



Resilience and Low Substance Use Among Indigenous College Students from a Sexual Assault Prevention Study

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Abstract

While Indigenous communities have thrived for centuries despite colonization, Indigenous Peoples continue to experience high rates of sexual victimization and are rarely included in sexual assault prevention and intervention research. Given the common risk factors associated with experiencing sexual assault, including substance use, it is vital to understand the unique strengths and challenges of Indigenous young adults to inform prevention and intervention efforts. The goal of this study was to simultaneously examine resilience and risk factors associated with sexual assault using a multi-methods design. First, a large, national, quantitative survey to assess sexual assault-related mental health needs was conducted among Indigenous college students at 8 tribal colleges and universities (TCUs) and 50 predominantly White institutions (PWI), which resulted in a sample of $n = 401$ survey participants. Qualitative interviews ($n = 14$) were then conducted to complement the survey data from the perspective of Indigenous college students. Quantitatively, participants reported high levels of trauma history and, importantly, high levels of resilience and low levels of overall substance use compared to national heavy alcohol use guidelines. Qualitatively, findings suggest that Indigenous college students find strength in cultural and community engagement and recognize systemic inequities that contribute to sexual violence and substance use. This research provides a deeper understanding of the strengths possessed by Indigenous Peoples to help protect against substance use and sexual violence. Current findings help inform future research directions for developing culturally relevant sexual violence prevention and intervention programs coupled with substance use reduction.

Keywords Indigenous · Strengths · Substance use · Sexual assault · Prevention · Intervention

Introduction

Indigenous Peoples have resisted, survived, and thrived against colonization and cataclysmic group trauma for centuries, which is one of many indicators of the strengths and

resilience possessed by these communities. These strengths can serve to protect against substance misuse and related negative outcomes, including sexual violence. From a socio-ecological perspective, protective factors against substance misuse and sexual violence exist at the individual,

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interpersonal, community, and societal levels. It is vital to increase our understanding of the unique strengths and challenges of Indigenous young adults to inform prevention and intervention efforts for substance misuse and sexual violence.

Many Indigenous scholars and scholars working with Indigenous communities have argued that contemporary health inequities among Indigenous Peoples, including substance misuse and sexual violence, can be traced back to settler colonialism and systemic racism (Brave Heart et al., 2011; Collins et al., 2019; Currie et al., 2015; Evans-Campbell, 2008). Indeed, there is no evidence of substance misuse among Indigenous Peoples, including the use of fermented substances (i.e., alcohol), prior to the arrival of European settlers, suggesting a link between the devastating impacts of colonization and substance use problems (Hawkins & Blume, 2002). The historical effects of colonization and culture-wide traumatic events experienced by Indigenous Peoples are termed “historical trauma,” and the ongoing psychological and emotional processes and responses (e.g., substance misuse, grief, hypervigilance, numbing, social withdrawal) to historically traumatic events are termed the “historical trauma response” (Brave Heart et al., 2011).

Historical trauma remains impactful today among Indigenous Peoples and may be correlated with contemporary health inequities and premature mortality associated with substance misuse (e.g., chronic liver disease and cirrhosis, cancers, motor vehicle accidents, and suicide deaths; Chartier & Caetano, 2010; Landen et al., 2014; US Department of Health & Human Services, 2010). A systematic review on the relation between historical trauma and health outcomes among Indigenous Peoples indicated that while historical trauma is often conceptualized as a risk factor for substance misuse, the limited empirical literature on the relation between historical trauma and substance use remains inconclusive (Gone et al., 2019). Prior in-depth (i.e., qualitative) investigations of historical trauma and substance misuse among Indigenous communities have identified that substance misuse is due to coping with the cumulative stresses of historical trauma and ongoing racism and discrimination (Myhra, 2011; Myhra & Wieling, 2014a, b; Skewes & Blume, 2019; Wexler, 2014).

Socioeconomic risk factors for substance misuse among Indigenous communities may possess a cyclical relation with the effects of colonization, such that Indigenous Peoples have historically been oppressed and ignored, resulting in system-level inequities, including reduced access to resources (e.g., income, employment, and access to education) which is associated with worse substance use outcomes for Indigenous Peoples (Arthur et al., 2002; Soto et al., 2022). Furthermore, epigenetic research has demonstrated that Indigenous individuals do not have a greater predisposition to develop alcohol use disorder (AUD) compared to individuals from other ethnic/racial groups (Enoch

& Albaugh, 2017). Prior research on sex differences in alcohol use and rates of AUD among Indigenous women and men is limited. Currently, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) only reports sex differences when including all racial/ethnic groups and does not describe sex differences within racial/ethnic groups for alcohol and substance use prevalence rates (U.S. Department of Health & Human Services, 2023). Walls (2008) found that, in a sample of Indigenous youth in the upper Midwest and Canada, females engaged in alcohol use at similar or higher rates compared to their male peers. As in other ethnic/racial groups, family history of substance use disorder (SUD) personality characteristics and psychiatric comorbidities, particularly untreated mental health concerns, are associated with substance misuse and SUDs among Indigenous Peoples (Compton et al., 2007; Cunningham et al., 2022; Goldstein et al., 2007; Whitesell et al., 2012). Prior research on sex differences in drug use and rates of SUD among Indigenous women and men is limited. Whitesell and colleagues (Whitesell et al., 2007) compared two American Indian tribal cultures to increase understanding of drug use disparities and found that age was more strongly correlated to drug use than gender, males were more likely to use drugs than were females, and gender was related to lifetime substance use in some tribal cultures, but not in others. This illustrates the vast heterogeneity across tribes and suggests that gender differences and prevalence rates may not generalize across tribal communities.

Contemporary trauma is another common correlate of substance misuse in both the general population (e.g., Garland et al., 2013; Jacobsen et al., 2001) and among Indigenous Peoples (e.g., Beals et al., 2005; Manson et al., 2005). The increased burden of trauma for Indigenous Peoples begins in childhood. For example, prior literature has identified that the prevalence of childhood abuse and neglect is high among some Indigenous communities (Cole et al., 2022). Similarly, substance misuse, specifically alcohol misuse, is high among some Indigenous communities and is associated with the vast majority of intimate partner violence cases (Evans-Campbell et al., 2006; Hawkins et al., 2004; Landen et al., 2014; Lujan et al., 1989). Research has further indicated a dose–response relationship between commonly identified adverse childhood experiences (ACEs; e.g., neglect and abuse) with culturally specific factors (e.g., discrimination and historical loss symptoms) and outcomes, such as poly-substance use, depression symptoms, and post-traumatic stress disorder (PTSD; Brockie et al., 2015).

