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## Examining Drinking Motivation, Resiliency, And Alcohol Use Among American Indian And Caucasian College Students

Emily Sargent Sargent

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EXAMINING DRINKING MOTIVATION, RESILIENCY TRAITS, AND ALCOHOL  
USE AMONG AMERICAN INDIAN AND CAUCASIAN STUDENTS

by

Emily Sargent  
Bachelor of Science, North Dakota State University, 2014

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

for the degree of

Master of Arts

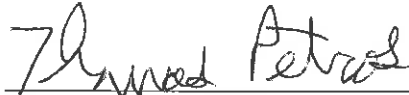
Grand Forks, North Dakota

August  
2017

This thesis, submitted by Emily Sargent in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and hereby approved.



Justin McDonald, Ph.D., Chairperson

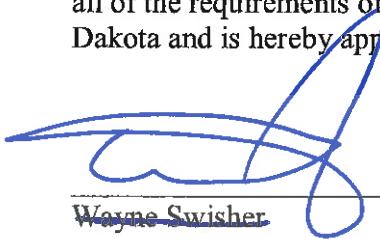


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This thesis is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved.



Wayne Swisher  
Dean of the Graduate School

May 30, 2017  
Date

## PERMISSION

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Emily Sargent  
05/26/2016

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## DEDICATION

I would like to dedicate this thesis project to the White Earth Tribal Community College and to the Anishinaabe people of the White Earth Indian Reservation. The Anishinaabe people and my ancestors who have come before me have always and will continue to guide me.

## ABSTRACT

While previous research has suggested American Indians (AI) experience higher levels of alcohol use and related consequences than Caucasians (CA), recent research has demonstrated that AI may actually be drinking at the same or lower rates than CA. AI college students may choose to consume alcohol for different reasons than CA students, referred to as drinking motivation. Resiliency (i.e., experiencing positive outcomes regardless of serious threats) may be one factor that moderates the relationship between specific drinking motives and alcohol use. The current study examined alcohol use, drinking motivation, and resiliency among University of North Dakota (UND) AI ( $n = 27$ ), White Earth Tribal Community College (WE) AI ( $n = 19$ ), and UND CA ( $n = 30$ ) college students. Results revealed no significant differences in drinking motivation and alcohol use among AI and CA students. Additionally, results indicated no significant differences between resiliency and alcohol use among AI and CA students. Furthermore, results revealed resiliency did not moderate the impact of coping drinking motives on alcohol use for AI students and CA students. However, UND AI who drank to cope consumed higher rates of alcohol compared to WE AI students. Further, UND AI who were higher in resiliency had lower alcohol use compared to WE AI students. This study was the first to examine the relationship between alcohol use, drinking motives, and resiliency among AI and CA college students. A better understanding of the relationship

between drinking motivation, resiliency, and alcohol use will enhance intervention efforts among college students and add to the literature of AI college students and alcohol use.

## **CHAPTER I**

### **INTRODUCTION**

Previous research has suggested that American Indians (AI) tend to consume alcohol at a higher rate and experience more negative alcohol-related consequences when compared to Caucasians (CA). In addition, previous research has demonstrated that college-aged adults experience higher levels of alcohol use and alcohol-related consequences; however, the problem with most of these findings is that they have been restricted to the predominantly CA college student sample. Thus, there is a lack of research dedicated to AI college student alcohol consumption and the related variables. As a result of this, findings of alcohol use among CA college students cannot necessarily be generalized to the AI college population. Among the many differences between the etiology of alcohol use between these two ethnicities, AIs have endured historical trauma and intergenerational alcohol use to a greater extent than the majority population. These are factors that are distinctly unique to this population. Further, AI college students in particular may have intrinsically built high levels of resiliency because of the difficulties many AIs have had to and currently face, therefore protecting them from problematic alcohol use. It is possible that AI college students have high levels of resiliency traits, which protects them from use and allows them to succeed in an educational setting. There is currently a lack of research examining AI college students and resiliency as a protective factor as it relates to drinking motivation and alcohol use.

## **Alcohol Use among College Students**

Alcohol use among college students remains a top health concern on college campuses in the United States despite preventative efforts (Champion, Lewis, & Myers, 2015). The prevalence rate for alcohol consumption among college students has remained stable for the past twenty years, suggesting there may be no significant impact of reduction and prevention efforts (Champion et al., 2015; Wechsler & Nelson, 2006; Wechsler & Wuethrich, 2002). However, individuals who engage in binge drinking and/or heavy drinking can develop problematic alcohol use. Past research suggests that 44% of college students attending a four-year university engage in binge drinking, which is defined as 4 or more drinks in secession for women, and 5 or more drinks in secession for men (Champion et al., 2015; Wechsler & Nelson, 2006). In 1999, 40% of college students reported engaging in heavy drinking at least once in the past two weeks (Johnston, O'Malley, & Bachman, 2000). Similarly, in 1995, 42% of college students ages 18-24 reported consuming five or more drinks in one session at least once in the past 30 days (CDC, 1995). The Core Institute study reported that 38% of college students experienced at least one heavy-drinking episode (five or more drinks in a row) in the past two weeks (Presley, Meilman, & Cashin, 1996). Overall, there is a substantial amount of existing research suggesting high rates of alcohol consumption among college students.

An important area of research is examining the comparisons of drinking behaviors among college students and young adults. For example, research suggests the prevalence of alcohol use is higher among college students than non-attending peers (Johnston et al., 2000; O'Malley and Johnston, 2002; SUMHSA, 1999). It is possible that higher rates of alcohol consumption being observed among college students in comparison to their non-

attending peers is a result of being surrounded by legal aged students who can supply alcohol and/or the effects of alcohol advertising directed towards college students (Johnston et al, 2000; O'Malley and Johnston, 2002). In addition, examining gender and ethnic differences among individuals who use alcohol is an imperative area of research. Specifically, rates of alcohol use are typically higher for male college students in comparison to female college students. Further, research suggests White college students have the highest rates of heavy drinking, Hispanics have intermediate rates of heavy drinking, and Black college students have the lowest rates of heavy drinking (O'Malley and Johnston, 2002). It is important to note research examining AI college students and alcohol use rates is lacking and further research is needed in this area.

### **Negative Alcohol-Related Consequences**

Alcohol consumption during the college years is part of a normative process of development; however, it may also result in experiencing negative consequences. There is a strong association between heavy drinking among college students and negative alcohol-related consequences. Existing research suggests students who engage in heavy/binge drinking are 10 times more likely to engage in unprotected sex, unplanned sexual activities, have trouble with law enforcement, become physically injured, and damage property compared to non-heavy/binge drinkers (Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). In addition, there is an association between binge drinking and driving under the influence of alcohol, with high rates of college students reporting dangerous driving behaviors in comparison to non-binge drinkers. Wechsler (1994) also found that almost half of the college-aged participants experienced five out of the twelve problems, including: having a hangover, missing class, doing something that is regretful,

engage in unplanned sex, violence and aggression, alcohol poisoning, etc. Overall, the existing literature examining alcohol related consequences gives further support for the high level of alcohol use among college students.

### **Alcohol Use, Binge Drinking, and Consequences among Americans Indians**

Existing research examining substance use and patterns of use across different racial/ethnic groups in the adult population is lacking, especially in the AI population (Beauvais, 1998). In addition, substance use among the AI population has been difficult to obtain generalizability because numerous studies utilize samples drawn only from a single Indian Reservation or tribe, ignoring the cultural variation among different AI nations (Beauvais, 1998; Akins, Mosher, Rotolo, & Griffin, 2003). Despite these concerns, AI alcohol use has been widely researched (Akins et al., 2003).

