WITH A LITTLE HELP FROM MY FRIENDS: INVESTIGATING COMMUNAL MASTERY AS A CONTRIBUTOR TO RESILIENT OUTCOMES AMONG AMERICAN INDIANS WITH SUBSTANCE USE DISORDER

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TABLE OF CONTENTS

TABLE OF CONTENTS CONTINUED

LIST OF TABLES

LIST OF FIGURES

Figure Page

ABSTRACT

American Indians and Alaskan Natives (AI/ANs) have endured significant historical and individual adversity across several generations. Such adversity is associated with negative mental, physical, and behavioral outcomes. However, this adversity is not always associated with negative outcomes for all AI/ANs. In order to understand the differences in AI/AN outcomes, protective factors buffering against negative outcomes need to be examined. Communal mastery, a relatively unexplored construct, has been posited as a potential protective factor for AI/AN people. The present study aimed to understand the relationship between communal mastery, risk factors specific to historical trauma and discrimination, and substance use. Moreover, we hoped to understand if communal mastery moderated the effects of historical loss and discrimination on substance use. Participants (N = 197) included tribal members from a Northern Plains reservation in recovery from substance use disorder or with the desire to change their substance use behavior. Data were analyzed using hierarchical multiple regression to understand if communal mastery is protective for substance use in the current AI sample. Contrary to my hypotheses, communal mastery did not moderate the relationship between culturally-specific risk factors (i.e. historical trauma and discrimination) and substance use. However, the present sample had high levels of communal mastery indicating that restriction of range may have affected the findings. Moreover, communal mastery may be protective at certain times in the recovery process but not when people are using substances. Also, historical loss was associated with greater levels of abstinence from substance use, contrary to predictions. Thus, future research should focus on the role of historical loss awareness in AI/AN recovery and investigate how communal mastery interacts with other risk factors to predict substance use outcomes in Indigenous populations.

INTRODUCTION

American Indians and Alaskan Natives (AI/ANs) have endured significant historical and individual traumatic experiences across several generations (Brave Heart, 2003; Evans-Campbell, 2008). These traumatic experiences come with many negative consequences, such as maladaptive coping mechanisms and poor health outcomes (Brave Heart, 1999, Walls & Whitbeck, 2012a; Brave Heart & DeBruyn, 1998). Although research has focused on several of the negative outcomes associated with adversity, researchers have just recently begun to focus on the successes that follow these endured adversities in the AI/AN population. In spite of intergenerational trauma, many Native people exemplify resilience, defined as the ability to overcome significant adversity (Masten, 2001). Therefore, the present research is aimed at understanding the relationship between risk factors already shown to predict poor health outcomes (e.g., historical loss, discrimination) and substance use, with a focus on how the relationship between the risk and outcome is changed when positive factors related to one's culture or community (e.g., communal mastery) are present.

Defining Resilience

Resilience has recently become a focal point for scientific research. Although initially studied by developmental scientists, resilience is now becoming a primary focus in several fields, including psychology, public health, and Native American Studies. Different researchers approach the study of resilience in different ways, leading to inconsistencies in operational definitions, means of measurement, and conceptual models

regarding protective elements hypothesized to contribute to resilience (Luthar, Cicchetti, and Becker, 2000; Earvolino-Ramirez, 2006).

There are multiple operational definitions of resilience present in the literature, but the general consensus among resilience researchers is that in order to be resilient one must first have exposure to significant risk (Masten 2001; Fleming & Ledogar, 2008). Significant risk or adversity is widely recognized as an event or circumstance associated with high statistical probability for negative outcomes (Masten, 2001; Luthar, 2000; Fleming & Ledogar, 2008). Following exposure to significant risk, the individual must then demonstrate a successful outcome that is beyond predicted expectations (Masten, 2001; Fleming & Ledogar, 2008; Ungar, 2008). Although distinguishing an outcome as "successful" can vary across studies, researchers have suggested that a resilient outcome is one that meets the major expectations of a society or culture (Masten, 2001). Therefore, resilience can be understood as a dynamic process that allows individuals to have a positive outcome despite significant adversity (Luthar et al., 2000; Masten, Best, Garmezy, 1991; Rutter, 1985).

Models of Resilience

The process of resilience is represented through various conceptual models. There is an acknowledgement across models that the process of resilience must first begin with exposure to significant risk or adversity (Windle, 2011; Masten, 2001; O'Leary, 1998; Kumpfer, 1999). Most models also incorporate protective factors that interact with risk to reduce the probability of a negative outcome or increase the probability of a positive one (O'Leary, 1989; Rutter, 1987; Kumpfer, 1999). Protective factors may include variables

at the individual level (e.g., cognitive abilities, emotion regulation, self-efficacy), interpersonal level (e.g., parenting quality, social support), and macro level (e.g., socioeconomic status) that may help foster adaptive and resilient outcomes (Masten, 1989; Corcoran & Nichols-Casebolt, 2004; Windle, 2011).

The interaction between risk and protective factors and their predicted effects on outcomes seem to diverge across models. To illustrate, the most widely recognized resilience models are the Compensatory Model and the Protective Factor Model (Werner & Smith, 1982; Rutter, 1985). Although both models propose that the process of resilience must include risk and protective factors, the Compensatory Model proposes that risk and protective factors each make an independent contribution to one's outcome (Werner & Smith, 1982). Specifically, this model focuses on examining the direct effect of each variable to understand the individual contributors to resilient outcomes (Windle, 2011). Conversely, the Protective Factor Model proposes that protective factors directly interact with risk factors by influencing the relationship between adversity and outcome (Rutter, 1985). In this model, the protective factor is a moderator variable that is predicted to change the strength and direction of the association between the significant risk factor and outcome variable (Windle, 2011). Both models account for the influence of risk and protective factors when attempting to understand a resilient outcome, but the *process* of resilience may vary depending on the specific risk and protective factors of interest.

Risk Factors for American Indian/Alaska Native Communities

American Indian/Alaska Native (AI/AN) people constitute one group of interest for resilience research. This group has high rates of risk factors such as trauma, poverty, and discrimination that can lead to negative outcomes (e.g., chronic disease, mental illness, substance abuse; Fox, Becker-Green, Gault, & Simmons, 2005; Beals et al., 2005; Whitbeck et al., 2002; Whitbeck, Chen, Hoyt, & Adams, 2004; Paradies & Cunningham, 2012; Halverson, Puig, & Byers, 2002). While AI/AN people experience notable health disparities in these and other negative outcomes (e.g., Deters, Novins, Fickenscher, & Beals, 2006; Gone & Trimble, 2012) many AI/ANs are thriving despite significant adversity. Research is needed to identify protective factors that contribute to positive outcomes and resilience among AI/AN peoples.

Historical Trauma

Indigenous people have faced substantial levels of historical trauma, defined as a distress that accumulates across time due to cultural, communal, and societal suffering (Brave Heart, 2003; Brave Heart, Chase, Elkins, & Altschul, 2011) for centuries. During the colonization of North America, European settlers deprived Indigenous people of their culture, tradition, and human rights through community massacres, involuntary acculturation, and forced removal and relocation (Whitbeck, Chen et al., 2004; Brave Heart, 2003; Evans-Campbell, 2008). Until recently, many AI/ANs were detained at Indian boarding schools as an attempt to forcibly eradicate Indigenous culture and assimilate Native youth into Western-European traditions (Brave Heart & DeBruyn,

1998; Strand & Peacock, 2003). At Indian boarding schools, AI/AN children were involuntarily stripped of all cultural practices and traditions through abuse and indoctrination (Whitbeck, Chen et al., 2004; Jacobs, 2006; Brave Heart & DeBruyn, 1998). Many AI/ANs were held in Indian boarding schools for years, resulting in extensive separation from family and community members (Jacobs, 2006). The physical, emotional, and cultural separation from their families, heritage, and communities has created a disruption among AI/ANs of familial, communal, and traditional bonds that resulted in lasting negative consequences affecting present-day health and wellness (Brave Heart & DeBruyn, 1998; Jacobs, 2006).

