic resources, transportation, access health to care, or access to certain food groups, among others. Also, it was beyond the scope of this study to determine whether or not certain traditions themselves, such as feasts, might contribute to overeating.

Other limitations were that only three of the self-report measures, the historical loss measure, the acculturation scale, and the generic schedule of racist events were normed with Native American people. However, there is evidence that these measures are reliable for this sample. Also, the nature of the relationships that were found between and among these variables points to the emerging validity of these measures for Native American people.

In reviewing the demographic form developed for this study, the participants' current living situation was not directly assessed. Participants were asked what types of communities they had ever lived in. Knowing where participants currently resided may have been useful in understanding the extent to which geographic factors that may influence binge eating. Also, given that the survey was for adults, it would have been useful to know if they are parents and whether or not they have children in the home and how many children. Along those same lines it would be useful to know if participants are caring for their parents or others. Other health related questions that could have been incorporated into the demographic questionnaire could have inquired about participant's current mental and physical health status. For example, were they currently being treated for any type of illness associated with obesity such as diabetes or cardiovascular illnesses

or were they currently being treated for any type of mental health issue such as depression or anxiety? As it relates to other health factors, it would have been useful to know their current level of physical activity and whether or not they suffer from any sort of physical disability. Knowing more about these types of factors would perhaps offer greater understanding about the other factors that may have contributed to the obesity levels of this sample.

One last limitation that should be mentioned is that of relying on self-report and the inherent questions this could raise about the reliability or accuracy of respondent's answers. However, these types of questions can be raised in most any research study whether the researcher is face to face with the participant or the participant is completing an on-line survey. While participants can be biased in their responses, their responses can be influenced by multiple factors, such as boredom or distraction, and it is difficult, if not impossible to control for these types of nuances, especially in an on-line study.

Implications for further research

Several implications for further research arose from the results of this study. The most obvious seems to be what accounts for the other 78% of binge eating among Native American people? Taking care of children, relationships with partners/spouses, parents, history of illnesses, financial stressors, type of community one resides in, socioeconomic status, acculturative stressor, coping styles, social support, cultural supports, etc., all seem to be important factors to explore in relation to binge eating behaviors.

As it relates to body mass index, it might be useful to sort participants into groups based on whether or not they are normal weight, overweight or obese and to then look at these between group comparisons. In looking at this type of information perhaps we

would learn more about healthy coping strategies engaged in by the normal weighted participants. Do they have less stressors in their lives? Do they participate more or less in their culture? Or do they simply take better care of themselves through diet and exercise?

It might also be useful to look at differences between those who meet DSM-IV-TR criteria for binge eating disorder in comparison to those who do not in terms of how these two groups might compare across the other criterion variables explored in this study.

As it relates to experiences of racism and its associated stress, it should be noted that the participants in this study could possibly be considered "identifiably" Native American in that 66% had at least a one-half blood quantum or more and approximately 61% of this sample was obese. It would be interesting to have a greater understanding about whether or not experiences of discrimination were based on skin color or weight.

This particular sample was largely female but a future area of research might focus on any differences between males and females when it comes to binge eating and obesity levels, as well as personal and cultural experiences of distress (i.e., thoughts and feelings about historical loss, experiences of and stressors related to racism).

Another area for future research would be to explore more fully the relationship between feelings of historical loss and emotional distress as they were highly correlated with each other but only emotional distress emerged in the regression analysis as a predictor of binge eating.

Summary

This study offers important information about personal and cultural factors that influenced binge eating, such as emotional distress, historical loss, and racism, among a

tribally eclectic sample of Native American people, most of whom were overweight or obese. While there were no significant predictors of obesity, as measured by body mass index, this finding in and of itself has significance. More research is needed to understand the factors that influence obesity in Native American people as well as the binge eating behaviors of Native American people. While the results of this study contribute new knowledge about the unique personal and cultural factors that affect the mental and physical health of Native people, more research is needed in this area. It is hoped that health care providers working with Native Americans will have a greater sense of understanding about the historical, personal and cultural influences upon their clients.