Not only is substance misuse strongly correlated with trauma, research has indicated that mental health symptoms following a traumatic event (e.g., PTSD and depressive symptoms) also increase the risk of experiencing future traumatic events, specifically rape and other forms of sexual violence (i.e., poly-victimization; Risser et al., 2006). For

example, PTSD symptoms interfere with effective threat processing (Risser et al., 2006), and alcohol intoxication reduces effective self-defense (Pumphrey-Gordon & Gross, 2007); thus, in combination, post-trauma mental health symptoms increase the risk of experiencing future traumas by being a barrier to effective resistance (Dardis et al., 2021). This is especially relevant for young adult Indigenous women, who experience the highest risk of rape among all ethnic/racial groups in the USA (Lucchesi & Echo-Hawk, 2018), with over twice the odds of being raped, sexually assaulted, or violently attacked compared to women of other racial/ethnic backgrounds (Beals et al., 2013; Evans-Campbell et al., 2006; Oetzel & Duran, 2004). Moreover, the number of Indigenous Two-Spirit¹ and sexual minoritized individuals who experience sexual violence is unknown. Taken together, research underscores the importance of framing contemporary Indigenous health inequities, particularly substance misuse, in the context of collective and cumulative trauma exposure.

Previous research has called for the need to expand and develop culturally relevant sexual assault prevention interventions for Indigenous Peoples (Lucchesi & Echo-Hawk, 2018), which has the potential to simultaneously address sexual violence and substance use inequities. Given the high prevalence of rapes that involve alcohol and/or drug use among the perpetrator, victim, or both parties (Abbey et al., 2004) among general college student samples (Benson et al., 2007; Presley et al., 1997), as well as among Indigenous Peoples (Murphy-Oikonen et al., 2022), sexual prevention research should consider the role of substance use. Furthermore, given that experiencing rape during college is associated with increased negative mental health outcomes, including PTSD and major depressive disorder (MDD), sexual violence prevention research should consider co-morbid psychological symptoms and disorders (Dworkin et al., 2017).

To date, there is limited research that simultaneously targets sexual violence and substance misuse prevention and intervention efforts for Indigenous Peoples. Thus, the purpose of the current study was to address these gaps by including Indigenous young adults who were currently or recently enrolled in college, using a multi-method study design to assess wellbeing and mental health needs and gaps in resources currently available to Indigenous college students. The current study aimed to (1) assess the frequency and degree of resilience factors and mental health needs among Indigenous college students via an online survey and (2) assess gaps and needs in currently available sexual

assault prevention and intervention efforts by conducting qualitative interviews with Indigenous college students to complement the survey data. The analysis presented here aims to identify cultural strengths and risk factors among Indigenous college students that may serve to protect against substance misuse and sexual violence. Given there are no existing evidence-based, culturally relevant sexual assault prevention interventions for Indigenous Peoples, no specific hypotheses were proffered (i.e., hypotheses were exploratory) for this formative study.

Method

This study used a multi-method design by conducting an initial online quantitative survey to assess mental health strengths and needs, followed by qualitative interviews to complement the survey data. All study procedures were approved by the University of North Dakota Institutional Review Board (UND IRB; #IRB0002530; #IRB0003554) as the IRB of record.

Quantitative Methods

Participants and Procedures

Data were collected as part of a larger formative study to inform the development of a culturally adapted sexual assault prevention program for Indigenous college students. Inclusion criteria for the quantitative survey were that participants must (1) self-identify as Indigenous² alone or in combination with one or more other races/ethnicities, (2) be at least 18 years old, and (3) be currently enrolled, or have been enrolled, in college within the past 5 years. Informed consent was obtained from all participants prior to participation. Initial recruitment efforts began by contacting 8 tribal colleges and universities (TCUs) and 50 predominantly White institutions (PWIs) across Oklahoma (OK) and North Dakota (ND). Lower participation rates than anticipated, which may have been due to factors related to the early onset of the COVID-19 pandemic, prompted the expansion of these efforts to national online recruitment. Participants were also recruited through psychology Sona participant pool systems at each of the Co-PIs' institutions, as well as through advertisements on social media, including Google, Twitter, Instagram, and Facebook. Quantitative survey data was collected from March 2021 through August 2021.

¹ The term "Two-Spirit" is an Indigenous term used to represent inclusive gender and sexual orientation identities that encompass feminine and masculine characteristics within the same individual (e.g., Anguksuar, 1997; Balsam et al., 2004).

² The term "Indigenous" is used as an inclusive descriptor throughout this paper, which represents the original inhabitants of specific areas and their descendants and includes American Indians, Alaska Natives (AI/ANs), and First Nations Peoples, among global Indigenous populations.

Measures

Demographic Information Participants completed a demographics questionnaire, which assessed age, gender identity, sex assigned at birth, setting where one resides, college enrollment status, self-reported tribal affiliation, sexual orientation, and perceived social standing (i.e., MacArthur Scale of Subjective Social Status; Adler et al., 2000).

Substance Use

Daily Drinking Questionnaire (DDQ) The DDQ (Collins et al., 1985) is a self-report measure that assesses the typical number of drinks consumed per day in a typical week. Responses were summed to create a total drinks per week (DPW) score; women who endorsed consuming 4 or more standard drinks per week were classified as at-risk, while men who endorsed consuming 5 or more standard drinks per week were classified as at-risk. While the DDQ has not been validated with an Indigenous sample, it has been recently examined with an Indigenous college student sample (Lopez et al., 2022). The DDQ demonstrated good reliability ($\alpha=0.87$) in the current sample.

The Drug Abuse Screening Test (DAST) The DAST-10 (Skinner, 1982) is a shortened version of the DAST-28 (Skinner, 1982) and is a 10-item self-report questionnaire that assesses problematic substance use. A cutoff score of 3 on the DAST-10 indicates an intermediate level of problematic substance use and warrants further investigation for DSM-5 diagnostic criteria (American Psychiatric Association, 2013; Skinner, 1982). This cutoff score was used to identify the number of individuals whose substance use would be classified as at-risk in the current study. The DAST-10 has previously displayed good to excellent psychometric properties in a literature review with samples of participants recruited from psychiatric outpatient facilities, although specific racial/ethnic characteristics were not reported (Yudko et al., 2007). Although the DAST-10 has not been validated with an Indigenous sample, a prior study examining the DAST-20 with an Indigenous sample in Canada demonstrated excellent internal consistency ($\alpha=0.92$; Ross et al., 2015). The DAST-10 demonstrated acceptable reliability ($\alpha=0.75$) in the current sample.

Mental Health

The Adolescent Historical Loss Scale (AHLS) The AHLS (Whitbeck et al., 2009) is a 10-item self-report questionnaire that assesses the frequency of thoughts related to different types of cultural and historical losses. Example items include, “How often do you think about the loss of our family

ties because of boarding schools?” and “How often do you think about the losses from the effects of alcoholism on our people?”. Items from the AHLS are from the Historical Loss Scale (HLS), a historical loss measure developed from data collected from focus groups and informal conversations with tribal Elders from two upper Midwest reservations (Whitbeck, et al., 2004). The AHLS contains all items from the HLS except for two items reflecting historical loss thinking about parenting practices that likely do not yet apply to most college/university students. Responses range from 1 (*never*) to 6 (*several times a day*), with a maximum score of 60. The study team received permission from the scale developers to adapt the scale by adding questions specific to sexual trauma for the purposes of the current study. In consultation with Indigenous members of our research team, we added the following three items: “How often do you think of... (1) “the sexual abuse of our people by outsiders,” (2) “the losses from the effects of physical and sexual abuse perpetrated against our people,” and (3) “the abuse of family members at boarding schools.” After adding these three items, the AHLS had a maximum score of 78 in the current study. The AHLS has previously displayed excellent reliability in samples of Indigenous adolescents ($\alpha=0.91$; Whitbeck et al., 2009) and Indigenous college students ($\alpha=0.95$; Tucker et al., 2016). The AHLS also demonstrated excellent reliability ($\alpha=0.95$) in the current sample.