Historically-traumatic experiences among AI/AN people are connected to multiple negative physical, social, psychological, and behavioral outcomes (Brave Heart, 1999, Walls & Whitbeck, 2012a; Brave Heart & DeBruyn, 1998). In the literature, the negative outcomes associated with historically traumatic events are referred to as the historical trauma response. The historical trauma response is defined as a collection of common emotional and physical responses among community members after a historically traumatic event (Brave Heart & DeBruyn, 1998). Historical trauma responses among AI/AN people are seen at the individual, familial, and communal level and include feelings of guilt, depression, poor family cohesion, parental stress, and the loss of traditional culture, values, and rites of passage (Wiechelt, Gryczynski, Johnson, & Caldwell, 201l; Brave Heart, 2003; Brave Heart et al., 2011; Brave Heart & DeBruyn, 1998; Brave Heart, 2003; Evans-Campbell et al., 2012; Walls & Whitbeck, 2012a; Whitbeck, Walls, Johnson et al., 2009; Brave Heart & DeBruyn, 1998; Brave Heart,

1999). These responses are similar to those of survivors of the Jewish Holocaust, who also report high levels of rumination, survivor's guilt, anger, depression, and interfering thoughts about the loss of one's family members due to consequences of historical events (Brave Heart & DeBruyn, 1998; Fogelman, 1988).

Historical trauma has been shown to be significantly associated with substance use (Evans-Campbell et al., 2012; Wiechelt et al., 2011; Atkins, Cline, & Mosher, 2013; Pokhrel & Herzog, 2014). A study conducted by Wiechelt and colleagues (2011) found AIs with high levels of self-reported historical loss had higher levels of recent alcohol use and higher levels of lifetime illicit drug use. There are also high rates of substance use associated with particular historically-traumatic events among AI/AN people. Specifically, the removal of Indigenous children and forced attendance at boarding schools has shown significant associations with substance use (Brave Heart, 1999; Brave Heart, 2003; Evans-Campbell et al., 2012). To illustrate, AI/ANs who reported attending an Indian boarding school reported significantly higher rates of alcohol abuse or dependence (58%) compared to AI/ANs who did not report attending an Indian boarding school (44.6%) (Evans-Campbell et al., 2012).

Researchers have proposed that historical trauma as a whole may relate with substance use through a need to manage emotionally-tolling symptoms, such as anger and pain (Wiechelt et al., 2011; Myhra, 2011; Whitbeck et al., 2004; Brave Heart, 2003). A qualitative study with the aim of understanding the connection between historical trauma and substance use found that all but one participant spoke of substance use as a "desire to numb themselves from cumulative stress related to historical trauma" (Myhra, 2011, p.

24). Another quantitative study also demonstrated this relationship, revealing that those with increased levels of historical loss symptoms had greater odds of using alcohol in the past 30 days and of struggling with drug use across their lifetime (Wiechelt et al., 2011). The relationship between historical loss and substance use outcomes among AI/AN people may be due in part to distress associated with historical loss.

Thoughts of historical loss and associated symptoms are not limited to individuals directly subjected to the historical trauma event (Brave Heart & DeBruyn, 1998; Whitbeck et al., 2009). Research shows that although some of the historical losses endured by AI/ANs occurred centuries ago, the physical, sexual, and emotional trauma experienced by AI/ANs are still on the minds of subsequent generations and result in similar negative consequences (Whitbeck et al., 2009; Whitbeck, Chen et al., 2004). A study by Whitbeck et al., (2009) found that Native adolescents between the ages of 11-13 were more likely to think about loss of land, loss of language, and loss of tradition on a daily basis than their adult caretakers. However, adult caretakers were more likely to have persistent thoughts about these losses (Whitbeck et al., 2009). Nearly 30% of the sample (N = 459) experienced thoughts of historical loss on a weekly or daily basis. These thoughts of historical loss contributed to greater levels of depressive symptoms among youth within this sample, and also showed associations with feelings of anger, internalization, and increased substance use in adults (Whitbeck, Adams et al., 2004). Thus, these persistent thoughts of historical loss may also transfer intergenerationally, contributing to negative outcomes among AI/ANs in a contemporary context.

Intergenerational Transference of Historical Trauma. The passing down of trauma to successive generations is recognized as intergenerational trauma (Brave Heart, 1999; Evans-Campbell, 2008; Bombay, Matheson, & Anisman, 2009). Researchers theorize that if historical trauma is left untreated in survivors and communities, this trauma will be transmitted to subsequent generations (Brave Heart; 2003; Walls & Whitbeck, 2012b; Bombay, 2009; Evans-Campbell, 2008). Past research has demonstrated direct links with historically traumatic events and consequences for subsequent generations (Evans-Campbell et al., 2012; Walls & Whitbeck, 2012b; Whitbeck et al., 2004). For example, AI/ANs raised by boarding school attendees were more likely to have higher rates of anxiety, PTSD, and suicidal thoughts (Evans-Campbell et al., 2012). Researchers investigating the impact of forced relocation policies on health outcomes found that when grandparents were forcibly relocated through governmental policies, they experienced increased substance use which then contributed to less warmth and parental support, and higher rates of youth depression and delinquency among their children and grandchildren (Walls & Whitbeck, 2012b). These findings demonstrate that although historically traumatic events were not directly experienced by all AI/ANs alive today, such trauma has had detrimental effects that ripple into contemporary times and must be taken into account when addressing AI/AN health disparities (Walls & Whitbeck, 2012b; Evans-Campbell, 2008; Brave Heart & DeBruyn, 1998).

Contemporary Adversity Among American Indian/Alaska Natives

Discrimination. Historical trauma and loss experienced also has been shown to be associated with contemporary racism and perceived discrimination, which are recognized

as significant risk factors among AI/ANs (Whitbeck et al., 2001; Sittner, Hartshorn, Whitbeck, & Hoyt, 2012; Walls, Whitbeck, & Armenta, 2016). Discrimination is defined as inequitable treatment based on an individual's salient or presumed characteristics (e.g., race, ethnicity, sexual orientation, gender identity, age, income status) (Skosireva et al., 2014; Krieger, 1999). Perceived discrimination extends upon the definition of discrimination by taking into account the perception of the individual who may be facing the discriminatory act (Nora & Cabrera, 1996). Perceived discrimination may occur at an interpersonal level where one may be discriminated against by peers or during daily activities (Krieger, 1999; Bergman & Paradies, 2008). Discrimination may also occur at a systemic level relating to governmental policies and institutional practices (Krieger, 1999; Berman & Paradies, 2010). Researchers have argued that experiences of perceived discrimination may be related to the positions of power of the oppressed and the oppressor within the structure of society and the consequences that follow may rely on "the nature of intergroup relations at a particular historical juncture" (Schmitt & Branscome, 2002, p. 168).

The suppression of power for AI/AN people has continued throughout American history by restricting Native culture and basic human rights, and has carried over into present-day government policies, depictions, and stereotypes of AI/AN people (Whitbeck, Adams et al., 2004; Krieger, 1999; Whitbeck et al., 2009; Evans-Campbell, 2008). The carry-over effects of historical policies and associated traumas may contribute to contemporary discrimination experiences that later contribute to adverse outcomes, such as higher levels of depressive and posttraumatic stress symptoms (Whitbeck, Chen

et al., 2004; Whitbeck et al., 2009; Brockie et al., 2015; Whitbeck et al., 2002). Discrimination shows associations with internalizing symptoms (i.e. anger, depression), low self-esteem, feelings of inadequacy, and has a direct impact on future aggression in AI/AN youth (Whitbeck et al., 2002, Locust, 1988; Sittner Hartshorn et al., 2012; Galliher, Jones, & Dahl, 2011).