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APPENDIX A: TABLES

Table 1

Demographics of the Sample

Participants	n=269
Mean age	43.03, SD=12.47, range 19-70.
Female	n=203 (75.5%)
Male	n=66 (24.5%)
Blood Quantum	
Full blood	n=55 (20.4%)
Three quarter blood	n=54 (20.1%)
One-half blood	n=70 (26.0%)
One-quarter blood	n=56 (20.8%)
One-eighth	n=15 (5.6%)
One-sixteenth	n=15 (5.6%)
Less than one sixteenth	n=03 (1.1%)
Education	
17 or more years of education	n=93 (34.6%)
12-16 years of education	n=157 (58.4%)
6-12 years of education	n=18 (6.7%)
1-6 years of education	n=1 (0.4%)
Types of schools attended	
Public school	n=248 (92.2%)
Private school	n=45 (16.7%)
Boarding school	n=30 (11.2%)

Bureau of Indian Affairs schools	n=21 (7.8%)
Marital Status	
Married	n=115 (42.8%)
Single	n=76 (28.3%)
Divorced	n=33 (12.3%)
Partnered/common law	n=29 (10.8%)
Widowed	n=9 (3.3%)
Separated	n=6 (2.2%)
Raised by	
Parents	n=181 (67.3%)
Grandparents	n=79 (29.4%)
Only mom	n=66 (24.5%)
Aunt and/or uncle	n=38 (14.1%)
Other	n=31 (11.5%)
Extended family	n=20 (7.4%)
Only dad	n=7 (2.6%)
Friends	n=7 (2.6%)

Table 2

Tribal Affiliation and Frequency

3 Affiliated Tribes, Hunkpapa Sioux, Laguna Pueblo	1
Abenaki	3
Absentee Shawnee	7
Akokisa (descent)	1
Algonkian	1
All California Tribes	1
Apache	15
Arikara	1
Bad River WI Band of Lake Superior Chippewa	1
Bear River Mattole & Eel river Wiyot	1
Benton Paiute (Utu Utu Gwaitu)	1
Bishop Paiute Tribe of the Owens Valley	2
Blackfeet	6
Blackfoot	2
Caddo Nation of Oklahoma	4
Cahto	1
Cayuga	1
Chemehuevi	2
Cherokee	29
Chetco	1

Cheyenne	2
Cheyenne River Sioux Tribe	3
Chickahominy (descent)	1
Chickasaw	3
Chilula	1
Chippewa	3
Chiricahua Apache	3
Choctaw	9
Chumash	3
Coastal Band Chumash	1
Coharie	1
Comanche	13
Concow Maidu	1
Confederated Tribes and Bands of the Yakama Nation	1
Confederated Tribes of the Colville Indian Reservation	1
Confederated Tribes of Warm Springs	1
Cree	2
Creek	12
Crow	5
Cumberland Creek	1
Delaware	2
Dine'/ Navajo	20
ani yv wi ya (Eastern Band Cherokee)	2

Eastern and Western band Cherokee	1
Eastern Shawnee	1
Emigdiano Chumash	1
Euchee	1
Fernandeno	1
Filipina from Mucsingal in the PI	1
Fort Peck Sioux (descendent)	1
Ft. Peck Sisseton Wapeton	1
Garden River First Nation (Ojibwe - Ontario)	1
High Mountain Maidu	1
Ho-Chunk	3
Hoopa Valley Tribe	4
Hupa	4
Hopi	1
Iowa	1
Isleta Pueblo	1
Jamestown S'Klallam	1
Jicarilla Apache	4
Karok/Shasta	1
Karuk Tribe of California	12
Kaw	1
Keetoowah	1
Kickapoo	1

Kickapoo Nation of Kansas	2
Kiowa	27
Kitanemuk	1
Laguna Pueblo	5
Lakota	3
Lakota-Hunkpapa from Standing Rock Sioux Tribe	1
Leech Lake Anishinaabe	1
Lenape	1
los coyotes	1
Lower Brule Sioux Tribe/Ft. Berthold Three Affiliated Tribes	1
Madesi Band	1
Maidu	2
Makah Tribe	1
Maliseet	1
Manchester/Point Arena Band of Pomo Indians	1
Mattole	1
Mesa Grande Band of Mission Indians	1
Mescalero Apache	1
Metis-Cree, Assiniboine, Kuteney	1
Mexica (Mexican-Indian)	2
Mi'kmaq	1
Mille Lacs Band of Ojibwe	1
Miwok	2