PTSD Symptoms Four items from the PCL-5 (Weathers et al., 2013), each representing one of the four unique clusters of PTSD symptoms, were administered as a proxy measure to assess PTSD symptoms in the current sample. While no prior studies have utilized the same four items for a proxy measure, Price and colleagues (Price et al., 2016) investigated the utility of a four-item PCL-5, using one symptom from each cluster, to screen for PTSD symptoms and found that the shortened measure had comparable diagnostic utility to the full PCL-5 in a sample of combat veterans. The original PCL-5 (Weathers et al., 2013) was a 20-item self-report questionnaire that assesses symptoms of PTSD according to the DSM-5 diagnostic criteria (American Psychiatric Association, 2013). In the current study, participants were instructed to complete the four included PCL-5 items regarding “the unwanted sexual experience...that was worst for you or affected you most.” The PCL-5 has previously displayed excellent reliability with a sample of college students in Canada ($\alpha=0.95$; 1.7% of the sample identified as Native American; Ashbaugh et al., 2016) and with a sample of Filipino migrant workers in China ($\alpha=0.95$), but it has not been validated with a US Indigenous sample. There is also some evidence of measurement equivalence between ethnoracial groups although this has not yet been investigated for Indigenous populations (Hoyt & Yeater, 2010). Participants who endorsed being bothered slightly or more

on any of the four items were considered to screen positive for current PTSD symptoms. The four PCL-5 items included in this study demonstrated excellent reliability ($\alpha = 0.90$) in the current sample.

Patient Health Questionnaire-9 (PHQ-9) The PHQ-9 is a 9-item self-report questionnaire that assesses depressive symptoms experienced in the past 2 weeks according to the DSM-5 diagnostic criteria. An example item is, “Over the last month, how often have you been bothered by feeling down, depressed, or hopeless?”. Responses range from 0 (*not at all*) to 3 (*nearly every day*), with a maximum score of 27. This measure has previously displayed good reliability ($\alpha = 0.85$) with a sample of Indigenous women in the USA (Heck, 2018). The PHQ-9 demonstrated excellent reliability ($\alpha = 0.91$) in the current sample.

Strengths, Resilience, and Protective Factors

Benevolent Childhood Experience (BCE) Scale The BCE scale is a 10-item self-report questionnaire that assesses individuals’ history of positive early life experiences through a multiculturally and intersectionality-sensitive lens. Respondents are given the prompt, “When you were growing up, during your first 18 years of life...”, and example items include “Did you have at least one caregiver with whom you felt safe?” and “Did you like yourself or feel comfortable with yourself?”. Responses are indicated with *yes* or *no*. The BCE scale has previously displayed good reliability when examined with a Portuguese sample (Almeida, et al., 2021) but has not been validated with an Indigenous sample in the global north. However, Herman and colleagues (Herman et al., 2023) recently examined an adapted version of the BCE scale with an Indigenous sample in the USA and in Canada, and a confirmatory factor analysis revealed a single latent variable for BCE scale with factor loadings > 0.40 . The BCE scale demonstrated acceptable reliability ($\alpha = 0.72$) in the current sample.

Connors-Davidson Resilience (CD-RISC-10) Scale The CD-RISC-10 (Campbell-Sills & Stein, 2007), a shortened version of the CD-RISC (Connor & Davidson, 2003), is a 10-item self-report questionnaire that assesses resilience. Example items include, “I can achieve goals despite obstacles” and “I tend to bounce back after illness or hardship”. Responses range from 0 (*never*) to 4 (*always*), with a maximum score of 40. The CD-RISC-10 has previously demonstrated good reliability with Indigenous communities in eastern Canada (Fuentes et al., 2020) and with Indigenous Elders in the USA (Goins et al., 2013). The CD-RISC-10 demonstrated good reliability ($\alpha = 0.89$) in the current sample.

Qualitative Methods

Participants

Participants who completed the quantitative survey and consented to follow-up contact were invited to participate in an individual interview. Due to the evidence of high levels of fraudulent responses (i.e., ≥ 150 fraudulent responses before we implemented fraud prevention measures; described in detail in the “Discussion” section), participants with college/university emails (i.e., ending in “.edu”) or who provided open text responses that demonstrated a unique, individual response were recruited for interview participation in August 2021. Participants were also recruited through the University of North Dakota’s and Oklahoma State University’s Psychology Sona participant pool systems. We conducted individual qualitative interviews, rather than focus groups, to ask in-depth questions about potentially stigmatizing topics (i.e., sexual assault) to complement the national quantitative survey data. Research supports the use of individual qualitative interviews for sensitive topics, particularly for women (Kruger et al., 2019). A total of 14 interviews with Indigenous college students were conducted via videoconferencing software (i.e., Zoom) between August 2021 and June 2022. The time between taking the survey and the interview ranged from 5 to 11 months for interview participants. Prior to participating in the interview, participants completed informed consent procedures. Interviews lasted approximately 1 h and were audio-recorded via Zoom and a backup physical recorder. Participants were given the option to receive compensation in the form of course credit or a \$20 Amazon electronic gift card.

Semi-Structured Interview

The semi-structured interview complemented the content of the quantitative survey by providing further details and context on resilience and risk factors for sexual violence and associated outcomes among Indigenous college students. The semi-structured interview guide contained questions about cultural protective factors (e.g., *tell me about any cultural practices or traditions in which you participate that you find empowering or uplifting*), factors that may reduce or prevent sexual violence in Indigenous communities (e.g., *what do you think can reduce or prevent sexual violence from occurring among Indigenous Peoples?*), risk factors for sexual violence among Indigenous communities (e.g., *what do you think are some needs unique to Indigenous Peoples we need to consider to prevent rape and other forms of sexual assault?*), and acceptability and feasibility of self-defense interventions as a form of sexual violence prevention (e.g., *what impact(s) do you think past trauma has on participation in self-defense?*).

Several rounds of revisions were completed by the research team based on individual expertise in sexual assault prevention and Indigenous health. Three Indigenous undergraduate and graduate research assistants on the research team were consulted to refine the interview guide and assess the topic and cultural relevance. Interviews were conducted by two research assistants (LU, RC) with previous training in qualitative research methodology. All recorded interviews were then transcribed and checked against the recordings for accuracy. The recordings were deleted following transcription. Figure 1 illustrates the development of the semi-structured interview, interview procedures, and the qualitative coding process. Figure 2 displays shared qualities between the quantitative survey and qualitative interviews to illustrate the multi-method study design.