Existing research on AI substance use generally indicates high levels of use compared to other racial/ethnic groups (Beauvais, 1992; Oetting, Edwards, Goldstein, & Garcia-Mason, 1980; Beauvais, Oetting, & Edwards 1985; Plunkett & Mitchell, 2000). In addition, AI living off the reservation compared to those living on the reservation display higher rates of alcohol and substance use. Studies have also shown that AI use alcohol and other substances earlier in life compared to other racial/ethnic groups (Beauvais et al., 1985). However, much of the research that has examined alcohol use across racial/ethnic minority groups has been conducted with adolescent samples in the school setting. Empirical research of substance use patterns among racial/ethnic adults has been lacking, especially for AI (Beauvais, 1998). Some studies have found AI adolescents to have higher rates of alcohol use compared to White adolescents (Beauvais et al., 1985), while other research has found Whites having higher rates of alcohol use compared to AI

adolescents (Plunkett & Mitchell, 2000). In addition, Oetting and Beauvais (1989) found that AI and White adolescents have similar rates of alcohol consumption in relation to lifetime use patterns. However, when AI adolescents consume alcohol they tend to experience more negative consequences (e.g., conflict in interpersonal relationships, getting into trouble with the law) compared to White adolescents. Akins et al. (2003) found that within an 18-month time period, AI were the most likely to report current substance use; however, these differences are partially explained by the disadvantaged situations of AI people (e.g., socio-demographic factors, individual risk/protective factors, etc.).

Kanny, Liu, Brewer, and Lu (2013) utilized the Behavioral Risk Factor Surveillance System (BRFSS) to compare excessive drinking among AI and Whites (CDC, 2014). Results suggested excessive drinking was higher among Whites compared to AI. In addition, the U.S government provides annual descriptive statistics of binge and heavy drinking among AI and Whites in the National Survey on Drug Use and Health (CDC, 2014; SAMHSA, 2014). Findings showed AIs and Whites reported heavy drinking estimates of 5.8% and 7.3%, respectively, and binge drinking estimates of 17.7% and 16.7%, respectively. This suggests little difference in drinking rates among the two populations. Further, Cunningham, Solomon, and Muramoto (2015) found a majority of AIs (57.5-59.9%) abstained from alcohol in the past month, where 43.2-42.6% of Whites abstained from alcohol. About 33% of Whites and 14.5% of AIs were identified as light/moderate drinkers. In addition, the study found that AI and White excessive drinking estimates were similar (8.3% and 7.5%, respectively) as well as binge drinking estimates (17.3% and 16.7%, respectively). The study's overall findings demonstrated



that regardless of the variables (i.e., alcohol abstainers, light and moderate drinkers, heavy drinkers, and binge drinkers) indicated, AI alcohol use was at a lower or similar rate compared to Whites, contrary to the AI high alcohol consumption belief. Another study found AI that attend college drank less and had lower binge drinking rates compared to AI who did not attend college. This suggests college attendance may be a protective factor among AI students, even if AI do not decrease their alcohol use during college (Greene, Eitle, & Eitle, 2014)

### **Historical Trauma**

Psychological struggles faced by the AI population, including impairments related to problematic substance use, cannot be examined without taking into consideration the historical trauma experienced by indigenous people. Historical trauma is defined as intergenerational trauma that was imposed on a group of people that share a particular identity, ethnicity, or religious affiliation (Evans-Campbell, 2008). More recently, there has been interest in the psychological trauma experienced by AI people in response to the historical genocide, policies of forced acculturation, loss of traditions, ethnic cleansings, and the placement of AI children in boarding schools (Ehlers, Gizer, Gilder, Ellingson, & Yehuda, 2013). Currently, indigenous people report experiencing traumatic events at a higher rate compared to the general population, thus the losses experienced by AI people are not an effect from a single event, but rather they stem from multiple events that have impacted their current and ongoing lives (Beals et al., 2005; Whitbeck, Adams, Hoyt, & Chen, 2004; Whitbeck, Chen, Hoyt, & Adams, 2004). Historical trauma may in fact be a contributing factor to previous and current substance use that enhances other traumatic risks (Ehler et al., 2013). Alcohol use has had damaging effects on the health of

Indigenous people resulting from internalized oppression, aggression, unresolved grief, and trauma (Brave Heart & DeBruyn, 1998). However, historical trauma may have created protective factors among AI people and AI college students. For example, AI passing on resiliency narratives to one generation to the next may aid in the recognition of their past, therefore, providing them with strength for their future to overcome discrimination and other difficulties (Fast & Collin-Vézina, 2010).

### **Resiliency**

Resiliency is defined as a person experiencing positive outcomes regardless of serious threats to one's life course (Masten, 2001). Research examining the phenomenon of resiliency aims to understand the underlying factor that contributes to these positive outcomes. There are two critical judgments that construct the process of resiliency recognized by Masten and Coatsworth (1998) and Masten (1999). The first judgment examines the threat component of the interference: individuals who have not experienced a significant threat to their development will not be recognized as having resilient traits. There must be an evident risk that is a predictor of undesirable outcomes. Biological and environmental risk factors are well-established predictors of developmental consequences and difficulties. The second judgment of resilience are the principles of adaptation or development outcomes which is evaluated as "good" or "positive". However, there is controversy that remains about who and what defines resiliency by what criterion (Luthar, Cicchetti, & Becker, 2000; Masten, 1999).

### **Resiliency among College Students**

A majority of college campus settings are notably different from the background of AI students who have strong ties with their traditional communities (Garrod &

Larimore, 1997). As a result, drop out statistics (Bowker, 1992) and low enrollment statistics (Sandefuer, 1998) are a reality that many AI students must face in order to persist through college because of the drastic difference between the two cultures. However, Tinto (1993) established a model of educational persistence of minority students that identified family background, academic preparation and performance, and interactions with faculty as predictors of resiliency. Bowker (1993) conducted research examining factors that strength AI students in educational setting. He found four main areas of resiliency for persisting in education, which includes: (1) a caring adult role model or mentor who has helped develop a sense of purpose; (2) the impact of schools and teacher who focus on the whole child; (3) a strong sense of spirituality and strong moral purpose in life; (4) low family stress. Results demonstrated a strong association between a student who has a strong identification with their ethnic identity (either White or AI) and academic performance. Further, a dissertation study conducted by Hill (2013) found the relationship between psychopathology and resilience established resiliency traits as a moderating variable by mitigating stress risk on the degree of hopelessness among AI Northern Plains college students and community members. Therefore, protective factors, such as resiliency, may help defend against the negative effects of adverse experiences and promote positive psychological adaption.

### **Resiliency and Alcohol Use among AIs**

Resilience traits may moderate the risk of developing substance use problems through positive emotional regulation, increased tolerance of negative affect, or seeking out social support and nurturing relationships. A large study of 2024 predominantly low income African American adults was conducted and found that high resiliency was

associated with lower risky alcohol and drug use (Wingo, Ressler, & Bradley, 2014). In addition, Green, Calhoun, Dennis, and Beckham (2010) found that higher resiliency traits were associated with lower alcohol use disorders. Previous research has demonstrated that resiliency traits may play an important role for several at-risk groups, such as children of alcoholics (COAs; Mylant, Ide, Cuevas, & Meehan, 2002); however, few studies have investigated resilience among COAs minority cultures. Lee and Cranford (2008) found that Korean adolescents' externalizing and internalizing behaviors were affected by parental problematic drinking with resiliency found to be a moderator. In regards to resiliency and alcohol use among AIs, specifically AI college students, there is a need for more research. However, some research has investigated AI culturally specific intervention efforts in relation to substance abuse. Myhra, Wieling, and Grant (2015) demonstrates that within intergenerational exposure to substance use, there was resilience and healing among AI participants. In addition, Myhra et al. (2015) suggests there is a need for AI substance use prevention efforts that focus on resiliency, pre-colonization practices, and tradition because resiliency traits aid in the substance abuse recovery process. This is consistent with the Mohatt et al. (2008) study examining a model of recovery from alcohol abuse for Alaska Natives (AN). The model implies AN individuals are resilient in their alcohol use recovery course by using a reflective style of thinking in regards to their individual experiences. Thus, successful interventions with AI/AN people should be less focused on formulized intervention programs and more focused on offering flexibility in the intervention programs to better promote personal insight. Overall, despite the research done among AI, resiliency, and alcohol use, there is still a

strong need for more research in this area in order to create more intervention efforts, especially for AI college students.