Modoc	2
Micmac	1
Muskogee Creek	1
Muscogee (Creek) Nation	1
Muscogee (Creek) Nation of Florida	1
Maidu	2
Mohawk	1
Native Village of Deering, AK	1
Nomalaki	1
Northern Paiute	1
Oglala Lakota	2
Oglala Lakota-Sioux	1
Oglala Sioux	1
Ojibway	4
Ojibway-aniashinabeg	1
Omaha	1
Oneida	3
Oneida of the Thames	1
Osage	9
Otoe	2
Otoe-Missouria	2
Owens Valley Paiute Band of Big Pine, CA	1
Paiute	4

Piaute	2
Passamaquoddy (enrolled)	1
Pawnee	5
Pima	1
Pit River	3
Pomo Nation 2 and Wappo Nation with Mayan	1
Ponca	5
Potowatomi	4
Pueblo - Acoma	2
- Zia	1
Quinault Indian Nation - Washington State	2
Red Lake Chippewa (enrolled)	1
Rincon Band of the Luiseno Nation	1
Rogue River (OR/CA)	1
Rosebud Sioux/Lakota	2
Salinan	1
Salish of the Flathead Nation	1
Salonon	1
San Felipe Pueblo	1
Santa Clara Pueblo	2
Santo Domingo Pueblo	3
Sault Ste. Marie Tribe of Chippewa	1
Seminole Nation of Oklahoma	10

Sac & Fox Tribe of Oklahoma	2
Seneca	7
Seneca-Cayuga	1
Shasta	2
Sicangu Lakota	1
Sicangu Oyate Lakota	1
Sioux	1
Sioux/Assiniboine (Ft. Peck Reservation)	1
Sisseton-Wahpeton Oyate (Sioux)	4
Stockbridge Munsee Band Mohican	2
Taigh, Wyam and Tuk-spus of the Warm Springs bands in Oregon	1
Taino (Puerto Rico)	1
Tewa	1
Three Affiiated Tribes (Arikara)	2
Three Affiliated Tribes Mandan, Hidatsa	1
Timbisha Shoshone Tribe	1
Tohono O'odham	2
Tolowa Nation	7
Tongva	1
Tsnungwe	1
Tule River Yokuts/Paiute	1
Tuolomune Me-Wuk	1
Northern Paiute	1

Turtle Mountain Band of Chippewa	5
Tyme Maidu	1
Unangan (Aleut) St. Paul Island Tribe	1
Viejas Band of Kumeyaay Indians	1
Wailaki	1
Wakpekuta Dakota	1
Warm Springs Confederated Tribes	1
Washoe Tribe	3
Western Shoshone	1
White Earth Chippewa (descendent)	1
White Swan	1
Wichita	1
Winnebago	1
Wintu	1
Wukchumni/Mono	1
Wyandot, Algonquin	1
Wyot	2
Yacqui	4
Yakama Indian Nation	2
Yakama Tribe, Washington State	2
Yankton Sioux	2
Yokuts	1
Yoeme	1

Yuki from Northern California	1
Yurok Tribe	10
Zuni	3

Table 3

Means, Standard Deviations, and Range of Scores for the Historical Loss, Acculturation, Racism, Emotional Distress, Binge Eating and Body Mass Index Measures (n=269)

Variable	Mean	Std. Dev.	Range
HLS Total	38.44	12.33	12-72
HLASS Total	35.88	10.43	17-67
NAAS Avg	57.94	9.63	38-83
SREY Total	35.47	14.43	18-80
SREL Total	44.77	16.02	18-94
SRES Total	49.21	22.64	17-102
DASS Total	11.11	9.48	0-49
BES Total	9.16	7.91	0-32
BMI	30.79	6.99	20-60

HLS = Historical Loss Scale

HLASS = Historical Loss Associated Symptom Scale

NAAS = Native American Acculturation Scale

SREY Total = Schedule of Racist Events over the Past Year

SREL Total = Schedule of Racist Events over the Lifetime

SRES Total = Schedule of Racist Events-Stress Related to Racist Events

DASS = Depression, Anxiety, Stress Scale

BES = Binge Eating Scale

BMI = Body Mass Index

Table 4

Correlation Matrix of the main study variables including Historical Loss, Acculturation, Racism, Emotional Distress, Binge Eating and Body Mass Index (n=269)