Data Analytic Procedures

Quantitative Analytic and Reporting Strategy Respondents who met the criteria for a non-fraudulent, realistic response were included in data analyses. Data were analyzed in SPSS 28.0. Questionnaires were scored following the original scoring instructions unless otherwise noted. Pairwise deletion was used to account for missing data, which was low (i.e., only 9 participants completed less than 70% of the entire study survey).

Descriptive statistics on mental health variables of interest (i.e., drug use; alcohol use; benevolent childhood experiences, BCEs; resiliency; HT thought frequency; PTSD; and depression symptoms) were conducted. Given the heterogeneity of Indigenous Peoples and the context of national recruitment, we analyzed key study variables by conducting comparison tests across several different demographic characteristics (e.g., gender, sexuality, race, university size and attendance, income, time spent on reservation) to understand how resilience and risk may differ across subgroups to better inform future prevention efforts for Indigenous college students from varying backgrounds.

Chi-square tests were conducted to test for statistically significant differences among categorical variables. Dunnett's T3 tests were conducted to test for statistically significant differences across continuous variables. Bivariate correlation analyses were conducted to examine associations between key study variables (e.g., drug use, alcohol use, BCEs, resiliency) and time spent on reservation, income, and size of college/university attended. Descriptive statistics and group differences for gender and sexual orientation are presented in Table 1. Descriptive statistics and group differences for ethnic identity, type of college attending/ed, and geographic region are presented in Tables 2 and 3. Exact statistical tests and *p*-values are displayed in Tables 1, 2, and 3, while the findings are summarized in narrative format in the text below.

Qualitative Analyses

Four coders (CA, LU, MC, AC) developed a codebook based on initial reviews of the transcribed interviews to begin identifying cultural strengths and resiliency factors that can serve to protect against substance misuse and sexual violence and may also help to inform future sexual assault prevention and intervention efforts for Indigenous communities. Following this, the four coders coded two initial transcripts together and then revised the codebook. Two coders (CA, AC) coded the remaining 12 transcripts independently using Dedoose Version 9.0.62 (2022), a collaborative qualitative data analysis software platform, and then met to discuss and resolve discrepancies. Intercoder reliability was high ($\kappa=0.81-1.00$). Four team members (CA, LU, MC, AC) independently read through the coded transcripts and identified themes first within codes and then across codes. Following thematic analysis, the transcripts were reviewed again for confirming and disconfirming evidence of themes (Miles et al., 2018).

Results

Quantitative Findings

Study Sample

In total, 401 Indigenous college students (mean age = 24.40 years, $SD=4.78$) completed the survey between March 2021 and August 2021. All participants identified as Indigenous, American Indian, or Native American themselves, or as the child of a parent with any of these identities. Some participants volunteered their specific tribe or regional affiliation; 33 participants identified themselves as Alaska Natives, 29 as from Great Plains tribes, and 16 as from Southeast Woodlands tribes. Specific tribal affiliations will not be identified to protect participants' confidentiality (Norton & Manson, 1996). Most participants identified as cisgender women (73.8%) although many men (18.0%) and Two-Spirit or transgender individuals (8.0%) participated. Considering sexuality, 19.5% of the sample identified with a non-majority sexuality; specifically, 5.2% identified as bisexual, 5.2% as Two-Spirit, 3.0% as asexual, 2.0% as gay or lesbian, 1.2% as fluid, 1.2% as questioning, and 1.0% as queer. Because Two-Spirit can represent a gender or sexual orientation (Anguksuar, 1997; Balsam et al., 2004), these identities were combined ($n=33$, 8.2%). Participants endorsed a wide range of relationship statuses, with 31.2% in a relationship, 29.2% being single, 27.9% cohabitating, 10.2% married, and 1.2% identifying as polyamorous. Most participants (83.5%) were currently enrolled in college, and some (12.7%) had recently

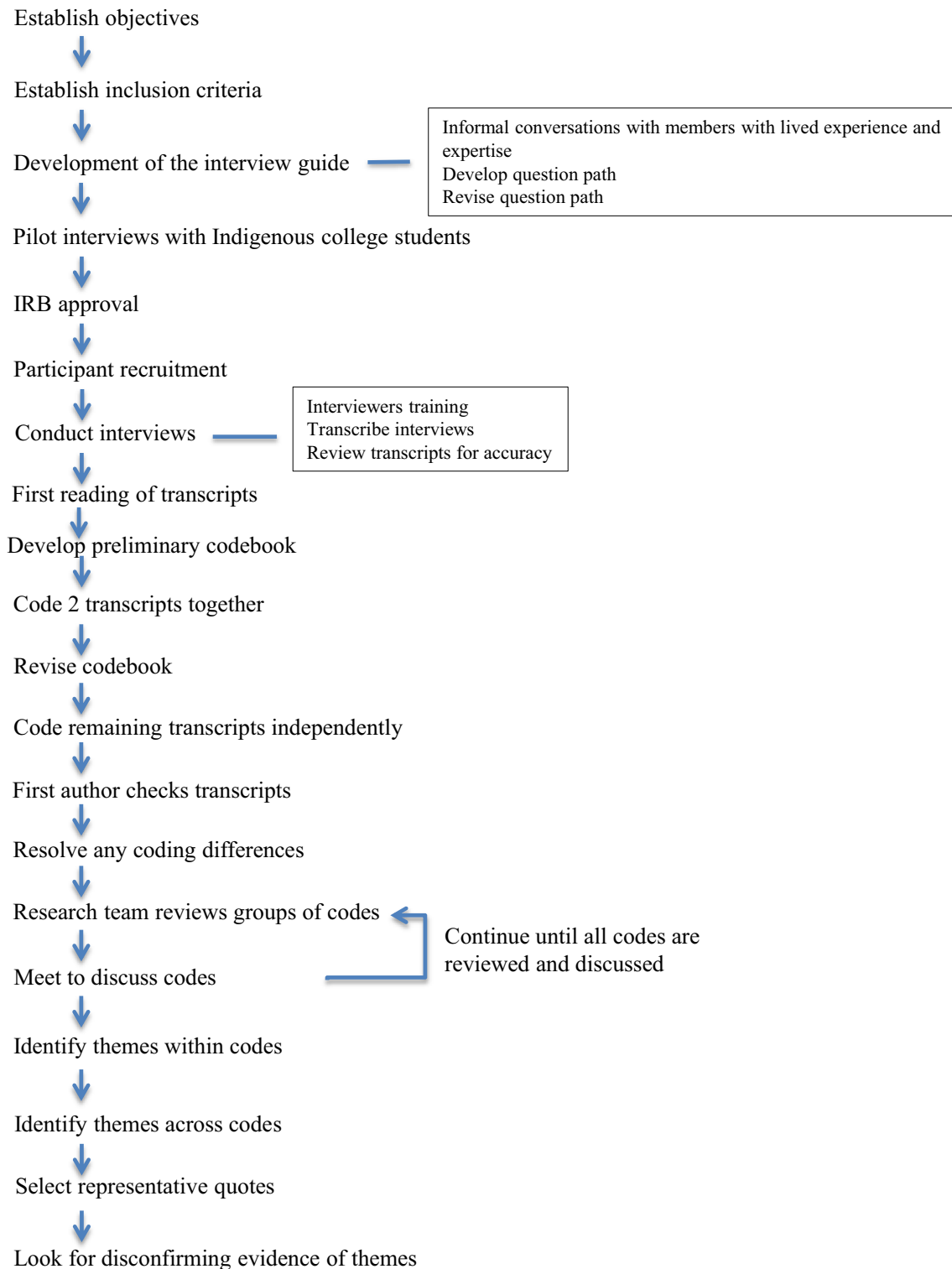


Fig. 1 The interview development, administration, and coding processes

graduated. Participants were closely split between previously (31.7%) or currently (27.7%) attending a TCU and previously (33.9%) or currently (21.7%) attending a PWI. Current and previous attendance were collapsed for data

analysis, as 2-year TCU to PWI attendance is a common pathway to degrees, whereas some TCUs are 4-year colleges. Thus, combining current/past attendance accounts for the variety of roles TCUs play. The average college size