Perceived discrimination is also associated with increased levels of substance use. In a longitudinal study investigating the frequency and intensity of perceived discrimination, higher levels were associated with increased risk of prescription drug misuse and other illicit drug use in an AI sample (Garret, Livingston, Livingston, & Komro, 2017). Moreover, frequency of perceived discrimination was positively associated with increased risk of heavy alcohol use (Garret et al., 2017). Additionally, another longitudinal study across a 2-year timespan found that discrimination was the strongest predictor of substance use among Navajo adolescents (Galliher et al., 2011).

Researchers have also found higher rates of substance use when both historical loss and perceived discrimination are present (Whitbeck, Chen et al., 2004). Whitbeck, Chen et al., (2004) discovered that perceived discrimination was not directly related to increased levels of alcohol use. However, those reporting more discrimination also reported more historical loss, which in turn was associated with greater alcohol use. It was posited by the researchers that discrimination may have prompted thoughts of historical trauma by reminding Native people of their position in the "societal hierarchy" that remains in a "place of ethnic cleansing, relocation, and forced acculturation" (Whitbeck, Chen et al., 2004, p. 416).

AI/AN Adversity Across the Lifespan. In addition to historical trauma and contemporary discrimination, AI/ANs are also at greater risk for experiencing adverse outcomes the lifespan. Risks for negative health outcomes among AI/AN people start at birth. Chen and colleagues (2015) found that AI/AN infants experienced perinatal mortality rates of 10.1% and infant mortality rates of 7.3% compared to non-Native infants at a rate of 6.9% for perinatal mortality and 4.1% for infant mortality. American Indian and Alaska Natives also have the highest rates of fetal alcohol syndrome, which have been attributed substance use during pregnancy and linked to poor maternal physical and mental health and low socioeconomic status (SAMSHA, 2007; May, Hymbaugh, Aase, & Samet, 1983; May & Gossage, 2001).

Starting in childhood, AI/AN youth report higher levels of adverse childhood experiences (ACEs) than any other ethnic group (Kenney & Singh, 2016; Brockie et al., 2015). Adverse childhood experiences, recognized as personal abuse or dysfunction in one's household during childhood (Felitti, 2002), are associated with several negative outcomes in adults from various ethnicities (e.g., increased substance use, chronic disease, obesity, poor academic functioning; Dube, Cook, & Edwards, 2010; Jimenez et al., 2016; Felitti et al., 1998). For American Indian and Alaska Native youth, three or more ACEs have been associated with an increased risk for attempted suicide, polydrug use, PTSD, and depressive symptomology (Brockie et al., 2015). Additionally, AI/AN children with three or more ACEs are also found to have problems in educational settings (e.g., failing grades) and report worse mental health outcomes (e.g., depression, anxiety, and ADHD; Kenney & Singh, 2016).

Though several adversities occur early for AI/ANs, hardship among many AI/ANs continues into adulthood. American Indian and Alaska Natives experience higher rates of poverty, unemployment, low education, homelessness and health disparities compared to the general population (National Urban Indian Family Coalition, 2011). Additionally, AI/ANs are at greater risk for alcohol-related trauma (i.e., intimate partner violence, rape, and assault) compared with other U.S. ethnic groups and report higher rates of witnessing and experience physical and sexual trauma (Deters et al., 2006; Oetzel & Duran, 2004; Gone & Trimble, 2012; Beals et al., 2013; Rosay, 2016; Brockie et al., 2015). Research conducted by the National Institute of Justice showed 84.3% of AI/AN women reported experiencing violence in their lifetime, compared to 71% of non-Native women (Rosay, 2016). Furthermore, AI/AN men also reported greater levels of violence at 81.6% compared to 64% of non-Native men (Rosay, 2016). Moreover, AI/AN women and men also reported more sexual violence and emotional abuse compared to non-Hispanic White women and men (Rosay, 2016). American Indians and Alaska Natives also have some of the highest rates of intimate partner violence (IPV) of all ethnic groups and such violence has been linked to marital status, childhood maltreatment, and lifetime alcohol dependence (Rosay, 2016; Yuan, Polacca, Goldman, 2006).

Traumas experienced by AI/ANs are associated with several negative mental and physical health outcomes (Brockie et al., 2015; Deters et al., 2006). Specific negative health outcomes include increased risk of substance use disorders (SUD), increased rates of PTSD, suicide ideation, and early death from suicide, homicide, or alcohol-related causes (Brockie et al., 2015; Deters et al., 2006; Substance Abuse and Mental Health

Services Administration [SAMHSA], 2007; SAMHSA, 2017; Beals et al., 2005; Whitesell, Beals, Big Crow, Mitchell, & Novins, 2012). To illustrate, 11.7% of AI/ANs nationally met diagnostic criteria for SUD compared to the national average of 7.5% (SAMHSA, 2017). Another study also found alcohol dependence to be one of the most common diagnoses among AI/AN people (Whitesell et al., 2012). Higher rates of SUD and substance use among AI/ANs may explain significantly higher levels of death related to substance use. Specifically, 43% of AI/ANs suffered from alcohol induced deaths compared to 7% of all other U.S. ethnic groups from 2004-2006 (SAMHSA, 2007). The trauma and abuse endured by AI/ANs may contribute to increased levels of suicide, shown to be significantly higher in Native populations compared to other ethnicities (SAMHSA, 2007; Brockie et al., 2015; Elias et al., 2012).

American Indians: The "Collective Survivors"

While there are several historical and contemporary adversities contributing to negative outcomes among AI/AN people, it is important to note that not all AI/ANs have negative outcomes. Specific to substance use, some studies reveal more cases of lifetime abstinence among AIs than among any other racial or ethnic group in the U.S. (Cunningham, Soloman & Maramoto, 2016; National Epidemiological Survey on Alcohol and Related Conditions [NESARC], 2006). Using a representative sample from the National Survey on Drug Abuse and Health (NSDUH) and the Behavioral Risk Factor Surveillance System (BRFSS), Cunningham and colleagues (2016) found that AI/ANs reported higher levels of abstinence within the past month at 59.9% compared to

Whites at 43.1%. Moreover, Whites compared to AI/ANs reported substantially higher levels of light to moderate drinking in the past month (i.e., 1-3 drinks on one occasion) and there was no significant difference between reports of AI/AN and White rates of binge drinking (Cunningham et al., 2016). Other national health reports have shown similar findings. Specific to NSDUH (2007), AI/ANs had higher rates for meeting substance use disorder criteria compared to other ethnicities but were less likely than other groups to report using alcohol within the past 12 months. Therefore, it is important to note that not all AI/ANs are engaging in substance use and to consider these findings in a holistic context (Whitbeck, Walls, & Welch, 2012).

Although not all AI/ANs use substances, AI/ANs who do suffer from SUD often recover and achieve successful outcomes despite historical and contemporary adversity (Shore & Von Fumetti, 1972; Evans, Spear, & Huang, & Hser, 2006; Dickerson et al., 2011). For example, a two-year longitudinal study measured substance use treatment outcomes among AI/ANs across 43 treatment programs in California and showed significant improvement with treatment (Evans et al., 2006). Results showed that 31.2% of AI/AN patients reported alcohol use within the last 30-days pre-treatment, but only 16.9% reported past-month drinking at the post-treatment assessment. American Indians and Alaska Natives also showed a decrease in consuming alcohol to achieve intoxication from 23.4% pre-treatment to 7.7% post-treatment (Evans et al., 2006). However, not all treatment programs result in successful outcomes among AI/AN people. A longitudinal study across a 10-year period found that out of the 42 AI/ANs included in the sample, only 7 reported abstinence rates for longer than two years (Westermeyer & Peake, 1983).