### **Resiliency, Drinking Motivation, and Alcohol Use**

There is a significant lack of research examining the relationship between resiliency traits, drinking motivation, and alcohol use. In addition, there is currently no research examining these factors among AI people and AI/CA college students. However, one study in the literature discusses inner city youth and their drinking motivation and protective factors in relation to alcohol use. Bernstein, Graczyk, Lawrence, Bernstein, and Strunin (2011) discusses drinking motivation among inner city youth, finding differences among adolescents whose drinking motivation was to “chill” (for mood enhancement or social reasons) or to “cope” relating to resilience traits. Results demonstrated that “chillers” described many sources of resiliency traits; however, “copers” did not describe any of these traits. There remains a lack of research examining the relationship between resiliency, drinking motivation, and alcohol use, especially among AI people and AI college students. This is an important area of research to examine because AI and other ethnic minority college students may engage in alcohol use to cope with current or past life stressors. In return, these life difficulties have the potential to strengthen resiliency over the life course. Literature has yet to focus on resiliency as a moderator between drinking motivation and alcohol use. Specifically, research ought to be examining resilience traits in relation to drinking motivation and alcohol use among ethnic minorities who have faced oppression, intergeneration use, and historical trauma such as AI people.

## **Drinking Motivation**

Individuals who drink choose to consume alcohol for a variety of different purposes (Merrill & Read, 2010). There are multiple reasons that influence an individual's choice to engage in alcohol consumption, with previous research establishing drinking motivation as a common pathway to alcohol use (Cox & Klinger, 1988). Motivation to use alcohol may stem from one's affect, thus, it is important to understand the relationship between drinking motivation and alcohol use.

Cox and Klinger (1988) proposed a model investigating motivation for drinking on two dimensions. The first dimension incorporates the theory that a person has positive (i.e., achieving positive goals) and negative (i.e. avoiding negative goals) motivations. This first dimension is then crossed with a second dimension involving internal/external motivation. Thus, Cox and Klinger model states an individual's drinking motives are categorized as one of the following: (1) externally caused, positive reinforcement motives (drinking to gain positive social rewards); (2) externally caused, negative reinforcement motives (drinking to avoid social rejection); (3) internally caused, positive reinforcement (drinking to enhance mood); (4) internally caused, negative reinforcement (drinking to reduce negative mood). Thus, individuals choose to drink for purposes that are thought to result in certain outcomes.

Cooper, Frone, Russell, and Mudar (1995) hypothesized a different model based off of Cox and Klinger (1988)'s findings. Cooper's model is a four-dimensional approach that recognizes four motivations for alcohol use: enhancement, coping, social reinforcement, and conformity. Additionally, the researchers examined how these four motives are related to level of alcohol use and alcohol-related consequences. Findings

demonstrated that drinking to enhance mood (i.e., enhancement motives) was associated with higher alcohol use and encouragement of heaving drinking by peers (Copper et al., 1995; Merrill & Read, 2010). In addition, social motives were positively associated with heavy alcohol consumption. However, coping motives (i.e., drinking to regulate negative mood or to forget worries) were positively associated with alcohol-related consequences, both directly and indirectly through alcohol use. Moreover, coping motives have been directly associated with heavy alcohol use and alcohol-related problems (Carey and Correia, 1997; Kassel et al., 2000). Johnson et al. (1985) examined the correlation between coping motives and alcohol use among Hawaiian participants and found that drinking for pathological reasons (i.e., to cope with anxiety or depression) was associated with higher levels of alcohol use and alcohol-related problems. In addition, drinking to cope with negative affect has shown to have a direct relationship with problematic alcohol consumption (Carey and Correia, 1997). In contrast, some outcomes have shown that coping motives put an individual at risk for experiencing alcohol-related problems, even at low levels of use (Merrill et al., 2014). Regardless, the precursor for this type of drinking motivation is the initial motivation of drinking to cope (which is internally-generated), while the effect is an increased dependence on alcohol to cope with negative emotions over time (i.e., negative reinforcement). Finally, conformity motives are found to be negatively associated with normal and heavy alcohol consumption and positively associated with drinking in settings where pressure to conform was significant. Therefore, individuals who drink similar quantities of alcohol, but are drinking to conform rather than drinking for enhancement or social purposes, are more likely to experience alcohol-related problems.

Examining each individual motive (i.e., enhancement, coping, social, and conformity) and its relationship to level of alcohol use and alcohol-related problems adds insight to understanding alcohol consumption and related consequences among college students. For example, coping motives are directly linked to alcohol-related consequences, thus, students who are motivated to drink to eliminate negative emotions are at an increased risk for experiencing consequential outcomes. This puts an already susceptible group at increased risk for vulnerability towards alcohol use (Merrill et al., 2014). Drinking to cope may create immediate problems (e.g., physiological symptoms, compromised control) as well as long-term consequences that develop into more severe symptoms (Chung & Martin, 2002; Nagoshi, 1999; Nelson, Little, Heath, & Kessler, 1996; O'Neill & Sher, 2000;). Drinking to cope is directly linked to risky behaviors and academic/occupational problems, and enhancement motives are indirectly related to alcohol-related consequences via high levels of alcohol use (Cooper et al., 1995; Magid, MacLean, & Colder, 2007; Merrill et al., 2014; Merrill & Read, 2010). In addition, drinkers who have enhancement motives are more likely to drink at a faster pace and “gulp” their alcoholic beverages, causing them to experience blackouts (Merrill et al., 2014; Merrill & Read, 2010). Likewise, individuals who choose to drink for mood enhancement purposes may be more extroverted or have an assertive personality, which could lead towards problematic interactions with others (Stewart and Devine, 2000). Conformity motives are typically unrelated to alcohol use and alcohol-related consequences among college students (Johnston & O'Malley, 1986; Karwacki & Bradley, 1996). However, Merrill and Read (2010) found that drinking to conform or to



“fit- in” was directly associated with problems such as poor self-care, impaired control, and diminished self-care.

The majority of drinking motivation in college students has been examined in predominantly CA populations; however, one study examined drinking motivation among AI adolescents. Mushquash, Stewart, Comeau, and McGrath (2008) found that AI adolescents most commonly reported coping motives for alcohol use. Students described using alcohol because they were depressed, angry, lonesome, stressed, or frustrated. In addition, they consume alcohol to cope with interpersonal struggles as well as to numb their emotions. Additionally, Skewes and Blume (2015) revealed no differences in identification of drinking motivation among Native Americans and non-Native Americans. However, Native American’s who were high in coping motivation were more likely to engage in a binge drinking episode and experience alcohol-related consequences. In summary, there is an overall lack of research examining drinking motivation among ethnic minorities, especially AI people. However, historical trauma and intergenerational use may provide an explanation as to why AI people may use coping as a motivation to drink alcohol.

### **Current Study**

The current study examined the relationship between alcohol use, drinking motivation, and resiliency factors among AI and CA college students. To better investigate these specific relationships, a multifaceted approach was taken. The first aim of the study was to examine the association between drinking motives and alcohol use among White Earth Tribal Community College (WE) AI students, UND AI college students, and UND CA college students. It was hypothesized that UND/WE AI students

would have the highest levels of alcohol use when they also have high levels of coping motives (i.e., because of historical trauma and intergenerational use). In addition, it was hypothesized that UND CA college students would have the highest levels of alcohol consumption when they were also high in enhancement motives.