Fig. 2 Multi-method study design

	Quantitative Study	Qualitative Study
Focus	Assess frequency and degree of mental health needs among Indigenous college students	Assess gaps and needs in currently available sexual assault prevention and intervention efforts
Methods	Indigenous individuals currently or recently (i.e., past 5 years) in college ($n=401$) completed an online survey including questions about risk and resilience factors for sexual violence and associated outcomes, acceptability and feasibility of an existing self-defense intervention program, and enculturation levels	Indigenous individuals currently or recently (i.e., past 5 years) in college ($n=14$) participated in individual interviews including questions about risk and resilience factors for sexual violence and associated outcomes, acceptability and feasibility of an existing self-defense intervention program, and enculturation levels
Questions	<ul style="list-style-type: none"> • How often do you think about the losses from the effects of physical and sexual abuse perpetrated against our people? • When you were growing up, did you have at least one caregiver with whom you felt safe? 	<ul style="list-style-type: none"> • Tell me about any cultural traditions in which you participate that you find empowering or uplifting. • What do you think can reduce or prevent sexual violence from occurring among Indigenous peoples?
Sampling	Participants were recruited via mass email, social media, and 2 SONA participant pools	Participants who completed the quantitative survey and consented to follow-up were contacted for an interview
Results	<ul style="list-style-type: none"> • Participants had low overall self-reported rates of substance use. • Participants had high levels of resilience. • Participants had high levels of self-reported traumatic experiences. 	<ul style="list-style-type: none"> • Systemic inequities, including substance use, place Indigenous peoples at higher risk for sexual violence. • Engaging with culture and community can protect against negative outcomes associated with substance use and sexual violence.

endorsed was 5000–9999 students. Considering the time growing up in various settings, the median response participants endorsed was 25–49% of their time spent living on a reservation ($M = 24.7\%$). When asked to rate perceived social standing on a scale from 1–10, the median response (25.1%) was 5; the mean perceived social standing was 5.79.

Drug Use

Most of the sample (62.6%) denied ever using any drugs and, thus, had DAST-10 scores of 0. Among those who had used drugs, scores on the DAST-10 were examined to indicate the degree of impairment related to drug use. According to the DAST-10, 3.2% of the sample endorsed a low degree of drug use problems (DAST-10 score 1–2), 12.2% of the sample

endorsed a moderate degree of drug use problems (DAST-10 score 3–5), 15.2% of the sample endorsed a substantial degree of drug use problems (DAST-10 score 6–8), and 6.5% of the sample endorsed severe drug use problems (DAST-10 scores ≥ 9). There were many demographic differences in drug-use-related problems, with Trans/Two-Spirit (66.7%) and asexual individuals (63.6%) reporting more drug-use-related problems compared to cisgender, heterosexual men (31.6%) and cisgender, and heterosexual women (30.3%), as did TCU attendees (41.7%) compared to non-TCU attendees (23.7%) and those from the Southeast Woodland tribes (31.3%) compared to those from Great Plains (21.4%) and Alaska Native tribes (9.4%). Drug-use-related problems were also weakly associated with time spent on the reservation and the size of the university attended.

Table 1 %Endorsed, mean, and SD values by gender and sexual orientation for key study variables

	Cisgender women, <i>n</i> = 277	Cisgender men, <i>n</i> = 57	Two-Spirit, <i>n</i> = 30	Bisexual cisgender women, <i>n</i> = 11	Bisexual cisgender men, <i>n</i> = 10	Asexual cisgender individuals, <i>n</i> = 11	Total sample, <i>n</i> = 401	Statistical tests for group differences
≥Moderate drug use problems (%)	30.3%	31.6%	66.7%	27.3%	30.0%	63.6%	33.9%	$\chi^2(6) = 21.142$, <i>p</i> = .002
Heavy alcohol use per week† (%)	24.9%	24.6%	—	27.3%	30.0%	—	—	—
Heavy alcohol use per month (%)	13.0%	26.3%	—	0.0%	30.0%	—	—	—
Benevolent childhood experiences (BCEs) (M, SD)	8.01, 2.11	7.32, 2.61	7.17, 1.77	7.82, 2.14	5.10, 2.92	7.00, 1.34	7.74, 2.22	<i>F</i> (6) = 4.036, <i>p</i> < .001
Resiliency (CD-RISC-10) (M, SD)	36.68 ^a , 7.67	32.11 ^a , 7.54	36.21, 7.36	35.09, 7.20	28.50, 7.52	37.91, 5.24	35.76, 7.74	<i>F</i> (6) = 4.518, <i>p</i> < .001
Historical trauma thought frequency (M, SD)	40.42 ^a , 14.09	39.54 ^b , 16.04	51.83 ^{ab} , 12.06	43.55, 6.80	50.20, 13.12	52.73, 11.23	41.69, 14.49	<i>F</i> (6) = 5.561, <i>p</i> < .001
Positive PTSD symptom screen (PCL-5) (%)	66.4%	75.4%	86.7%	90.9%	100.0%	100.0%	71.6%	$\chi^2(6) = 18.075$, <i>p</i> = .006
Depressive symptoms (PHQ-9) (M, SD)	10.82 ^{ab} , 7.74	11.61 ^c , 6.95	14.73 ^a , 5.17	12.18, 5.83	16.44, 7.28	18.27 ^{bc} , 2.45	11.60, 7.45	<i>F</i> (6) = 3.669, <i>p</i> < .001

Paired superscripts indicate statistical differences between groups according to Dunnett's T3

†Reported by gender

Alcohol Use

Similar to drug use findings, a large portion of the sample (52.4%) endorsed lifetime abstinence from alcohol. Descriptively, between one-quarter and one-third of participants endorsed heavy alcohol use. Those who attended TCUs endorsed consuming a greater number of drinks on a weekly basis (women = 33.1%; men = 48.7%) and monthly basis (women = 17.4%; men = 51.3%) than did those who never attended TCUs (weekly: women = 16.1%, men = 15.2%; and monthly: women = 7.3%, men = 15.2%). Indigenous women from Great Plains tribes (weekly: 34.8%; monthly: 17.4%) also endorsed consuming a greater number of drinks compared to Indigenous women from Alaska Natives tribes (weekly: 0.0%; monthly: 0.0%). Heavy alcohol use per week was weakly, but positively

correlated with time spent on a reservation for men and the size of the university attended for both women and men.