Instability among family and interpersonal relationships were theorized as contributors to relapse rates (Westermeyer & Peake, 1983). Because of these within-group differences in treatment outcomes, researchers have begun to investigate specific protective factors that may contribute to AI/AN resilience with regard to substance use (Mohatt et al., 2004; Whitbeck et al., 2012).

Many studies investigating AI/AN substance use have identified markers of resilience, including cultural factors such as traditional practices, community strength, and Native American spirituality that appear to protect against adverse outcomes and help promote substance use cessation (Whitbeck et al., 2004; Goodkind, LaNoue, Lee, Freeland, & Freund, 2012; Van Ryzin & Vincent, 2017; Whitbeck et al., 2002; Garroutee et al., 2003; Allen, et al., 2014; Torres Stone et al., 2006). On the other hand, AI/ANs who felt detached from their culture were over four times as likely to engage in heavy drinking compared with enculturated AI/AN people (Herman-Stahl, Spencer, & Duncan, 2003). American Indians have also reported a "collective survivor identity" and credit their cultures, traditions, spirituality, and community cohesion for their resilience (Brave Heart, 2000, p. 245; Kahn, et al., 2016). Thus, cultural and community factors are important to consider when understanding the relationship between adversity and health outcomes among Indigenous peoples. However, it is important to note that the literature is mixed on these findings—not all studies demonstrate that these specific cultural factors protect against negative substance use outcomes (Whitbeck et al., 2004; Yu, Stiffmen, & Freedenthal, 2005; Baldwin, Brown, Wayment, Antone Nez, & Brelsford, 2011; Walls et

al., 2016). Therefore, more research is needed to understand the dynamic process of these and other protective factors on AI/AN outcomes.

Communal Mastery

Communal mastery is a potential protective factor that may enhance resilience among AI/AN people. In many Native cultures, children are taught about reciprocity and how one's actions ultimately affect others (Mohatt et al., 2004). This teaching reflects the collective nature of Indigenous communities, while also showing the importance of individual responsibility and autonomy (Helgeson, 1994). Specifically, some AI/AN people learn not only to think about the results of individual actions, but to also consider how others may help them navigate through life (Mohatt et al., 2004; Lyons et al., 1998) In collectivist cultures, coping is thought of as a communal process that emphasizes resources available in one's community to assist with individual resilience, rather than solely relying on one's own abilities (Lyons et al., 1998). Through this process of collective coping, communal mastery may develop (Lyons et al., 1998).

Communal mastery is conceptualized as a sense of efficacy during challenging or stressful events because of the resources embedded in one's close, interwoven network (Hobfoll, Jackson, Hobfoll, Pierce, & Young 2002; Fok et al., 2012). Self-mastery, or the belief in one's personal abilities to overcome stressful and challenging circumstances, has been shown to contribute to successful outcomes in Western-European cultures (Pearlin, Menaghan, Lieberman, & Mullan, 1981; Perfect & Jaramillo, 2012; Anderson & Freeman, 2013). However, individuals with cultures grounded in collectivism tend to show higher rates of success with communal mastery rather than with self-mastery (Allen

et al., 2014; Hobfoll et al., 2002). To illustrate, Native women showed little to no levels of stress, anger, or depressive symptoms when they had high levels of communal mastery (Hobfoll et al., 2002). However, Native women who were low in communal mastery had significantly higher levels of stress, anger, and depression (Hobfoll et al., 2002). Although women did show decreased levels of stress when high levels of self-mastery were present, these effects were not found over and above the levels shown with communal mastery (Hobfoll et al., 2002). Allen et al. (2014) also found that Alaska Native youth preferred communal-mastery over self-mastery when facing challenges and this preference fostered greater levels of disapproval for substance use among peers. Beyond this study, little research has investigated the impact of communal mastery on substance use outcomes among AI/AN people.

CURRENT STUDY

This thesis reports secondary analyses from data collected for a community-based participatory research project (CBPR) focused on addressing substance abuse and resilience on a Northern Plains reservation. We aimed to better understand contributors to resilience by examining the relationship between communal mastery and abstinence from drugs and alcohol among American Indians with SUD. To our knowledge, no research has examined communal mastery as a moderator of the link between historical trauma and substance use or between discrimination and substance use. Therefore, the present research aimed to understand: (1) associations of two community-identified risk factors for substance use (i.e., historical trauma and racial discrimination), with substance use behavior; (2) the association of a protective factor (i.e., communal mastery) with substance use; (3) and the influence of the interaction between communal mastery and each of the risk factors on substance use. I predicted that historical trauma and discrimination would be associated with greater substance use; communal mastery would be associated with greater abstinence from substance use; and high levels of communal mastery would buffer the harmful effects of historical trauma and discrimination on substance use behavior.

Substance Abuse and Resilience Project

American Indians (AIs) in Montana experience shocking disparities in health outcomes when compared to Whites in the state. In Montana, 93% of the population identifies as White, 6% of the population identifies as American Indian (AI), and 1% as

other (Department of Public Health and Human Services [DPHHS], 2013). Although AIs comprise only a small proportion of the population, they report disproportionate rates of unemployment at 13% and poverty at 34% compared to 4% and 13% for Whites, respectively (DPHHS, 2013). A majority of the AI population resides in rural areas of the state (DPHHS, 2013), which compounds the observed ethnic minority health disparities.

Rural areas in Montana are more likely to be impoverished and recognized as medically underserved, which contributes to disparities in health outcomes (Koeppen, 2016; DPHHS, 2013). Overall, AIs in Montana have been shown to have poorer self-reported health compared to the state population as a whole, with the biggest disparities seen in rates of obesity, smoking, cancer, substance use, and suicide (DPHHS, 2013; Montana Department of Justice, 2017; Seninger & Herling, 2009; DPHHS, 2017). In addition, AIs residing in Montana have a life expectancy that is 19 years shorter for men and 20 years shorter for women compared to the life expectancy of Whites in Montana, with 52% of AI deaths attributed to alcohol compared to 13% for all other ethnicities (DPHHS, 2013; Seninger & Herling, 2009). Moreover, the death rate from drug-related causes was 21% among AIs in Montana, compared to 13% for Montana overall and 11.6% for the nation (Seninger & Herling, 2009). The observed health disparities in Montana between American Indians and Whites may be associated with poor conditions on AI reservations that have been theorized to contribute to negative health outcomes among these marginalized populations (Walters et al., 2011; Adelson, 2005).

In an effort to address some of the health disparities affecting AIs in Montana, researchers have partnered with a Northern plains reservation community on a project

focused on substance use and resilience. This AI reservation is home to approximately 6,000 tribal members and is located in one of the poorest counties in the nation (UC Davis Center for Poverty Research, 2017; Small Area Income and Poverty Estimates [SAIPE], 2016). In addition to the high levels of poverty in this region, morbidity and mortality rates qualify the area as one of the least healthy places in America (University of Wisconsin Population Health Institute, 2018). Previous research with this reservation has identified high rates of adverse childhood experiences, substance use, and suicide ideation that increase the risk for negative health outcomes (University of Wisconsin Population Health Institute, 2018; Brockie et al., 2015).

Although several risk factors for SUD are prevalent on the reservation, tribal members have prioritized the need for resilience research in the community. As a result, researchers have partnered with AI members of the community on a community-based participatory research (CBPR) project aimed at understanding the social and cultural norms surrounding addiction and recovery, while creating sustainable change through culturally-grounded interventions to foster resilience (Skewes & Blume, 2019).