	SREY	SREL	SRES	HLS	HLASS	BES	NAAS	BMI	DASS
HLS	-.49**	-.51**	-.46**	1	-.49**	-.12	.18**	-.11	-.26**
HLASS	.42**	.44**	.47**	-.47**	1	.30**	.01	.09	.50**
SREY	1	.80**	.63**	-.49**	.42**	.096	-.19**	.01	.27**
SREL	.80**	1	.76**	-.51**	.44**	.13*	-.28**	.05	.33**
SRES	.63**	.76**	1	-.46**	.47**	.26**	-.11	.06	.36**
BES	.096	.13*	.26**	-.12	.30**	1	.09	.03	.41**
NAAS	-.19**	-.28**	-.11	.18**	.01	.09	1	-.01	.06
BMI	.01	.05	.06	-.11	.09	.03	-.01	1	.06
DASS	.27**	.33**	.36**	-.26**	.50**	.41**	.06	.06	1

** p < .05
* p < .01

HLS = Historical Loss Scale
HLASS = Historical Loss Associated Symptom Scale
SREY Total = Schedule of Racist Events over the Past Year
SREL Total = Schedule of Racist Events over the Lifetime
SRES Total = Schedule of Racist Events-Stress Related to Racist Events
BES = Binge Eating Scale
NAAS = Native American Acculturation Scale
BMI = Body Mass Index
DASS = Depression, Anxiety, Stress Scale

Table 5

Multiple Regression with Historical Loss, Acculturation, Racism, Emotional Distress as PredictorVariables and Binge Eating as the Criterion Variable

Variable	R	R Sq	F
Thoughts about Historical Loss	.15	.02	.61
Feelings about Historical Loss			
Level of Acculturation			
Experiences of Racism: Over the Lifetime/In the last Year/Level of stress			
Symptoms of Emotional Distress			

* p < .01 **p < .001

Table 6

Forward Regression with Historical Loss, Acculturation, Racism, Emotional Distress and Body Mass Index as Predictor Variables and Binge Eating as the Criterion Variable

Predictors	R	R sq	R sq ch	F	F (ch)	Beta
DASS Total	.43	.18	.18	52.38**	52.38	.39
Racism Stress	.44	.19	.01	28.48**	3.93	.27
Racism Lifetime	.46	.21	.02	20.98**	5.02	-.20

* p < .01 **p < .001

Table 7

Multiple Regression with Historical Loss, Acculturation, Racism, Emotional Distress and Binge Eating as Predictor Variables and Body Mass Index as the Criterion Variable

Variable	R	R Sq	R Sq Chg	F	F (ch)
	.47	.22	.22	9.29	9.29

* p < .01 **p < .001

APPENDIX B: E-MAIL INVITATION TO PARTICIPATE

SCRIPT

As a doctoral student in counseling psychology at Oklahoma State University, I am conducting a research study for my dissertation exploring factors that may contribute to the health and well-being of Native Americans.

This e-mail is being sent to you to request your participation in the study which would involve completing, on-line, several questionnaires and a demographic form, which should take approximately 45 minutes to complete. You must be at least 18 years of age to participate.

Below is a URL that will link you to information on completing the surveys. Should you choose to participate, and are interested, once you have submitted your completed surveys you will be given the opportunity to enter into a drawing for a Pendleton blanket.

Whether you choose to participate in the study or not, I would appreciate your help in forwarding the link to this study to other Native American people who might be interested in participating in this study. This can include family, friends, or acquaintances, as well as organizations, tribal affiliations or list serves of which you are a member.

Participation in this study is completely voluntary and all survey information collected in this study is strictly confidential.

Your participation and/or forwarding of this study is greatly appreciated!

Thank you!

Julie Dorton, M.S. (Kiowa/Absentee Shawnee)
Doctoral Candidate
Oklahoma State University
405/747-0288
julz.dorton@okstate.edu

APPENDIX C: INFORMATION SHEET/INFORMED CONSENT

INFORMATION SHEET

Informed Consent Form

You are invited to participate in a study exploring personal and cultural experiences associated with eating behavior among Native Americans. Participation in this study involves the completion of seven questionnaires and a demographic form, which should take approximately 45 minutes to complete. If you are interested in participating, you must be at least 18 years of age.

The potential benefit of participating in this study is an increased awareness of how you feel about your self, your culture, and your eating habits. We believe that the results of this study will provide a greater understanding of how personal and cultural experiences influence the health and well-being of Native people. We hope this information will guide us in developing more culturally meaningful health interventions for Native American people. There are no foreseeable risks in participating in this study.

Whether you choose to participate in the study or not, we would appreciate your help in forwarding the link to this study to other Native American people who might be interested in participating in this study. This can include family, friends, or acquaintances.

Participation in this study is completely voluntary. If you choose to participate, please complete the questionnaires in this study. There is no penalty for not participating and you have the right to withdraw your consent and participation at any time.