Benevolent Childhood Experiences

Those who attended TCUs endorsed experiencing significantly fewer BCEs than those who did not attend a TCU. Additionally, Great Plains tribal members endorsed experiencing significantly greater BCEs than Alaska Native and SE Woodlands tribal members.

Resiliency

CD-RISC-10 scores were higher for cisgender women than cisgender men and those who endorsed a White identity than those who did not. Among the tribal affiliations, those

Table 2 %Endorsed, mean, and SD values by tribal identity salient groups for key study variables

	Endorsed White identity, <i>n</i> = 21	Tribal college no, <i>n</i> = 167	Tribal college yes, <i>n</i> = 224	Alaska Native, <i>n</i> = 33	Great Plains, <i>n</i> = 29	SE Woodlands, <i>n</i> = 16	Statistical tests for group differences
Drug use problems (%)	28.6%	23.7% ^a	41.7% ^a	9.4% ^b	21.4% ^b	31.3% ^b	^a $\chi^2(1) = 14.168, p < .001$ ^b $\chi^2(3) = 12.50, p = .006$
Heavy alcohol use per week† (%)	W: 21.4% M: 25.0%	W: 16.1% ^a M: 15.2% ^b	W: 33.1% ^a M: 48.7% ^b	W: 0.0% ^c —	W: 34.8% ^c —	W: 30.0% ^c —	^a $\chi^2(1) = 10.833, p < .001$ ^b $\chi^2(1) = 9.063, p = .003$ ^c $\chi^2(3) = 10.156, p = .017$
Heavy alcohol use per month† (Z (%))	W: 14.3% M: 25.0%	W: 7.3% ^a M: 15.2% ^b	W: 17.4% ^a M: 51.3% ^b	W: 0.0% —	W: 17.4% —	W: 10.0% —	^a $\chi^2(1) = 6.532, p = .011$ ^b $\chi^2(1) = 10.295, p = .001$
Benevolent childhood experiences (BCEs) (M, SD)	8.15, 2.28	8.16 ^a , 2.18	7.43 ^a , 2.21	6.81 ^b , 1.34	7.54 ^b , 2.65	6.81 ^b , 2.59	^a $t(390) = 3.234, p = .001$ ^b $F(3) = 3.474, p = .016$
Resilience (CD-RISC-10) (M, SD)	40.20, 4.46 ^a	36.17, 7.37	35.47, 8.01	32.78 ^a , 3.55	39.79, 7.41	38.80 ^a , 5.10	[*] $F(1) = 7.025, p = .008$ ^a $F(3) = 5.094, p = .002$
Historical trauma thought frequency (M, SD)	36.80, 14.77	37.18 ^a , 13.76	45.05 ^a , 14.13	41.91, 10.31	47.00, 12.64	40.56, 18.85	^a $t(389) = 5.508, p < .001$
Positive PTSD symptom screen (%)	33.3% [*]	56.1% ^a	83.3% ^a	93.8% ^b	46.4% ^b	50.0% ^b	[*] $\chi^2(1) = 15.925, p < .001$ ^a $\chi^2(1) = 35.935, p < .001$ ^b $\chi^2(3) = 20.269, p < .001$
Depressive symptoms (PHQ-9) (M, SD)	10.30, 8.25	8.99 ^a , 6.51	13.54 ^a , 7.53	15.34 ^b , 4.17	9.98 ^b , 8.72	12.27, 7.10	^a $t(380.54) = 6.385, p < .001$ ^b $F(3) = 3.403, p = .018$

Paired superscripts indicate statistical differences between groups noted with the same letter according to Dunnett's T3

^{*}Compared to individuals who endorsed a non-White, exclusively Indigenous identity, *n* = 388

†Reported by gender

from the Great Plains and Southeast Woodland tribes endorsed greater resiliency scores than Alaska Native individuals. Resiliency scores were weakly, but positively, correlated with income.

Historical Loss Thinking

Out of a possible maximum of 60 (i.e., thinking about it several times daily), the average frequency score of

historical loss thinking for the present sample was 41.69, suggesting that, on average, participants thought about historical losses on a monthly basis. There were gender differences in the frequency of historical loss thinking, with Two-Spirit individuals thinking about historical losses more frequently than cisgender women, who thought about historical losses more frequently than cisgender men. Those who attended TCUs endorsed thinking about historical losses more often than those who did not attend TCUs. Furthermore, frequency of historical loss

Table 3 Correlations with key study variables

	Time on reservation	Income	Size of university
Drug use problems ^a (%)	.191*	.085	.194*
Heavy alcohol use per week, women ^a (%)	.132	.133*	.205*
Heavy alcohol use per week, men ^a (%)	.460*	.058	.265*
Heavy alcohol use per month, women ^a (%)	.359*	.130*	.356*
Heavy alcohol use per week, men ^a (%)	.460*	.077	.308*
Benevolent childhood experiences	-.338*	.084	-.196*
Resiliency (CD-RISC)	.132	.212*	.077
Historical trauma thought frequency	.270*	.113*	.197*
Positive PTSD symptom screen ^a (%)	.023	.016	.026
Depression symptoms (PHQ-9)	.253*	.086	.174*

* $p < .05$ ^aSpearman's rho reported

thinking was weakly, but positively, correlated with time spent on a reservation growing up, income, and size of the university attended.

PTSD Symptoms

The majority of the sample (71.6%) screened positive for current PTSD symptoms. This varied by gender and sexual identity, with bisexual women (90.9%) and men (100%), asexual (100%), and Two-Spirit individuals (86.7%) more likely to screen positive than cisgender men and women. Positive PTSD symptom screens were also associated with TCU attendance (83.3%) and were the highest for Alaska Native individuals (93.8%) compared to those of other tribal backgrounds.

Depression Symptoms

Most of the sample (66.6%) endorsed some degree of current depression symptoms, as indicated by PHQ-9 scores greater than 4 and indicated impairment related to these symptoms. Asexual individuals endorsed the greatest degree of current depression symptoms. Two-Spirit individuals also endorsed greater depression symptoms than cisgender women when compared to the overall sample. Those who attended TCUs endorsed greater depressive symptoms than those who did not. Alaska Native individuals endorsed greater depressive symptoms than Great Plains tribal members and SE Woodlands tribal members. Depression symptom scores were weakly positively correlated with time spent on a reservation and the size of the university attended.

Qualitative Findings

Study Sample

In total, 14 Indigenous college students participated in follow-up semi-structured qualitative interviews between August 2021 and April 2022. We did not collect demographic information beyond the demographic questionnaire aside from tribal affiliation to ensure greater confidentiality for participants given the sensitive nature of the interview questions. Specific tribal affiliations will not be identified to protect participants' anonymity (Norton & Manson, 1996). As with our quantitative findings, we have aggregated participants' tribal affiliations to provide context while still protecting their identities. Of the 14 interview participants, two participants chose not to disclose their tribal affiliation, four were members of Southeast Woodlands tribal nations, five were members of Great Plains tribal nations, and three were members of North-East Woodlands tribal nations.