Method

Participants

The study sample (N = 197) was recruited from a Northern Plains reservation in Montana. Inclusion criteria for this study included self-identifying as an AI tribal member currently in recovery from SUD or with the desire to change their substance use. Participants were between the ages of 18 and 65 (M = 37.35, SD = 11.81), with 51.8%

identifying as female (*n* = 102) and 48.2% identifying as male (*n* = 95). All participants identified as AI. When asked about years of education, 44.5% reported some high school (*n* = 85), 35.1% reported graduating high school/GED (*n* = 67), 13.1% reported finishing some college or higher education (*n* = 25), and 7.3% reported never starting high school (*n* = 14). Participants' self-reported monthly household income ranged from $0 to $4,823, with a median monthly income of $190. In the present sample, 46% of participants reported having no monthly income and 84.5% of participants earned less than $1,000 per month.

Measures

Background & Demographics. Background and demographic items were created specifically for the project, and included age, gender, and monthly income. Background questions also included history of treatment and recovery attempts, and included items assessing length of time in recovery ("How long have you been working on your recovery?"), types of treatment services utilized ("What kind of treatment did you get?"), treatment experiences ("Did you experience discrimination in treatment?"), and interest in future interventions ("If there were a new kind of recovery support group [on the reservation], would you be interested in learning more about it?"). Additionally, substance use background was indicated on items such as: "What is your primary drug or substance of choice?"

Substance Use. The Timeline Followback (TLFB; Sobell & Sobell, 1992) was administered in an interview format to assess quantity and frequency of alcohol use and

frequency of drug use in the 90 days prior to the interview date. During the TLFB procedure, participants received a calendar to prompt recollection of substance use and were asked to report the quantity of alcohol consumed and the type of drugs used on each day during the assessment period (see Sobell & Sobell, 1992). Participants were instructed to mark important events and experiences (e.g., holidays, celebrations, paydays) on the calendar as a means of improving recall accuracy. Variables calculated from TLFB data include number of drinking days, number of drug use days, number of drinks per drinking day, number of abstinent days, and percent days abstinent. For the present study, number of days abstinent will represent the outcome variable. The TLFB yields valid and reliable estimates of alcohol and drug consumption and is considered the gold standard self-report assessment for substance use behavior (Sobell & Sobell, 1992; Robinson, Sobell, Sobell, & Leo, 2014; Sobell et al., 2003).

Historical loss. The 12-item Historical Loss Scale was administered to assess historical trauma (Whitbeck, Adams, Hoyt, & Chen, 2004). The Historical Loss Scale measures the frequency of thoughts about losses affecting AI communities, such as "loss of our land" and loss of self-respect from poor treatment from government officials" (Whitbeck, Chen et al., 2004, p. 128). Participants were asked to indicate how often they thought about each historical loss from 1 (*Several times a day*) to 6 (*Never*). These items were recoded, as recommended by previous research, so that high values represented high levels of historical loss (Whitbeck, Chen et al., 2004). The Historical Loss Scale has been used in other research with Native populations (Whitbeck et al., 2009; Whitbeck, Chen et al., 2004), and demonstrated high internal consistency (Cronbach's alpha = .92) in the

present study. Items were summed to yield a total score, with greater scores reflecting more frequent thoughts of historical loss.

Communal Mastery. The Communal Mastery scale is a 10-item self-report measure used to evaluate an individual's sense of efficacy based on closeness with friends, family, and community members (Hobfoll et al., 2002; Fok et al., 2012). Participants answered items such as, "Working together with the people close to me, I can overcome most of the problems I have," and "There is little I can do to change many of the important things in my life, even with the help of family and friends" (reverse scored). Responses were made on a 4-point Likert scale (1 = *Strongly disagree*; 4 = *Strongly agree*). After appropriate reverse scoring, item responses were summed to yield an overall score, with higher values representing greater levels of communal mastery. The Communal Mastery Scale has been used in previous research (Hobfoll et al., 2002; Fok et al., 2012) and demonstrated adequate internal consistency (Cronbach's alpha = .74) in the present study. Items were summed to yield a total score, with higher scores reflecting higher communal mastery.

Discrimination. The Measure of Indigenous Racism Experiences (MIRE; Paradies & Cunningham, 2008) was administered to assess perceived discrimination. Because the MIRE was originally developed using an Aboriginal Australian sample (Paradies & Cunningham, 2008), items in the present study were modified to refer to American Indians. Participants were asked to indicate how often they were treated unfairly in nine specific settings and situations because they were American Indian. Settings included

work, academic, legal, medical, governmental, residential, recreational, and service situations that required interactions with other individuals (i.e., employees, neighbors, security personnel, medical staff) (Paradies & Cunningham, 2008). Participants indicated the frequency of perceived discrimination in each of these settings on a 5-point scale from 1 (*Never*) to 5 (*Very often*). The MIRE has demonstrated good internal consistency in previous research (Cronbach's alpha = .83; Paradies & Cunningham, 2008). Items were averaged to yield a total score, with greater scores reflecting greater perceived discrimination.

Procedure

Both the Montana State University Institutional Review Board (IRB) and the Tribal IRB approved all measures and procedures prior to data collection. Upon IRB approval, the reservation-based project manager recruited participants and scheduled data collection. Each participant met individually with a research team member and provided informed consent before beginning the study. Following consent, the Timeline Follow-back (TLFB) was administered in interview format. After completing the TLFB, participants received a survey packet including background and demographic questions, the Historical Loss Scale, the Communal Mastery Scale, and the MIRE, in addition to other measures not reported in this paper. Participants were given the option of completing the survey on their own or with an interviewer reading the items aloud. Participants received a $50 gift card as compensation for their participation and were provided with a list of mental health and substance abuse treatment resources available in the community. The study time was approximately two hours per person. Surveys were

labeled with a numerical identifier and transported to Montana State University, where data were entered into SPSS and double checked for accuracy.

RESULTS

Hypotheses

This study examined the relationship between historical trauma, discrimination, and substance use (i.e., number of days abstinent) for individuals with high and low levels of communal mastery. It was hypothesized that 1) historical trauma and discrimination would each be associated with fewer abstinent days, 2) communal mastery would moderate the association between historical loss and number of days abstinent such that the association would be stronger at lower levels of communal mastery than at higher levels of communal mastery, and 3) communal mastery would moderate the association between discrimination and number of days abstinent such that the association between discrimination and number of days abstinent would be stronger at lower levels of communal mastery than at higher levels of communal mastery (see Figure 1).

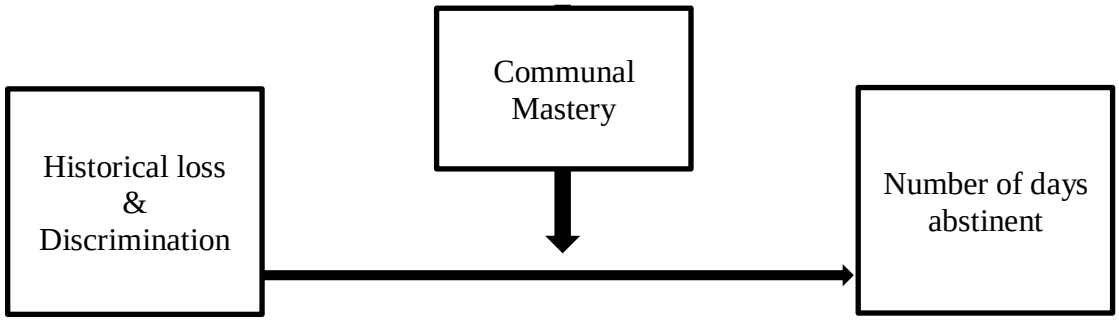

Figure 1. The hypothesized model proposes that communal mastery would moderate the associations between historical loss and discrimination, and number of days abstinent.