The second aim of the study was to examine the association between level of resiliency and alcohol use among WE AI college students, UND AI college students, and UND CA college students. It was hypothesized that WE AI and UND AI students would have the lowest levels of alcohol use when also high in resiliency (i.e., because of historical trauma and intergenerational use). In addition, no relationship between level of resiliency and alcohol use among UND CA college students was hypothesized (i.e., because of lack of historical trauma, intergenerational use, and being a privileged population).

The third and final aim of the study examined the moderating effects of resiliency on drinking motives on level of alcohol use. It was hypothesized that resiliency would moderate the impact of coping drinking motives on alcohol use for WE AI and UND AI students, such that those high in resiliency would not display higher levels of alcohol use. However, no moderating effect of resiliency among UND CA college students was hypothesized.

The development period during college years puts college students at an increased risk for problematic alcohol use (Slutske, 2005; Slutske et al., 2004). Interventions that target this high risk population may be beneficial in reducing problematic use on college campuses. In addition, alcohol use may carry its own set of risks for AI college students; however, there is a lack of research examining alcohol interventions among AI college

students. Nevertheless, research indicates that there is an association between resilience among AI college students and positive educational outcomes (Bowker, 1993; Tinto, 1993). In addition, previous research has stressed the importance of incorporating resiliency among AI students in aiding with alcohol treatment programs (Myhra et al., 2015). Overall, there is a lack of research connecting AI college student resiliency factors and drinking for coping purposes, which may aid with developing effective intervention strategies.

## **CHAPTER II**

### **METHODS**

#### **Participants**

Participant were divided into three groups: 1) UND CA students ( $n=30$ ); 2) UND AI students ( $n=28$ ); and 3) WE AI students ( $n=19$ ). Non-AI and AI university students were recruited from the University of North Dakota (UND). WE AI students were recruited from the White Earth Tribal Community College. Participants were required to report having consumed alcohol in the past 6 months. This is necessary because individuals who have not drank alcohol in the past 6 months are unable to answer the DDQ measure. College students were chosen for recruitment because this population is most likely to report alcohol consumption (Wechsler and Austin, 1998; O'Malley and Johnston, 2002). UND CA students were recruited through enrollment in psychology courses utilizing the SONA systems. UND AI students were predominantly recruited at the American Indian Center on UND's campus. In addition, recruitment occurred through social media sites and word of mouth. WE AI students were recruited at booths at popular sites on the campuses and word of mouth.

## Measures

### Demographics

Participants completed an initial demographics questionnaire assessing: age, gender, ethnicity, living status, college status, cumulative GPA, number of credits completed, and institutional support. (i.e., “Do you feel that your college institution supports your identified culture and traditions?”) Additionally, participants were asked to complete two questions from the American Indian Bicultural Inventory: 1) How often do you attend American Indian traditional ceremonies? and 2) How strongly do you identify with American Indian culture? (McDonald et al., 2015). Participants were also asked if they attend UND or a tribal college and if they live off or on the reservation (see Appendix A).

### Daily Drinking Questionnaire (DDQ)

Alcohol consumption among participants was measured via the DDQ, which assesses quantity and frequency of alcohol consumption (Collins, Parks, & Marlatt, 1985). Participants were asked to reflect on the past 6 months and indicate, for each day of the week, how many standard drinks they consumed in their typical week (see Appendix B). Previous studies support the validity and one-week test-retest reliability ( $r = .0.93$ ) of this measure and alcohol use (Miller et al., 1998).

### Drinking Motives Questionnaire-Revised (DMQ-R)

Alcohol motivation was measured via the DMQ-R (Cooper, 1994). The measure examines four facets of drinking motivation: Coping (sample item: “To cheer you up when you’re in a bad mood”); Enhancement (sample item: “Because it is exciting”); Social (sample item: “To be sociable”); Conformity (sample item: “To fit in with a group

you like”). Participants are given 20 reasons why individuals may drink and instructed to rate how often they drink for the following reasons on a scale of 1 (*almost never/never*) to 5 (*almost always/always*) (see Appendix C). In the current study, only the coping and enhancement drinking motives were included in the analyses because the study was only interested in examining affect-related motives. In addition, previous research has specifically demonstrated a relationship between coping motives and alcohol use among AI populations (Skewes and Blume, 2015). Previous research supports the DMQ-R as a measure of drinking motivation among college students (Copper et al., 1995; Merrill et al., 2014).

### **The Connor-Davidson Resilience Scale (CD-RISC)**

Resilience traits were measured via the 25-item CD-RISC (Connor & Davidson, 2003). Each item is rated on a scale of 0 (*not true at all*) to 4 (*always true*) (See Appendix D). The scale is measured based on how the subject has felt about themselves in the past month. Total scores for the CD-RISC range from 0-100, with higher scores on the measure reflecting greater resilience within the individual. The CD-RISC has adequate internal consistency ( $\alpha = .89$ ) in the general population (Connor & Davidson, 2003) as well as among a Northern Plains American Indian sample ( $\alpha = .912$ ) (Hill, 2013).

### **Procedure**

Participants were eligible to participate in the study if they identified as CA or AI, if they reported having consumed alcohol in the past 6 months, and if they attended UND or the WE. Data collection was conducted at UND and the WE. Participants at the WE and AI UND students had the option to take the in-person paper copy or the online version of the survey. Participants who attended UND were recruited through the UND

SONA research participant pools (i.e., SONA system). Participants who were recruited through SONA completed the online Internet survey via Qualtrics, including: the demographic questionnaire, the DDQ, the DMQ-R, and the CD-RISC. Individuals who were not eligible to participate in the study based on the eligibility criteria were not able to complete the remainder of the study. Recruitment plans include advertising through SONA, social media, booths around the campuses, and word-of-mouth. All participants were required to provide consent prior to participation. Answering the questionnaires took approximately 30 minutes to complete. Finally, the participants at UND were compensated for their participation in one of two ways: 1) \$15.00 or 2) 1 credit for SONA. If the participant attended WE, they only had the option of monetary compensation.

### **Data Analysis Plan**

For aim 1, a multiple regression was performed, treating drinking motivation and group (i.e., UND AI, WE AI, and UND CA) as independent variables and alcohol use as the dependent variable. All continuous variables were centered and their product term was formed to test the interaction of the two independent variables. This allowed an analysis of ethnicity's ability to moderate the effect between enhancement and coping drinking motivation variables. For aim 2, a multiple regression was performed, treating resiliency traits and group as independent variables and use alcohol use at the dependent variable. Again, all continuous variables were centered and their product term was formed to test the interaction of the two independent variables. This allowed an analysis of ethnicity's ability to moderate the effect of the resiliency variable. For aim 3, a multiple regression was performed, treating drinking motivation, resiliency traits, and

group as independent variables and alcohol use as the dependent variable. Continuous variables were centered and all two-way and three-way interactions were tested using the appropriate product terms. A One-Way Analysis of Variance (ANOVA) was conducted on the variables to test if there were independent variable differences among UND AI, WE AI, and UND CA college students. Of the variables that were significant, a follow-up subsequent Tukey post-hoc test was completed. Sex was included as a covariate for all main and interaction effects.

### **Power Analysis**

A power analysis for a multiple regression analysis using G-Power, with a medium effect size,  $\alpha = .05$ , and power = .80, yielded a recommendation of 27 participants per group. Therefore, a total sample size of 81 was recommended. Due to the small population of total students at the WE Tribal Community college, the recommended sample size for this particular group was not obtained.