Themes

Across the 14 student interviews, the two themes identified were: (1) systemic inequities that place Indigenous Peoples at higher risk for sexual violence and (2) engaging with culture and community as protective factors against negative outcomes associated with substance misuse and sexual violence. An additional two subthemes were identified within the first theme: (1) using substances to cope with trauma and (2) barriers to care that result from systemic inequity.

Theme 1: Systemic inequities that place Indigenous Peoples at higher risk for sexual violence. Several participants identified systemic inequities that contribute to

elevated risk for substance use and sexual violence. Inequities that affect Indigenous communities in both college and tribal community settings included poverty, lack of resources, lack of solutions, suppression, invisibility, and indifference to Indigenous issues outside of Indigenous communities.

I do think that being a victim of historical trauma, you're just more likely to have all the risk factors for these things, like you're more likely to be poor, you're more likely to be from an abusive family or someone that you know live with someone that abuses substances, which then affects the way that you interact with other people and so maybe you're more likely to become a victim of abuse, because that's what you've been around. Or maybe you're more likely to abuse substances, which puts you into situations where you're more likely to be sexually assaulted. I just think that it's like a huge trickle-down effect that is like exposing these people to risk factors that puts them in an unfair disadvantage to where, you know, someone that's white is not dealing with all of those historical problems, like you can still be poor, and you can still have an abusive family or still have someone that is abusing substances.—Participant #2

Theme 1, subtheme 1: Using substances to cope with colonization, historical trauma, and contemporary trauma, including sexual violence. Several participants spontaneously mentioned substance misuse, particularly alcohol misuse, as a risk factor for sexual violence, regarded substance misuse as problematic, and identified cyclical relations between colonization, historical trauma, and substance misuse patterns across generations of their families and communities.

[Historical trauma] is used a lot in pain, with alcoholism and addiction and sexual abuse. That runs deep. That runs heavy. It's the perpetrator of most of the damage for the Native American communities. Yeah, because like...what they did to the kids at the boarding schools, that still has its lasting effects to us there to a lot of people. Yeah, it's there. It's definitely there.—Participant #6

Theme 1, subtheme 2: Some Indigenous communities are deeply affected by systemic inequities that act as barriers to care. Participants identified several systemic inequities as risk factors (e.g., poverty, lack of helping resources, problems within the criminal justice system, suppression of Indigenous issues, victim-blaming, limited healthcare access, rundown living conditions, poor education systems, and limited access to reliable transportation) that contribute to poor health and mental health outcomes for Indigenous communities, placing them at higher risk

for substance misuse and sexual violence. Several participants mentioned that these systemic inequities are even greater (i.e., more prevalent) among Indigenous communities residing on reservations.

The time, the resources and just like transportation and ability to get there. I work at [mental health center] with a large population of our people, our clients are Native American and talking with them about their families, and not even just them with their – sorry [shuffling]. Not even just their families too, it's transportation's a really huge part, especially for people that are on the reservations, again.—Participant #3

Theme 2: Cultural and community engagement can be protective. Several participants identified that engaging with community aspects (e.g., connection to Elders and others in tribal leadership, connection to family, having a support system) can protect against sexual violence and substance misuse. Several participants also identified traditional cultural engagement (e.g., attending/participating in powwows, ceremonies, smudging, beadwork, and other forms of artistic expression, such as dancing) as sources of empowerment that can protect against sexual violence and substance misuse.

I don't believe you take and partake—I've never partook—I've never even smoked a cigarette, let alone did any type of drugs, so that part's good. But I just feel... my own personal opinion, you don't do those things when you partake in those ceremonies...—Participant #5

Discussion

Indigenous populations are among the most invisible in our society, and the breadth of research on Indigenous mental health needs is limited at best. The present research examines the risk and protective factors Indigenous young people face related to substance misuse and sexual violence to help inform prevention efforts. Despite nearly three-fourths ($N=287$) of the current sample endorsing current PTSD symptoms, over half denied ever using alcohol or drugs in their lifetime. This is consistent with previous research that reports elevated rates of abstinence from alcohol and drugs among American Indian/Alaska Native (AI/AN) populations (Cunningham et al., 2016; Fish et al., 2017; Greenfield et al., 2018; Mohatt et al., 2004). Approximately one-third ($N=136$) of participants endorsed moderate drug use, with higher use among Trans and Two-Spirit Indigenous Peoples. While there is limited research on rates of drug use among Trans and Two-Spirit Indigenous Peoples, one study examining the impacts of

historical and contemporary trauma among Two-Spirit individuals found that former boarding school attendees reported higher rates of current illicit drug and alcohol use disorder compared to non-boarding school attendees (Evans-Campbell et al., 2012).

Less than one-third of participants endorsed heavy alcohol use per week ($N=88$) and per month ($N=54$), with more heavy alcohol use occurring for Indigenous college students who attended TCUs. This finding is inconsistent with prior literature, which has suggested that Indigenous students who attend PWIs and other non-TCU institutions have more serious alcohol-related problems compared to Indigenous students who attend TCUs (Duran et al., 2013; Ward & Ridolfo, 2011). Following the National Institute on Alcohol Abuse and Alcoholism guidelines for heavy alcohol use (> 5 drinks for men daily, > 15 drinks for men weekly; > 4 drinks for women daily, > 7 drinks for women weekly), current findings indicate that our sample of Indigenous college students is at a lower risk for heavy alcohol use (52.4% endorsed lifetime abstinence from alcohol; between 1/3 and 1/4 endorsed heavy alcohol use, varied by sex/gender) and associated negative outcomes compared to national samples of predominantly non-Hispanic White college students, on average (U.S. Department of Health and Human Services, 2020). The overall low substance use is a bit counterintuitive given the high rates of PTSD symptoms among this sample (71.6%), as PTSD and substance use are commonly associated in other Indigenous samples and other samples in general (Spillane et al., 2022; Tripp et al., 2019). However, this sample may also experience unique privileges as all participants were currently or recently enrolled in college, which may be indicative of having more resources and/or access to resources. Participants self-selected to enroll in the study; therefore, they likely had access to technology and time necessary to complete the study. Our sample demonstrated comparable high levels of BCEs with one study examining BCEs with Indigenous populations (Herman et al., 2023). Collectively, low substance use in this sample may reflect aspects of strengths, resiliency, and positive coping through culture and community described by the present sample in their interviews.

Historical trauma and loss were salient among this sample. Participants thought about historical loss at a moderate rate, and it emerged as a common theme in the interviews. Interview participants frequently linked historical trauma and loss with systemic inequities that have contributed to barriers to care and maladaptive coping through substances and violence. This is consistent with historical trauma theory, which has posited that substance misuse among Indigenous communities could be used as a means of self-medicating to numb emotional pain associated with historical trauma (Brave Heart, 2003). Qualitative interview participants suggested that this finding may be even more pronounced on

reservations, and participants identified an urgent need for increased education and resources for tribal communities relevant to substance misuse and sexual violence, improved comprehensive sex education, and firmer legislative policy and enforcement against sexual violence. Prior research has called for equity in treatment of substance use for Indigenous Peoples, particularly through culturally tailored approaches to focus on strengths and cultivate resilience (Urbanoski, 2017). Other literature has underscored the importance of trauma-informed care for Indigenous Peoples in substance use prevention and intervention approaches (Pride et al., 2021). Sex education research among Indigenous Peoples is limited. A qualitative study with members of a tribal nation in the Gulf Coast by Liddell and Herzberg (2023) examined participants' experiences with sexual health education and communication. Participants reported gaps in sexual health education and indicated an urgent need for formal education and increased communication within families (Liddell & Herzberg, 2023).