Data Analysis Approach

Data were analyzed using SPSS version 25. First, study variables were screened for multivariate outliers and missingness. Descriptive statistics and correlations were then calculated for all study variables. Study variables were then screened for assumptions of regression. Historical loss, discrimination, and communal mastery variables all met assumptions of regression. However, the error terms associated with number of days abstinent were not normally distributed. Therefore, I added 1 to each score for number of days abstinent to eliminate all "0" values and used a log 10 transformation. The transformed variable was rescreened for assumptions of regression and a sensitivity analysis was conducted to test for differences between the transformed and raw variable. The transformed variable was used as the outcome variable in hierarchical linear regression models used to test the hypotheses.

Descriptive Statistics

Means and standard deviations for the TLFB substance use variables are presented in Table 1. Descriptive data regarding previous treatment experiences and attempts at recovery are presented in Table 2. Means, standard deviations, and coefficient alpha estimates for the predictor variables are presented in Table 3. Missing data were less than 5%. Therefore, missing values were not replaced and were instead excluded from analyses.

Participant History of Substance Use & Recovery Attempts

Among the present sample, alcohol was reported as the primary substance of choice (42.3%; *n* = 80), followed by marijuana (16.4%; *n* = 31), methamphetamine (12.2%; *n* = 23), opioids (3.2%; *n* = 6), and prescription pills (2.1%; *n* = 4). Additionally, 23.7% of participants reported two or more substances as their primary substance of choice (*n* = 45). See Table 1 below. Overall, participants reported 48 abstinent days within the 90-day assessment period (*SD* = 34.99). However, an average of 19.6 of the 90 days (*SD* = 26.93) included alcohol use, with 14.04 drinks consumed per drinking day on average (*SD* = 16.96). This level of alcohol consumption exceeds the NIAAA definition of binge drinking (five or more standard drinks for a male/four or more standard drinks for a female within a two-hour period; NIAAA, 2004). An average of 18 of the 19.61 drinking days were classified as binge drinking days.

Table 1. Substance Use Descriptive Data

	M	*SD*
Number of alcohol consumption days	19.61	26.93
Drinks per drinking day (DDD)	18.34	15.13
Average drinks per week	29.82	57.80
Number of binge drinking days	18.37	26.44
Number of drug use days	27.69	35.36
Number of hard drug use days	12.82	24.07
Number of abstinent days	48.49	34.99
Percent days abstinent	53.69	39.14

Treatment & Recovery Attempts. When asked about history of substance use treatment and previous recovery attempts, more than half of the sample (55%; *n* = 107) reported receiving treatment for substance use within their lifetime. See Table 2 for utilized recovery resources and length of time working on recovery. On average, 45.4%

of participants who received treatment in the past reported their treatment experience as helpful, 74.1% felt supported by relatives during treatment, and 85.3% did not feel discriminated against during their treatment process.

Table 2. Utilized Recovery Resources and Length of Time Working on Recovery

Recovery Resources	*n*	*%*
Alcoholics Anonymous (AA)	95	48.2%
Reservation Intensive Outpatient Program	90	45.7%
Reservation-specific aftercare	53	26.9%
Residential treatment	53	26.9%
IHS Behavioral health	42	21.3%
Narcotics Anonymous (NA)	41	20.8%
Recovery sweat	31	15.7%
Length of Recovery Time	*n*	%
Two years or more	63	36.4%
One to three months	36	20.8%
Less than 30 days	30	17.3%
Three to six months	16	9.2%
One to Two years	14	8.1%
Six to nine months	9	5.2%
Nine to 12 months	5	2.9%

Note. Percentages exceed 100 because participants were instructed to mark all that apply.

When asked about the main reason for their desire to quit using substances, the primary reason provided was children/family (39.3%; $n = 72$), followed by wanting a better quality of life (12.6%; $n = 23$), improving their health (11.8%; $n = 21$), pursuing educational/career goals (6.0%; $n = 11$), and for financial reasons (2.2%; $n = 4$). Additionally, 19.7% of participants reported two or more of the listed reasons as their motive for wanting to stop using substances and 8.7% reported other ($n = 16$).

Levels of Historical loss, Discrimination, & Communal Mastery

Descriptive statistics for levels of historical loss, discrimination, and communal mastery are presented in Table 3.

Historical Loss. Historical loss scores ranged from 12.00 to 72.00 (*M* = 40.35; *SD* = 16.12). The 12-item Historical loss scale also had high internal consistency (see Table 3). Participants thought most frequently about losses from the effects of alcoholism (49.5%; *n* = 97), followed by loss of respect for elders by children and grandchildren (46.9%; *n* = 92), and loss of their people through early death (46.7%; *n* = 92).

Discrimination. The Measure of Indigenous Racism Experiences (MIRE) score means ranged from 1 to 4.38 (*M* = 2.06; *SD* = .78). The average MIRE score corresponded with never/hardly ever being treated unfairly because of being AI, indicating low levels of perceived discrimination in the present sample. The MIRE had high internal consistency (alpha = .83; see Table 3) that matched findings from previous literature (Paradies & Cunningham, 2008; Cronbach's alpha = 0.83).

Communal Mastery. The Communal Mastery scale scores ranged from 18 to 40 (*M* = 29.53; SD = 3.31), indicating high levels of communal mastery in the present sample. Internal consistency for the Communal Mastery Scale was slightly lower in our study (see Table 3) compared to previous findings (i.e., Cronbach's alpha = .74; Hobfoll et al., 2002). This may be due to confusion regarding the two reverse-scored items, as the alpha for the remaining items when the reverse-scored items were excluded from the estimate was comparable to alpha reported in Hobfoll et al. (2002).

Table 3. Internal Consistency, Means, and Standard Deviations for Predictor Variables

	α	*M*	*SD*
Historical Loss Scale	.95	40.34	16.12
Measure of Indigenous Racism Experiences (MIRE)	.83	2.06	.78
Communal Mastery Scale	.67	29.53	3.31

Bivariate Correlations

Table 4 shows bivariate correlations for all study variables. Number of days abstinent was negatively associated with substance of choice (i.e., alcohol vs. other drugs; r = -.15, p = .037). Substance of choice was coded as alcohol = 1 and other drugs = 2. Thus, the negative correlation shows that participants who preferred alcohol had more abstinent days than those who preferred other drugs. As shown in Table 4, greater levels of historical loss were associated with greater levels of discrimination (r = .18, p = .014) and greater levels of communal mastery (r = .21, p = .004). Discrimination was also positively associated with age (r = .25, p < .001).

Table 4. Correlates of All Study Variables

Variable	1	2	3	4	5	6	7
1. Historical Loss	1.00	-	-	-	-	-	-
2. Discrimination	.18*	1.00	-	-	-	-	-
3. Communal Mastery	.21**	-.10	1.00	-	-	-	-
4. Age	.09	.25**	-.03	1.00	-	-	-
5. Gender	.10	.05	-.08	.02	1.00	-	-
6. Substance of Choice	-.01	.02	-.04	-.30**	.11	1.00	-
7. Number of Days Abstinent	.14	-.05	.13	-.053	-.023	-.15*	1.00

Note. *p<.05; **p < .01. Gender was coded 1 for female and 2 for male; substance of choice was coded 1 for alcohol and 2 for all other substances or polysubstance use.

Preliminary Analyses

Prior to running the primary analyses, we conducted preliminary analyses in order to identify potential variables that should be included as covariates. Potential covariates included gender, age, and substance of choice (i.e., alcohol = 1 and other drugs = 2). Age and gender were not significant predictors of number of days abstinent and therefore were not retained as control variables. However, substance of choice was a significant predictor of number of days abstinent ($\beta = -.156$, $p = .042$). Therefore, we decided to control for substance of choice in the subsequent linear regression analysis.