All information collected in this study is strictly confidential. No individual participants will be identified. No one will know your individual responses to the questionnaires. You will not be identified individually; we will be looking at the overall findings of the group as a whole.

Your participation in this study is greatly appreciated. After completing the questionnaires, you will be directed to a link, separate from this study, giving you an opportunity to enter a drawing for a Pendleton blanket if you are interested. We would request your name and contact information for purposes of the drawing only. This information will remain separate from your survey responses.

If you have any questions concerning this study, please feel free to contact Julie Dorton, M.S. or Carrie Winterowd, Ph.D. at (405) 744-6040. You may also contact Sue Jacobs, Ph.D., Chair, IRB committee, Oklahoma State University, Stillwater, OK 74078 at (405) 744-1676 if you have questions about participant rights related to this study. If you agree to participate, please click on the “Accept” button. If you do not wish to participate, please click the “Decline” button. By clicking the “Accept” button, this will serve as your electronic signature for participation in this study.

Accept Decline

APPENDIX D: COUNSELING RESOURCE INFORMATION

Counseling Resource Information

If, after completing the surveys, you feel you would like information about resources for counseling in your local area please contact the primary investigator, Julie Dorton via e-mail at julz.dorton@okstate.edu

Please use "counseling resources" in your subject line.

Upon receiving your request the primary investigator will contact you to determine the nature of your request so that the most appropriate resources may be located.

APPENDIX E: ENTRY FORM

Entry Form

By completing this form I am entering my name to be drawn for one chance to win a Pendleton blanket to be given away no later than April 30, 2007.

Should I be the winner of the blanket I would like to be contacted in the following manner:

Name:_____

*E-mail Address: _____

*Telephone:_____

*Mailing Address:_____

_____

_____

- Please complete at least one form of contact information

APPENDIX F: DEMOGRAPHIC SHEET

DEMOGRAPHIC SHEET

Directions: Please answer each question by filling in the blank, checking the blank, or circling the number that best describes you.

1) How old are you? Age _____

2) Gender: ____ Female ____ Male

3) What Native American Indian tribe (or tribes) are you from? (Please list all)

_____

4) Your degree of Indian blood:

____ Less than 1/16 ____ 1/16 ____1/8 ____1/4 ____1/2 ____3/4 ____ 4/4

5) Where have you lived? (Check all that apply) ____ urban ____ rural ____ reservation (tribal area)

6) How many years of school have you completed?

____ a) 1-6 years (elementary school)
____ b) 6-12 years (junior high and/or high school)
____ c) 12-16 years (Associate/technical School or college)
____ d) 17 or more years (graduate school)

7) What is your present occupation? _____

8) Are you:
____ a) Single
____ b) Partnered/Common Law
____ c) Married
____ d) Separated
____ e) Divorced
____ f) Widowed

9) How many brothers and sisters do you have?

____ none ____1 ____ 2 ____ 3 ____4 ____5 ____6 ____7 _____8 or more

10a) How have you been raised in your Indian cultures? (circle one number)

1…….2…….3…….4…….5…….6…….7

traditional (close ties with tribe) — not Indian (close ties with dominant culture)

10b) How do other American Indians view you?

1…….2…….3…….4…….5…….6…….7

traditional (close ties with tribe) — not Indian (close ties with dominant culture)

10c) How do non-Indians view you?

1…….2…….3…….4…….5…….6…….7

traditional (close ties with tribe) — not Indian (close ties with dominant culture)

11) Do you consider yourself to be an…

1…….2…….3…….4…….5…….6…….7

Indian who happens to be American — American who happens to be Indian

12) What type of school did you attend? (check all that apply)

____ boarding school ____ public school ____ private school (Catholic or other) ____ BIA school

13) Who raised you during your childhood? (check all that apply)

____ mother and father ____ father only ____ mother only ____ grandparents ____ aunt/uncle

____ other extended family ____ friend ____ other (please specify): _____

APPENDIX G: INSTITUTIONAL REVIEW BOARD APPROVAL

Oklahoma State University Institutional Review Board

Date:	Monday, September 25, 2006
IRB Application No	ED06152
Proposal Title:	The Relationship of Historical Loss, Acculturation, Racism, and Emotional Distress Upon Binge Eating and Obesity in Native Americans
Reviewed and Processed as:	Expedited

Status Recommended by Reviewer(s): Approved Protocol Expires: 9/24/2007

Principal Investigator(s

Julie Dorton
1101 Delaware
Perry, OK 73077

Carrie Winterowd
434 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

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

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 219 Cordell North (phone: 405-744-5700, beth.mcternan@okstate.edu).