## CHAPTER III

### RESULTS

The current study recruited a total of 114 participants. However, 37 participants (32.50%) did not report drinking in the past 6 months and were thus removed from the sample. The final sample included 77 participants among the 3 groups: UND AI students ( $n = 28$ ), WE AI college students ( $n = 19$ ), and UND CA students ( $n = 30$ ). Among the total participants, 70.13% were female. Participants identified as 38.90% CA and 61.10% AI. Of the participants that identified as AI, 57.45% also identified as multiracial. Results indicated significant differences in age between groups ( $F_{(2,66)} = 17.27, p < .05$ ; see Table 1), with UND AI participants being significantly older compared to UND CA, and WE AI participants being significantly older than both UND AI and UND CA participants. Results also revealed a significant difference in education level between groups ( $F_{(2,76)} = 46.88, p < .05$ ; see Table 1), with UND AI participants having significantly higher education levels compared to UND CA and WE AI participants; however, there were no significant differences between UND CA and WE AI participants' education levels. The WE AI participants attend a 2-year community college; therefore, the highest education level is identified as a sophomore. Results indicated a significant effect of group on cumulative credits taken among students ( $F_{(2,61)} = 14.944, p < .05$ ; see Table 1), with UND AI students having taken significantly more cumulative credits than UND CA and WE AI participants (see Table 1). However, the White Earth students attend a 2-year

community college, therefore, maximum about of credits taken and year in school is not equivalent to UND students. Results indicated no significant effect of group on cumulative GPA among students ( $F_{(2,63)} = .905, p = .410$ ; see Table 1). Results indicated there are statistically significant differences between UND AI, WE AI, and UND CA on cultural institutional support ( $F_{(2,76)} = 12.15, p < .05$ ), with UND AI participants having significantly lower institutional support scores compared to UND CA and WE AI. The two AI groups (UND AI and WE AI) were compared on cultural tradition practices, with results demonstrating no significant differences in scores on the AIBI 1 item between UND AI and WE AI participants ( $F_{(1,45)} = .903, p = .161$ ) and no significant differences in scores on the AIBI 2 item between UND AI and WE AI participants ( $F_{(1,45)} = 5.70, p = .185$ ). For more descriptive statistics see Table 1.

Table 1. Descriptive Statistics for UND American Indian, WE American Indian, and UND Caucasian participants.

	UND American Indians			WE American Indians			UND Caucasians		
	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%
Age	25.96	7.99		31.83	9.84		19.12	1.90	
Education Level	4.04	1.07		1.63	0.76		1.83	1.05	
Freshman			3.60			47.40			50.00
Sophomore			3.60			47.40			30.00
Junior			21.40			0.00			6.70
Senior			28.60			5.30			13.30
Graduate			42.90			0.00			0.00
Cumulative GPA	3.43	0.45		3.39	0.60		3.57	0.41	
Cumulative Credits	94.83	52.56		34.46	23.33		39.08	32.62	
Institution Support	1.39	0.50		1.05	0.23		1.00	0.00	

Table 1. cont.

	UND American Indians			WE American Indians			UND Caucasians		
	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%	<i>M</i>	<i>SD</i>	%
AIBI 1	2.54	0.74		2.84	0.84				
AIBI 2	3.29	0.70		3.05	0.52				
Reside on Reservation			75.00			100.00			

*Note.* Institutional Cultural Support was coded as “1 = yes, 2 = no”. Education level was coded as “1 = freshman, 2 = sophomore, 3 = junior, 4 = senior, 5 = graduate”. “UND = University of North Dakota”, “WE = White Earth Tribal Community College”. AIBI 1 = “How often do you attend American Indian traditional ceremonies?”, AIBI 2 = “How strongly do you identify with American Indian culture?”

Results from a one-way ANOVA indicated that there were no statistically significant differences between UND AI, WE AI, and UND CA on alcohol use ( $F_{(2,76)} = .849, p = .432$ ; see Table 2). Results indicated that there were statistically significant differences between UND AI, WE AI, and UND CA on enhancement drinking motives (DM), coping drinking motives (DM), and resiliency. Results indicated a significant effect on resiliency between groups ( $F_{(2,76)} = 5.42, p < .05$ ; see Table 2). UND AI participants reported significantly higher resiliency scores than WE AI participants and UND CA participants. Results also indicated a significant effect of group on enhancement drinking motivation ( $F_{(2,76)} = 11.98, p < .05$ ; see Table 2). UND CA had significantly higher enhancement DM scores compared to UND AI participants and WE AI participants. Finally, results revealed a significant effect of group on coping drinking motivation ( $F_{(2,76)} = 4.706, p < .05$ ; see Table 2). UND CA had significantly higher coping DM scores compared to UND AI participants (See Table 2).

A series of simultaneous multiple regressions were computed, with the continuous variables mean centered for all analyses and interaction terms formed with the product of

the two predictors. Group was dummy coded (Jaccard & Turrisi, 2003) into UND AI and WE AI students while UND CA students were treated as control group. This allowed for a comparison of UND AI vs. UND CA students and WE AI vs. UND CA students. Sex was found to be a significant in all analyses, with male participants consistently consuming more alcohol per week than female participants.

Table 2. Independent Variables Differences between UND American Indian, WE American Indian, and UND Caucasian Participants.

	UND American Indians ( <i>n</i> =28)		WE American Indians ( <i>n</i> =19)		UND Caucasians ( <i>n</i> =30)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Alcohol Use	8.18	7.95	7.74	5.58	10.12	6.97
Resiliency	82.11	10.40	71.21	16.39	73.13	11.78
Enhancement DM	2.21	0.96	1.77	0.65	3.01	0.10
Coping DM	1.55	0.56	1.62	0.86	2.11	0.81

*Note.* “Alcohol use = average amount of standard drinks consumed in one week”.

“UND = University of North Dakota”. “WE = White Earth Tribal Community College”. “DM = drinking motivation”.

Results revealed a significant main effect of both enhancement (see Table 3) and coping drinking motives (see Table 4), with increases in enhancement and coping drinking motives associated with higher alcohol use. However, there were no interaction effects for group and enhancement motives (see Table 3) and group and coping motives (see Table 4). Results indicated no main effects of group, no main effects of resiliency, and no interaction effect of group and resiliency (see Table 5). Results demonstrated there was no main effect, 2-way interaction, or 3-way interaction effects among group, enhancement drinking motives, and resiliency (see Table 6). Lastly, there was no main

effect, 2-way interaction, or 3-way interaction effects among group, coping drinking motivation, and resiliency (see Table 6).

Table 3. Moderating Effect of Ethnicity on Enhancement, Drinking, Motivation, and Alcohol Use.

Factors	b	$\beta$	t	Correlation part <sup>2</sup>
Sex	-5.87	-0.39	-3.43*	.135
UND American Indians	0.01	0.00	0.00	0.00
WE American Indians	-0.75	-.046	-0.29	0.00
Enhancement	2.60	.382	2.11*	0.05
UND AI * Enhancement	-1.13	-.093	-0.63	0.00
WE AI * Enhancement	-1.08	-.065	-0.40	0.00

Note. “UND = University of North Dakota”. “WE = White Earth Tribal Community College”. “Enhancement= Enhancement drink motivation”. Sex was coded as “male = 1, female = 2”.

\* $p < .05$

Table 4. Moderating Effect of Ethnicity on Coping, Drinking, Motivation and Alcohol Use.

Factors	b	$\beta$	t	Correlation part <sup>2</sup>
Sex	-4.97	-0.33	-3.112*	0.10
UND American Indians	0.84	.058	0.47	0.00
WE American Indians	-2.00	-.12	-1.06	0.01
Coping Drinking Motive	3.42	0.38	2.40*	0.06
UND AI * Coping	3.37	0.17	1.31	0.02
WE AI * Coping	-3.14	-.189	-1.141	0.02

Note. “UND = University of North Dakota”. “WE = White Earth Tribal Community College”. “Enhancement = enhancement drinking motivation”. “Coping = coping drinking motivation”. Sex was coded as “male = 1, female = 2”.

\*  $p < .05$

Table 5. Moderating Effect of Ethnicity on Resiliency and Alcohol Use.

Factors	b	$\beta$	t	Correlation part <sup>2</sup>
Sex	-4.35	-0.29	-2.58*	0.08
UND American Indians	-0.09	-0.00	-0.05	0.00
WE American Indians	-2.30	-0.14	-1.14	0.02
Resiliency	-0.08	-0.14	-0.72	0.01
UND AI * Resiliency	-0.18	-0.17	-1.42	0.01
WE AI * Resiliency	0.19	0.22	1.37	0.02

*Note.* “UND = University of North Dakota”. “WE = White Earth Tribal Community College”. Sex was coded as “male = 1, female = 2”.