Multivariate Analysis

The primary hypothesis of the current study was that communal mastery would moderate the association between historical loss and number of days abstinent, as well as moderate the association between discrimination and number of days abstinent. Specifically, it was predicted that the association between historical loss and number of days abstinent would be stronger at lower levels of communal mastery compared to higher levels of communal mastery. It was also predicted that the association between discrimination and number of days abstinent would be stronger at lower levels of communal mastery compared to higher levels of communal mastery. Hierarchical multiple regression was used to test these hypotheses.

First, we mean-centered historical trauma, discrimination, and communal mastery, and then we created two interaction terms representing communal mastery by historical loss and communal mastery by discrimination. Substance of choice was entered in block

1 as a control variable. Then, historical loss and discrimination were entered in block two, followed by communal mastery in block three. We then added the historical loss x communal mastery and discrimination x communal mastery interaction terms to block four. The dependent variable was the log-transformed variable representing number of days abstinent.

Model 1 indicated that substance of choice explained a significant amount of variance in number of abstinent days (R^2 = .024, F (1, 169) = 4.218, p = .042). Specifically, those using alcohol as their primary substance of choice had more abstinent days than those using other substances (β = -.15, p = .042). Model 2 also was significant (R^2 = .052, F (3, 167) = 3.052, p = .030). In Model 2, historical loss was positively associated with the number of days abstinent (β = .16, p = .029), but discrimination was not (β = .-.04, p = .573). The effect of historical loss on days abstinent was weakened in Model 3, however, when communal mastery was entered into the equation (β = .15, p = .056). Discrimination remained non-significant in Model 3 (β = -.03, p = .682). Contrary to my hypotheses, results from Model 4 revealed no significant interaction between historical loss and communal mastery (β = -.01, p = .842) nor between discrimination and communal mastery (β = -.12, p = .097; R^2 = .071, F (6,164) = 2.088, p = .057), although the interaction between discrimination and communal mastery approached significance. Thus, the relationship between historical loss, discrimination, and number of days abstinent did not depend on communal mastery

Table 5. Hierarchical Regression Analyses of Predictors of Numbers of Days Abstinent.

Model	*B*	*SE(B)*	β	95%CI(*B*)	ΔR^2	*F*
Block 1						
Constant	1.75**	.18		[1.384, 2.131]	.024*	4.21
Substance of choice	-.23*	.11	-.15	[-.459, -.009]		
Block 2						
Constant	1.49**	.26		[.968, 2.028]	.028*	3.05
Substance of choice	-.21	.11	-.14	[-.440, .007]		
Historical loss	.00*	.004	.16	[.001, .015]		
Discrimination	-.04	.07	-.04	[-.180, .100]		
Block 3						
Constant	1.11	.11		[-.101, 2.329]	.003	2.40
Substance of choice	-.216	.11	-.14	[-.440, .008]		
Historical loss	.007	.004	.15	[.000, .014]		
Discrimination	-.030	.07	-.03	[-.173, .113]		
Communal Mastery	.013	.01	.05	[-.024, .050]		
Block 4						
Constant	1.17	.62		[-.060, 2.414]	.01	2.08
Substance of choice	-.21	.11	-.14	[-.438, .013]		
Historical loss	.007*	.004	.16	[.000, .015]		
Discrimination	-.01	.07	-.02	[-.162, .124]		
Communal Mastery	.009	.01	.03	[-.029, .047]		
Historical loss x Communal Mastery	.000	.001	-.01	[-.002, .002]		
Discrimination x Communal Mastery	-.03	.02	-.12	[-.080, .007]		

Note. *p<.05; **p < .01. The dependent variable was the log-transformed variable representing number of days abstinent.

DISCUSSION

The purpose of the present study was to examine how the relationship between culturally relevant risk factors (i.e., historical loss and discrimination) and a substance use outcome (i.e., number of days abstinent) was impacted by a hypothesized protective factor, communal mastery, among an adult sample of reservation-based American Indians with SUD. Contrary to my hypotheses, communal mastery did not moderate the relationship between historical loss and abstinence from substance use, nor did it moderate the relationship between discrimination and abstinence. I also found that greater levels of historical loss predicted more abstinent days, which is the first study to find such an association. Although my hypotheses were not supported, the findings from the current study highlight an important perspective that has not been explored in previous research. A discussion of these findings and possible explanations for the results are explored in the sections below.

Historical Loss & Abstinence

The only significant finding was that historical loss predicted more abstinent days, suggesting that thinking about historical loss may be protective, or that abstinent days may trigger memories of historical loss. This finding contrasts with previous research, which has mainly supported the idea that greater levels of historical loss are harmful for AI/AN people and predict worse outcomes in domains such as mental health and substance use (Whitbeck, Chen et al., 2004; Walls & Whitbeck, 2012b; Evans-Campbell et al., 2012; Brave Heart et al., 2011). Although this finding does not align with previous

research, it may make sense for the present sample. To illustrate, the historical loss item most frequently endorsed by participants was the loss from the effects of alcoholism on American Indian people. In thinking about this type of loss, it is possible that American Indians who gain awareness about their substance use behaviors are more likely to work toward sobriety and are more likely to recognize thoughts about historical loss as a trigger for substance use. In support of this idea, a study conducted with an Alaska Native tribe found that understanding how one's personal actions affect the community promoted abstaining from substance use (Mohatt et al., 2004). Although this was a qualitative study and was conducted with a different Indigenous sample, it does lend support to the idea that thinking about the effects of alcohol at a historical level may contribute to greater levels of personal sobriety.

Abstinence also may contribute to a greater awareness of historical trauma. Previous research has found that individuals recovering from SUD experience heightened self-awareness during the recovery process (Wiseman, 1981). However, studies such as these were conducted with people from individualistic cultures. It is possible that AIs in the present sample gained cultural awareness, rather than just awareness about one's self, since AIs are traditionally a collective society. As a result, AI participants may reflect more on historical losses during their recovery process than non-Native people.

Discrimination & Abstinence

Although past research has often found an association between discrimination and substance use (e.g., Garrett et al., 2017; Galliher et al., 2011; Whitbeck et al., 2001), the present study did not find any such relationship. Specifically, discrimination was not associated with the number of days abstinent from substance use. However, this finding may be different from other studies because 85% of participants scored above the midpoint of the MIRE. This finding indicates that a majority of participants reported hardly ever experiencing racial or cultural discrimination. It seems abnormal for an AI sample to report never experiencing discrimination based on national and local data (SAMSHA, 2007; May & Gossage, 2001; University of Wisconsin Population Health Institute, 2018; Skewes & Blume, 2019). However, it is important to reiterate that this measure captures the perception of discriminatory experiences (Paradies & Cunningham, 2008). Therefore, it is possible that the present sample was unaware of inequitable treatment in the past, contributing to lower reports of discriminatory encounters. If participants were unaware of past instances of discrimination, then it would make sense that discrimination was not associated with substance use.

Although the restriction of range seems to be the most plausible explanation for this result, it is also possible that participants in our sample did not experience discrimination, or did not engage in substance use as a result of discrimination. Instead, substance use in the current sample may be more strongly associated with other factors that are indirectly related or unassociated with discrimination (e.g., individual trauma and adverse childhood experiences; Boyd-Ball, Manson, Noonan, & Beals, 2006; Brockie et

al., 2015). This possibility aligns with previous research has that also failed to find a direct association with discrimination and substance use in Indigenous samples (Whitbeck, Chen et al., 2004; Whitbeck et al., 2001). Instead, researchers found that discrimination was indirectly associated with substance use through psychological and emotional variables, such as internalized anger and greater thoughts of historical loss (Whitbeck, Chen et al., 2004). Therefore, other factors that were not examined in the present study may mediate the relationship between experiences of perceived discrimination and substance use behaviors and should be explored in future research.