Sincerely,

Sue C. Jacobs

Sue C. Jacobs, Chair
Institutional Review Board

Oklahoma State University Institutional Review Board

Date	Tuesday, November 21, 2006	Protocol Expires:	9/24/2007
IRB Application	ED06152		
Proposal Title:	The Relationship of Historical Loss, Acculturation, Racism, and Emotional Distress Upon Binge Eating and Obesity in Native Americans		
Reviewed and Processed as:	Expedited **Modification**		

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

Principal Investigator(s):

Julie Dorton	Carrie Winterowd
1101 Delaware	434 Willard
Perry, OK 73077	Stillwater, OK 74078

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

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

Signature:

Sue C. Jacobs, Chair, OSU Institutional Review Board

Tuesday, November 21, 2006
Date

VITA

Julie Gallaher Dorton

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE RELATIONSHIPS OF HISTORICAL LOSS, ACCULTURATION, RACISM AND EMOTIONAL DISTRESS TO BINGE EATING AND BODY MASS INDEX AMONG NATIVE AMERICANS

Major Field: Counseling Psychology

Education: Bachelor of Arts/Communication
The University of Oklahoma
Norman, Oklahoma
1994

Master of Arts/Community Counseling and Student Personnel
Oklahoma State University
Stillwater, Oklahoma
2002

Completed the Requirements for the Doctor of Philosophy Degree at Oklahoma State University in July 2007

Experience: Clinical Counselor/Intake Counselor~Oklahoma State University, University Counseling Services
Pre-Doctoral Intern ~Kansas State University, Manhattan, Kansas
Practicum Student~Indian Health Services Center, Pawnee, Oklahoma
Counselor/Doctoral Practicum Student~Logan County Youth and Family Services, Guthrie, OK

Professional Memberships: American Psychological Association
Society of Indian Psychologists

Name: Julie Gallaher Dorton Date of Degree: July, 2007

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: THE RELATIONSHIPS OF HISTORICAL LOSS, ACCULTURATION, RACISM AND EMOTIONAL DISTRESS TO BINGE EATING AND BODY MASS INDEX AMONG NATIVE AMERICANS

Pages in Study: 122 Candidate for the Degree of Doctor of Philosophy

Major Field: Counseling Psychology

Scope and Method of Study: The purposes of this study were to explore the relationships between and among historical loss, acculturation, racism, emotional distress, binge eating, and body mass index among Native American people as well as to identify significant predictors of binge eating and body mass index. Participants included 269 Native American adults who were solicited via e-mails using a snowball data collection technique. They completed an on-line survey including the following measures: a demographic page, the Historical Loss Scale (HLS)/ Historical Loss Associated Symptom Scale (HLASS; Whitbeck, Adams, Hoyt, & Chen, 2004), the Native American Acculturation Scale (NAAS; Garrett & Pichette, 2000), the Schedule of Racist Events-Generic (SRE-G; Lang, 2001), the Depression, Anxiety, Stress Scale (DASS-21, Lovibond & Lovibond, 1995), Binge Eating Scale (BES; Gormally, Black, Daston, & Rardin, 1982), and the Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000). Pearson correlations, multiple regression, and forward regression analyses were conducted to explore bivariate and linear relationships among the main study variables.

Findings and Conclusions: Body mass index levels among Native American people were not associated with binge eating behaviors, emotional distress in general, cultural distress (as measured by historical loss and racism), or acculturation. These variables only accounted for 2% of the variance in body mass index scores. Native American people in this sample who engaged in binge eating tended to experience emotional distress as well as cultural distress including feelings associated with historical losses as well as experiences and stress associated with racism. Emotional distress, feelings about historical loss, and experiences of racism accounted for 22% of the variance in binge eating behaviors. Emotional distress was the most significant predictor of binge eating behaviors (accounting for 18% of the unique variance in binge eating scores) followed by lifetime incidences of racism (1.3%) and stress associated with racism (1.2%).
It may be important to assess the emotional states related to binge eating along with the coping styles of those who are overweight or obese. Further research is needed to understand the personal and cultural factors associated with binge eating and obesity among Native American people.

ADVISER'S APPROVAL: Carrie Winterowd