\*  $p < .05$

Table 6. Moderating Effect of Ethnicity on Resiliency and Alcohol Use.

Factors	b	$\beta$	t	Correlation part <sup>2</sup>
UND AI * Enhancement * Resiliency	0.39	0.35	1.78	0.01
UND WE * Enhancement * Resiliency	0.03	0.03	0.15	0.78
UND AI * Coping * Resiliency	0.26	0.20	1.05	.011
UND WE * Coping * Resiliency	0.12	0.09	0.57	0.00

*Note.* “UND = University of North Dakota”. “WE = White Earth Tribal Community College”. “Enhancement = enhancement drinking motivation”. “Coping = coping drinking motivation”.

\*  $p < .05$

Supplementary analyses were conducted to examine resiliency, drinking motivation, and alcohol use between the two AI groups (i.e., UND AI and WE AI). A series of simultaneous multiple regression analyses were computed, with the continuous

variables mean centered for all analyses and interaction terms formed by taking the product of the two predicting variables. Group was dummy coded into UND AI students and UND CA students, while WE AI students were treated as control group. This allowed for a comparison between UND AI and WE AI students and UND CA and WE AI students.

Table 7. Moderating Effect of Ethnicity on Enhancement Motivation and Alcohol Use (Reference Group = WE AI).

Factors	b	$\beta$	t	<i>Correlation part</i> <sup>2</sup>
Sex (covariate)	-5.87	-0.04	-3.43*	0.14
UND American Indians	0.79	0.05	0.30	0.00
UND Caucasians	0.75	0.05	0.29	0.00
Enhancement	1.52	0.22	0.63	0.00
UND AI *	-1.13	-0.09	-0.63	0.00
Enhancement				
UND CA *	-0.05	-0.00	-.017	0.00
Enhancement				

*Note.* “UND = University of North Dakota”. “Enhancement = enhancement drinking motivation”. Sex was coded as “male = 1, female = 2”.

\* $p < .05$

Results revealed no significant main effects of group or enhancement motives, and no interaction effect between group and enhancement motives (see Table 7).

However, there was a significant interaction between group and coping motives (see Table 8). For UND AI, there was a positive relationship between coping motives and alcohol use ( $b = 7.34$ ). However, there was no significant relationship between coping motives and alcohol use among WE AI ( $b = -.76$ ). Results also indicated that the interaction effect between UND AI and resiliency was significant ( $p < .05$ ). For UND AI,

there was a negative relationship between resiliency and alcohol use ( $b = -.312$ ). However, there was no significant relationship between resiliency and alcohol use for WE AI ( $b = .131$ ) (see Table 9). Finally, there was no significant main effect or interaction effects of group, resiliency, and either coping or enhancement drinking motives (see Table 10).

Table 8. Moderating Effect of Ethnicity on Coping Drinking Motivation and Alcohol Use (Reference Group = WE AI).

Factors	b	$\beta$	t	<i>Correlation part</i> <sup>2</sup>
Sex	-4.97	-0.33	-3.11*	0.10
UND American Indians	2.84	0.20	1.47	0.02
UND Caucasians	2.00	0.14	1.06	0.01
Coping Drinking Motive	0.28	0.03	0.16	0.00
UND AI *	6.51	0.33	2.36	0.06
UND CA *	3.14	0.23	1.42	0.02
Coping				

*Note.* “UND = University of North Dakota”. “Coping = coping drinking motivation”. Sex was coded as “male = 1, female = 2”.

\* $p < .05$



Table 9. Moderating Effect of Ethnicity on Resiliency and Alcohol Use (Reference Group = WE AI).

Factors	b	$\beta$	t	<i>Correlation part</i> <i>2</i>
Sex	-4.35	-0.29	-2.58*	0.08
UND American Indians	2.20	0.15	1.03	0.01
UND Caucasians	2.30	0.16	1.14	0.01
Resiliency	0.12	0.22	1.23	0.02
UND AI * Resiliency	-0.37	-0.36	-2.36	0.06
UND CA * Resiliency	-0.19	-0.20	-1.37	0.02

*Note.* “UND = University of North Dakota”. Sex was coded as “male = 1, female = 2”.  
\**p* <.05

Table 10. Moderating Effect of Ethnicity on Coping and Enhancement Drinking Motivation, Resiliency, and Alcohol Use (Reference Group = WE AI).

Factors	b	$\beta$	t	<i>Correlation part</i> <i>2</i>
UND AI * Enhancement * Resiliency	0.34	0.31	1.40	0.02
UND Caucasian * Enhancement * Resiliency	-0.04	-0.05	-0.20	0.00
UND AI * Coping * Resiliency	0.16	0.12	0.64	0.00
UND Caucasian * Coping * Resiliency	-0.12	-0.10	-0.57	0.00

*Note.* “UND = University of North Dakota”. “Enhancement = enhancement drinking motivation”. “Coping = coping drinking motivation”.  
\**p* <.05

## **CHAPTER IV**

### **DISCUSSION**

The current study revealed no significant differences in level of alcohol use among UND AI, WE AI, and UND CA college students. This is consistent with existing research suggesting AI have comparable or lower alcohol use rates than CA (Cunningham, 2015). Early research suggested that AI have higher alcohol consumption rates compared to other races (Plunkett & Mitchell, 2000); however, this study and other recent literature have addressed this misinformed belief about indigenous people. Instead, AI may be experiencing alcohol use differently in regards to their motivation to drink and protective factors against heavy alcohol consumption.

The first aim of the study examined the association between drinking motives and alcohol use among UND AI, WE AI, and UND CA. College students who drank to enhance their mood or to cope with negative emotions reported higher levels of alcohol use. This finding is consistent with previous research which suggests that college students who drink to cope with negative emotions or enhance their mood consume alcohol at higher rates (Kassel et al., 2000; Merrill & Read, 2010). The current findings demonstrated UND CA did have higher enhancement and coping motivation compared to the two AI groups. However, previous research on drinking motivation among college students has recruited predominantly CA samples; therefore, it is difficult to directly compare drinking motives among the AI sample with previous research. Further, there

were no significant differences in enhancement and coping drinking motivation influencing alcohol use among UND AI and WE AI when compared to UND CA. No research to date has investigated these differences among AI and CA college students; thus, it remains unclear why CA students are scoring higher on these two facets compared to AI students. However, Skewes and Blume (2015) examined differences in drinking motivation among CA and AI adults and found no significant differences in drinking motivation. This suggests AI and non-AI may not actually differ in their motivations to drink alcohol; however, with little research in this area, further research should examine differences in drinking motivation and the effects on alcohol use and related consequences among AI college populations. In contrast with the original hypothesis, UND AI and WE AI did not have the highest levels of alcohol consumption when they were also high in coping motives compared to UND CA participants. In addition, UND CA participants did not have the highest levels of alcohol consumption when they were also high in enhancement motives compared to the two AI groups.

Though there were no differences between the two AI groups and the CA group in drinking motivation, there were significant differences between the UND AI and WE AI groups. Specifically, as coping drinking motivation increased, alcohol use increased among UND AI compared to WE AI. Little research has examined drinking motivation among AI tribal community college and AI University students; however, one study revealed AI were more likely to engage in a binge drinking episode and experience alcohol-related consequences when they were also high in coping motives (Skewes & Blume, 2015). This may be indicative of AI using alcohol to cope with negative mood states, and experiencing more alcohol-related consequences as a result. However, no

research has explained why there are differences in drinking motivation among AI tribal community college and AI University college students.