Communal Mastery & Abstinence

Contrary to my prediction, communal mastery did not moderate the relationship between historical loss and discrimination and number of days abstinent; communal mastery did not appear to be protective. However, the sample had high levels of communal mastery (see Table 3) indicating that communal mastery was high for those who reported heavy substance use and those who reported high levels of abstinence. Therefore, it is possible that communal mastery may actually be more helpful at certain points in the recovery process than others. Because members of collective cultures are theorized to collaborate in order to address individual stressors (Lyons et al., 1998), it is possible that AI community members may come together to help each other attain substances as well as recover from SUD. However, individuals who are more motivated for recovery may rely on others in their community who help them stay sober, whereas people who are less motivated for recovery may rely on others to help them obtain or use

alcohol or other substances. Although limited, research has found that higher levels of communal mastery were associated with reduced stress concerning resources (e.g., health care, transportation, and employment; Hobfoll et al., 2002). In the present sample, alcohol or drugs may be a resource needed by those reporting higher levels of substance use.

Having higher levels of communal mastery may contribute to a person's belief in their ability to obtain their desired substance. It is also important to note that tribal members of this Northern Plains reservation often report engaging in communal drinking and drug use. Reservation community members will share their alcohol or drugs with friends and family, which contributes to hardship for those who are trying to get sober. In AI/AN communities, there is a strong emphasis on maintaining relationships with members of one's family and community (Lega & Novins, 2012). Therefore, substance use that is shared among family and community members, often observed within this sample, may contribute to negative substance use outcomes. Thus, the nature of communal mastery in AI/AN communities may depend on the collection of individuals within one's social network and the culture that exists within communities.

Limitations & Future Directions

Communal Mastery: Limitations & Future Directions

Although the present findings add to the collective body of research on communal mastery, interpretations of the findings are constrained due to the sparse amount of research on this topic. To my knowledge, no other research has examined communal

mastery as a protective factor against levels of historical loss and discrimination. Furthermore, no research has studied how communal mastery impacts the relationship between historical loss, discrimination, and substance use in an AI/AN sample. Thus, future research should seek to understand the nature of the relationship between these variables in order to begin interpreting how communal mastery interacts with other culturally-specific risk factors and different health outcomes.

Additionally, the present analysis only focused on culturally-specific risk factors that were identified by the community. In the future, researchers should also study other variables associated with communal mastery to obtain a holistic understanding of the construct. Through this approach, researchers can also begin to understand what other components may be important in communal mastery (e.g., control, community engagement) and can begin to harness the strength of communal connectedness within AI/AN populations to improve health.

Investigators should also examine the measurement of communal mastery to understand when communal mastery may be helpful versus harmful. Because our sample was possibly influenced by the culture of communal substance use patterns, explanations regarding the benefits of communal mastery in a substance use domain are restricted. For example, even if not associated with abstinent days, communal mastery may still protect people from overdose deaths or other negative consequences even if they continue to use substances. Moreover, it will be important for future research to examine what type of problems respondents are thinking about when they answer questions such as those posed in the Communal Mastery Scale. Future research also is needed to understand how

communal mastery influences substance use outcomes in AI/AN populations that include a full spectrum of substance use, including abstinent, moderate use, and heavy use behaviors. By using a representative sample from the community, researchers may begin to understand the true nature of the relationship between communal mastery and substance use and identify when communal mastery may be most beneficial. Future longitudinal research also is needed to understand how communal mastery affects the course of remission among those who are motivated to seek and receive treatment.

Historical Loss: Limitations & Future Directions

Although this study was one of the first to investigate how communal mastery associates with levels of historical loss, discrimination, and substance use, it was also one of the first to find a positive association between historical loss and number of abstinent days in an AI sample. Therefore, our understanding about the relationship between historical loss and abstinence within the present sample is limited. Additionally, our interpretations about this association are also limited by the cross-sectional design. Because cross-sectional designs do not provide information about the directionality of a relationship, we cannot determine if awareness of historical loss contributes to sobriety or if sobriety contributes to a greater level of awareness about historical loss, or if a third variable such as enculturation may account for both of these variables. While we did find that historical loss predicted more days abstinent, it is possible that it may only be protective at certain periods throughout the recovery process. Thus, future research is needed to examine changes in historical loss awareness and abstinence over time using a longitudinal approach. In using longitudinal methodology, researchers can understand

how these constructs vary within and between individuals. Moreover, researchers can also understand how these variables change across time. This is an important step for researchers to take, especially when past research has consistently found greater levels of historical loss to be associated with maladaptive outcomes (Wiechelt et al., 201l; Brave Heart et al., 2011; Evans-Campbell et al., 2012; Whitbeck et al., 2009). Most of the research studying the effects of historical loss has taken a cross-sectional approach and, although the present study has taken a similar approach, my findings differed. Therefore, it is clear that more research is needed to understand the nature of historical loss in relation to substance use, and when AI/ANs may be helped or hurt by its presence.

Sample Characteristics: Limitations & Future Directions

External validity was limited in the present study based on characteristics of the sample. First, the sample was comprised of AIs with severe SUD. As a result, the extreme level of substance use among the present sample may have contributed to findings that are incongruent with previous research. Future research is needed to examine these constructs using a representative community sample with a range of substance use behaviors. The generalizability of our findings to other AI/AN populations may also be limited due to the high levels of communal mastery in our sample, which may be influenced by other factors than AI ethnicity. For example, the reservation where this research took place was located in a remote rural location, and rurality may play a role in communal mastery. Although it is theorized that collectivistic cultures such as AIs have higher levels of communal mastery than individualistic cultures (Allen et al., 2014; Hobfoll et al., 2002), it is possible that the level of communal mastery found in our

sample is greater than in urban or other AI/AN populations. Additional research is needed to understand the role of communal mastery in health and well-being among AI/ANs from different areas of the nation.

CONCLUSION

It is clear that American Indian/Alaska Natives have endured significant historical and contemporary trauma across centuries. However, we cannot ignore that some Indigenous people have demonstrated unique forms of resilience in light of such adversity. Past research focused on understanding AI/AN resilience has centered around understanding communal and interpersonal protective factors (Mohatt et al., 2004; Allen et al., 2014; Walls et al., 2016; Goodkind et al., 2012). However, the present findings allude to the idea that communal factors may not predict AI/AN wellbeing in consistent ways. Rather, outcomes may depend more on the interaction between the person within an specific environment or context (Lerner, Baker, & Lerner, 1985, p. 112). Additional research is needed to understand protective factors that exist within AI/AN individuals while also considering the characteristics of the community as a whole, especially when trying to understand substance use patterns and outcomes.

Furthermore, results from the present study also illuminate how little we know about the influence of historical trauma awareness on health among AI/AN people. Although thoughts about historical trauma have been shown to be associated with negative health outcomes (e.g., Brave Heart & Debryun, 1998), our results indicate that this may not always be the case. Therefore, researchers need to investigate when and how historical loss awareness may be harmful or helpful, or whether such awareness is merely an indicator of other variables that produce the effects on health outcomes. Further studies are needed to examine the circumstances under which thinking about historical loss takes place in order to understand the effects of historical loss awareness on health.

Moreover, researchers could also examine ways in which historical trauma is framed and discussed in AI/AN communities, and how AI/AN people become aware of historical losses. If the nature of the association between historical loss awareness and health is elucidated, then researchers may begin to partner with AI/AN communities to integrate tailored interventions for historical loss that contribute to resilience.

Overall, there is still much more we need to learn about AI/AN resilience. However, the present research has provided an avenue to further many of the ideas emerging in literature. These findings may help inform how we reflect upon and conceptualize resilience in other domains. The present research also provides deeper insight into the complex nature of substance use among AI/ANs residing in rural reservation communities. We have much more to learn about resilience and recovery from SUD, and lessons learned through partnerships with AI/AN communities may have wide-reaching effects for the nation as a whole. After all, we could all learn more about how to get by with a little help from our friends.

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