Demographic differences such as living situation (i.e., living on or off the reservation), college curriculum, economic resource situation, and age may influence AI tribal community college and AI University college students in different ways. Although little research has examined the effects of these factors on alcohol use, previous research has examined AI high school students' drinking motivation patterns. Mushquash et al. (2008) found that AI adolescent students most commonly reported coping as a motive for using alcohol. AI students may be more inclined to drink to cope with negative mood because of factors such as historical trauma and intergenerational use; however, little research has investigated the differences in drinking motivation among AI students attending college on and off the reservation. Of UND AI participants, 75% previously lived on an Indian Reservation and relocated to a University off the reservation, whereas 100% of WE students reported currently living on an Indian Reservation. Thus, leaving the reservation to attend a university may cause adjustment difficulties and additional stress for an AI student because they are leaving a place of cultural and spiritual meaning (Jackson, Smith, & Hill, 2003). This may have resulted in AI students being more likely to drink to cope with negative mood or negative experiences due to attending a university immersed in western culture. Additionally, UND AI participants reported significantly lower institutional support of their culture and traditions compared to UND CA and WE AI. Previous research indicates AI students often feel isolated due to perceiving predominantly white colleges as hostile environments, experiencing racism, or institutions failing to accommodate to AI students' culture and traditions (Benjamin,

Chambers, & Reiterman, 1993; Jackson et al., 2003; Lin et al., 1988). Accordingly, UND AI may be experiencing and coping with negative emotions more often than WE AI who expressed their college institution supported their culture and traditions.

The second aim was to examine the association between resiliency and alcohol use among the three groups. UND AI students recorded higher resiliency than WE AI and UND CA students. Previous research has not examined why AI university students have higher resiliency traits compared to their white peers and AI peers attending school on the reservation. However, AI university students may be more resilient because they have left their reservation to attend college in a different city with a significantly different culture, thus having to adjust to distress and cultural change. In contrast, AI tribal college students are attending college surrounded by their culture and not having to adjust to living in a “different world”. Additionally, CA college students typically do not have to adjust to a different systematic culture when attending college. However, the current findings revealed no significant differences on resiliency and its effect on alcohol use by ethnicity. It was hypothesized that UND AI and WE AI would have higher resiliency scores, therefore decreasing alcohol use. Results revealed no differences in resiliency scores affecting alcohol use among UND AI and WE AI when compared to UND CA. However, there were no significant differences in alcohol use among the three groups, which may explain why there was no significant interaction of ethnicity and resiliency on alcohol consumption.

There were also no differences among the two AI groups and the CA group in resiliency and alcohol use. However, there were significant differences among the UND AI and WE AI groups. For university AI students, as resiliency scores decreased, alcohol

use increased compared to WE AI. Thus, when UND AI reported higher levels of resiliency traits among themselves, their alcohol use decreased when compared to tribal college students. However, there were no differences for the tribal college AI students. Previous research suggests that implementing resiliency into alcohol use interventions may aid in substance use recovery for indigenous people (Myhra, Wieling, & Grant, 2015). This is relevant to the current findings in that AI university students who scored higher in resiliency drank significantly less. Perhaps an intervention that targets resiliency as a protective factor from heavy alcohol use and related consequences may be beneficial to the physical and mental health of AI university students. Additionally, past research has found that for other ethnic minority groups (i.e., African Americans), high resiliency is associated with lower alcohol and drug use (Wingo, Ressler, & Bradley, 2014). Despite these findings, there is still a need for additional research to examine resiliency as a protective factor against alcohol use among AI college students. Finally, findings demonstrated no relationship between level of resiliency and alcohol use among CA students. Though little research has examined differences in resiliency among CA and AIs students, lack of historical trauma, not having to adjust to a new cultural environment, or feeling more support from their institution may contribute to resiliency not influencing alcohol use for CA students. This population may not be experiencing positive effects from resiliency (i.e., reflecting on how far they have come, goal driven behavior, etc.) that could be protecting them from high levels of alcohol use.

Overall, these findings support the notion that AI University students who are more resilient consume less alcohol compared to their tribal college peers. Previous research has shown AI students attending universities have found ways to become more

resilient and determined in pursuing their degree (Jackson et al., 2003). AI students who leave the reservation for college often experience societal pressures in relation to their cultural practices and feel conflicted about leaving their families on the reservation; however, they must learn to cope with these stressors, resulting in increased resiliency (Jackson et al., 2003).

The third aim examined whether resiliency moderated the effect of drinking motives on level of alcohol use among the three groups. Among AI students, resiliency was not a protective factor against alcohol use when drinking to cope was high. Little research has examined how resiliency and drinking motivation effect alcohol use, specifically among AIs; however, Bernstein et al. (2011) revealed that inner city adolescents who were low in resiliency reported using alcohol to cope with negative mood. In contrast, those who drank for mood enhancement or social reasons tended to have more sources of resiliency. Although it was hypothesized that resiliency would be high, even when drinking to cope was high, perhaps resiliency does have a negative relationship with coping motives. In fact, resiliency may be protecting individuals who use alcohol to cope with negative emotions. However, no research has examined this relationship among AI populations. Finally, there was no moderating effect of resiliency on drinking motivation among CA college students.

Several clinical implications were revealed. First, the study supports current research demonstrating AI college students are not drinking at higher rates than CA peers. This finding supports the notion of separating Indigenous people from the stereotype of drinking at markedly high rates. Additionally, there were significant differences among AI tribal and university students in regards to resiliency and coping

drinking motives, suggesting resiliency may actually be a protective factor against alcohol use among AI students who attend a 4-year university. Incorporating resiliency into interventions for AI students may be beneficial to their mental and physical health, as well as their academic success. Lastly, finding that UND AI who drank to cope with their negative mood consumed alcohol at higher rates when compared to WE AI has clinical relevance. First, AI students who leave the reservation to attend a university may be experiencing distress and negative emotions at a higher rate compared to their reservation peers attending tribal colleges, therefore increasing their chances in drinking to cope with negative mood. Thus, utilizing a targeted intervention to decrease students' coping drinking motives (e.g., providing alternative ways to cope with negative affect) may aid in eliminating higher rates of alcohol use and experiencing alcohol related consequences among AI students.

Several study limitations are acknowledged. First, G-Power recommended recruiting 27 participants in each group; however, the sample size for WE AI students was not obtained due to a low number of student enrollment at the WE Tribal Community College. Additionally, though a total of 39 WE AI students were recruited to participate in the study, only 19 reported consuming alcohol in the past 6 months. This may suggest that many WE AI students are actually abstaining from alcohol use. The students who did not drink could not participate in the study because the DMQ-R requires participants to have consumed alcohol in the recent past. If the study could have included non-drinkers, perhaps there may have been significant differences with alcohol use among the three groups.



A second demographic limitation was differences in age and education level among the three sample groups. The mean age of WE AI was approximately 6 years older than UND AI and 12 years older than UND CAs. Furthermore, UND AI mean age was approximately 7 older than UND CAs. With such a large age difference between groups, especially WE students compared to CA students, this may have affected alcohol-related variables in the study. More so, the majority of the UND AI sample were seniors or at the graduate level in college, whereas a majority of CA students were freshman in college, creating statistically significant differences in education level. College students who are towards the end of their college career or who are older when they are attending a university may be more likely goal focused with their schooling and abstain from activities like drinking or “partying” that may have a negative impact academic outcomes. Additionally, there were significant differences in education level among UND AI and WE AI, with UND AI students reporting a higher education level; however, the WE AI students attended a 2-year community college where the majority reported being a freshman (year 1) or sophomore (year 2). Thus, education levels cannot be accurately compared due to the two colleges being of different types (e.g., 4 year vs. 2 year college).

A third demographic limitation includes gender differences in alcohol use. The sample was predominantly female (70.13%) with men accounting for a small proportion of the sample. Additionally, there are differences in alcohol use among men and women, with men drinking alcohol at a higher rate. Thus, different findings may have been expected among a sample with more males, especially given that gender was a significant covariate in all analyses. Additionally, the CA student sample was solely recruited from SONA which is a research recruiting website for psychology undergraduate students,

resulting in the CA college sample to be limited in recruitment on campus. In contrast, UND AI students were recruited at the American Indian Center, via the American Indian Center Listserv, and via social media sites. WE AI were recruited in a majority of the classrooms on campus, causing variety in recruitment of the AI sample. Furthermore, CA students were offered class credit for participating in the study so their motivation for participate may be attributed to improving their grades or contributing to the class, whereas AI students did not have school credit incentives and may be participating due to concern or curiosity to how this study will contribute to helping their tribal communities.

Another limitation relates to the independent and dependent variables. First, the alcohol use measure has not been normed on AIs. Alcohol use was assessed by asking, “In the past 6 months, how many standard drinks were typically consumed on each day of the week.” However, standard drinks for AI may be interpreted differently or AI may not have understood the question correctly. For example, participants who took the current study’s measure (DDQ) also took other alcohol use measures that were a part of a separate study. Of the total AI participants who did drink in the past 6 months ( $n = 64$ ), 17 participants reported drinking on the other alcohol use measure in the past 6 months but did not report it on the current study’s measure. Perhaps AI students were not adequately understanding the question being asked, they had a different perception of what a “standard drink” is, or were unfamiliar with the definition of a “standard drink”. Consequently, the DDQ measure may not be valid on the AI college student population.

Another variable limitation pertains to the DMQ-R. The current study did not examine social and conformity drinking motives. There has been limited research examining drinking motivation among the minority students; however, one study found

minority adolescents were more likely motivated to drinking to cope with their negative mood (Johnson et al., 1985) and AI adolescents most commonly reported coping motives for alcohol use (Mushquash et al., 2008). Thus, the current study was more focused upon examining the two mood facets (coping and enhancement), given the previous research on ethnic minorities. However, these findings came from an adolescent sample and not a college or adult sample. Additionally, enhancement and coping motives have been directly and indirectly related to higher alcohol use among the college student population (Merrill et al., 2014; Merrill & Read, 2010). Social drinking motivation has also been linked to higher alcohol consumption (Merrill & Read, 2010) whereas conformity motives typically have no association with alcohol use (Karwacki & Bradley, 1996).

Future research should examine differences among CA and AI/other ethnic minority differences in alcohol and drug use. Optimal conditions for future studies should include balanced age, gender, sample size, and education level in order to make accurate comparisons across groups. Based on the results of the current study, both tribal and university AI students did not seem to differ from CA college students among resiliency and drinking motivation and its effect on alcohol use. However, future studies should continue to examining drinking motives all four facets of drinking motivation among AI and other minorities for validity purposes (Cunningham et al., 2015). AI students may be drinking at lower rates compared to their non-student peers and may have different motivations for drinking alcohol or abstaining from it. Additionally, future studies should also measure different types of drinking behaviors such as abstainers, low, moderate, and heavy drinkers among AI and AI college students. Several AI participants were not eligible to participate in the study because they have remained abstinent from alcohol.

Examining reasons why AI abstain from alcohol or from using high levels of alcohol may be an important factor in helping AI students refrain from heavy alcohol use and continue with academic success. It would also be important to examine alcohol-use consequences among CA and AI college students. Previous research suggests certain drinking motives (e.g., coping) are directly related to alcohol-related consequences in college students and ethnic minorities. Examining these consequences may enhance the understanding of the relationship between drinking motives and consequences as well as resiliency as a protective factor against alcohol-related consequences. Moreover, our current findings found that University AI felt less culturally supported by their institution compared to CA UND and WE AI students. Furthermore, the UND AI students scored higher on resiliency and coping drinking motivation compared to WE AI participants. Perhaps there is a relationship between cultural institutional support and drinking to cope with negative mood among AI students. Finally, future research should further examine differences in resiliency among tribal and university AI students as protective factor against heavy alcohol use and alcohol-related consequences, as well as a tool to increase academic success in both college settings.

Alcohol use is prevalent among both college students and AI populations. However, little research has studied differences in alcohol use among AI and CA college students. The current study examined alcohol use and drinking motivation among AI and CA college students, as well as resiliency as a potential protective factor against heavy alcohol consumption. The current study was able to examine how drinking motives and resiliency were related to UND CA, UND AI, and WE AI alcohol use and demonstrated significant differences in alcohol-related variables among the two AI groups. This study

provides support for novel intervention approaches to better aid in decreasing risky alcohol use among college students, specifically AI college students. For example, interventions utilizing resiliency traits among AI student as a motivational intervention to prevent high alcohol use and assist in recognizing emotional distress may influence their drinking behavior and reduce alcohol-related risks.

## **APPENDICES**

## APPENDIX A

### Demographics Questionnaire

1. Circle below which college you attend:  
University of North Dakota  
White Earth Tribal Community College  
Other
2. Circle the *one* ethnicity with which you *primarily* identify:  
American Indian    Caucasian    Other
3. Have you consumed alcohol (i.e., beer, wine, liquor) in the past 6 months?  
YES                      NO
4. Age: \_\_\_\_\_
5. Circle your sex:  
Male                      Female
6. Circle YES or NO if you have ever lived on an American Indian Reservation or are currently living on an American Indian Reservation?  
YES                      NO  
6. a) If YES, which one? (If you have lived on multiple Reservations, please enter which reservation you spent most of your time on.)  

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7. Circle your current year in college:  
Freshman              Sophomore              Junior              Senior              Graduate
8. How many college credits have you completed? \_\_\_\_\_
9. What is your current cumulative GPA? \_\_\_\_\_

10. How often do you attend American Indian traditional ceremonies?  
1(Never)      2(Rarely)      3(Sometimes)      4 (Often)
11. How strongly do you identify with American Indian culture?  
1(Not at all)      2(A little)      3(Moderate)      4(Very much)
12. Do you feel that your college institution supports your identified culture and traditions?  
YES                      NO



## APPENDIX B

### (DDQ)

*One standard drink = 12 oz. can/bottle of beer, 4 oz. glass of wine, 1.5 oz. hard liquor.*

### INSTRUCTIONS FOR RECORDING DRINKING DURING A TYPICAL WEEK

IN THE CALENDAR BELOW, PLEASE FILL-IN YOUR DRINKING DURING A **TYPICAL WEEK** IN THE LAST 6 MONTHS.

First, think of a *typical week* in the last *6 months*. (Where did you live? What were your regular weekly activities? Were you working or going to school? Etc.) Try to remember as accurately as you can, *how much* you typically drank in a week during that 6 months.

For each day of the week in the calendar below, fill in the **number of standard drinks typically consumed on that day** in the box. Please fill in a number for each day. If you do not typically consume any alcohol on that day, or you wish not to respond, please enter a 0.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of Drinks							

## APPENDIX C

### (DMQ-R)

Below is a list of reasons people sometimes give for drinking alcohol. Thinking of all the times you drink, how often would you say that you drink for each of the following reasons on a scale of **1 (almost never/never)** to **5 (almost always/always)**?

	Almost never/ never	Some of the time	Half of the time	Most of the time	Almost always/ always
1. To forget your worries					
2. Because your friends pressure you to drink					
3. Because it helps you enjoy a party					
4. Because it helps you when you feel depressed or nervous					
5. To be sociable					
6. To cheer up when you are in a bad mood					
7. Because you like the feeling					
8. So that others won't kid you about <i>not</i> drinking					
9. Because it's exciting					
10. To get high					
11. Because it makes social gatherings more fun					
12. To fit in with a group you like					
13. Because it gives you a pleasant feeling					
14. Because it improves parties and celebrations					

15. Because you feel more self-confident and sure of yourself					
16. To celebrate a special occasion with friends					
17. To forget about your problems					
18. Because it's fun					
19. To be liked					
20. So you won't feel left out					

Appendix D (Copyrighted- Do not duplicate)

**(CD-RISC)**

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