Overall, high levels of resilience and BCEs were observed among this sample, both in the quantitative survey and qualitative interviews. A greater number of BCEs were observed among participants who attended TCUs and those who were members of Great Plains tribal nations, which is consistent with recent work (Herman et al., 2023). BCE research is an emerging area of investigation, and there is a dearth of literature in this area relevant to Indigenous Peoples. It is currently unclear if greater BCEs will lead to a reduction in the impact of ACEs for Indigenous Peoples. Future research should aim to investigate these relations among Indigenous Peoples. Regarding resilience, cisgender women, those who endorsed a White identity in addition to an Indigenous identity, and members of Great Plains and Southeast Woodland tribal nations displayed higher resilience scores. The finding that those who endorsed a White identity and displayed higher resilience scores may contradict prior studies that have reported traditional cultural connectedness as a protective factor to promote resilience (Fish et al., 2017; Freeman, 2019). In qualitative interviews, participants identified community support and cultural connectedness as protective factors that can foster resilience, which is consistent with prior studies (Fish et al., 2017; Lines & Jardine, 2019; Wexler, 2014). Taken together, these findings provide new insights on resiliency factors (e.g., community support, cultural connectedness) for Indigenous college students that can serve to protect against negative outcomes associated with sexual violence (i.e., substance use). Future research should continue to investigate individual differences in resiliency factors among Indigenous Peoples to better understand strategies to promote strengths and resilience.

This study has several limitations that should be addressed in future research. Initial recruitment in OK

and ND yielded limited responses. This may have been due to factors related to the COVID-19 pandemic, which disproportionately impacted Indigenous communities worldwide (Boehmer et al., 2022). Research mistrust may have also been implicated in lower response rates during initial recruitment efforts, as Indigenous Peoples have elevated rates of research mistrust compared to the general population due to a history of harmful and exploitative research practices (Campbell, 2004). We were able to increase responses by expanding to national recruitment, but at the cost of thereby including a more heterogeneous sample. There are 574 federally recognized Indigenous tribes in the USA alone (National Congress of American Indians, 2021), and although they may share some similarities, they each have distinctive cultures and traditions (Villegas et al., 2016). An additional limitation is that our sample was predominantly comprised of cisgender Indigenous college women ($n = 277$; 69.08%), and future research should include larger samples of men, queer, Two-Spirit, and nonbinary individuals. Therefore, our results may not generalize to all Indigenous Peoples of all genders in North America.

As we recruited broadly through social media, our quantitative survey became more vulnerable to fraudulent responses (i.e., foreign and duplicate IP addresses, duplicated response patterns, and surveys completed in unrealistically short amounts of time, missing large amounts of responses, or multiple responses originating at the same time or within seconds of each other), which were difficult to discern at times. In an effort to prevent fraudulent responses, we implemented criteria of IP addresses and latitude and longitude consistent with the continental USA, duration of at least 15 min to complete the survey, and free text responses that were not nonsensical or duplicates with other survey responses in April 2021, approximately 3 weeks after we launched the survey. Although we established criteria to try to eliminate fraudulent responses from the national convenience survey data, it is possible we were unable to identify and categorize all responses with complete accuracy. Future research would benefit from setting specific, strict response criteria from the outset and implementing relevant attention checks. Furthermore, most of the quantitative survey measures were not adapted for Indigenous communities, with the exception of the AHLS. Future research should investigate the invariance and utility of existing measures for Indigenous populations, as well as develop measures to assess resilience, substance use, and risk factors, for sexual violence with Indigenous communities. All participants were currently or recently enrolled in a college and self-selected into the study; therefore, results should be interpreted with caution, as findings will likely not generalize to all Indigenous Peoples and may be prone to self-selection bias. Finally,

this was a cross-sectional study, such that the quantitative survey data were collected to understand participants' current and prior experiences at a single point in time, and thus, we were unable to establish any temporal relations between sexual violence, substance use, and resiliency factors within this sample. As this area of research moves forward, longitudinal studies could help explain the role of cultural and community protective factors in substance misuse, sexual violence, and resilience for Indigenous young adults.

Further research into the impact of historical trauma and historical trauma responses is important to understanding the many ways Indigenous communities are impacted by systemic inequities across a wide range of outcomes. Despite participants identifying the need for more and better resources to reduce substance misuse and sexual violence, systemic inequities create barriers that further contribute to substance misuse, sexual violence, and negative social and health outcomes. Needs reported by participants suggest that low-cost, lay-provider-based or peer-led resources may be especially helpful for Indigenous communities and, particularly, reservation-based communities. Accessible, affordable, and culturally relevant sexual health curricula may help Indigenous youth to engage in healthy, safe sex practices (e.g., Craig Rushing et al., 2018; Santelli et al., 2018), which in turn, may help to prevent sexual abuse from occurring among future Indigenous generations.

Future work may also benefit from capitalizing on existing strengths by incorporating resilience (e.g., benevolent childhood experiences (BCEs)) (Hamby et al., 2021) into culturally relevant intervention and prevention efforts with Indigenous populations. Regarding sexual assault-related interventions, Flip the Script with Enhanced Assess, Acknowledge, Act (EAAA; Senn, 2011) is a youth, peer-led program with cultural flexibility built into the program and may be a helpful resource. However, Flip the Script has been designed for teens and young adults; given the high risks Indigenous Peoples face, examining how to offer this program for older age groups may be necessary to improve community health. In the case of substance use, a focus on lay-provider and low-cost interventions would suggest 12-step facilitation programs. For future sexual assault interventions and preventions with Indigenous communities, current data suggest that these efforts are most promising if they are Indigenous-led and provided in Indigenous settings (e.g., tribal community centers (TCUs)).

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Declarations

Ethics Approval All procedures performed in this study were in accordance with the ethical standards of the University of North Dakota Institutional Review Board (UND IRB; #IRB0002530; #IRB0003554) as the IRB of record and with the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Conflict of Interest The authors declare no competing interests.

References

- Abbey, A., Zawacki, T., Buck, P. O., Clinton, A. M., & McAuslan, P. (2004). Sexual assault and alcohol consumption: What do we know about their relationship and what types of research are still needed? *Aggression and Violent Behavior, 9*(3), 271–303.
- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy, White Women. *Health Psychology, 19*(6), 586–592.
- Almeida, T. C., Guarda, R., & Cunha, O. (2021). Positive childhood experiences and adverse experiences: Psychometric properties of the Benevolent Childhood Experiences Scale (BCEs) among the Portuguese population. *Child Abuse & Neglect, 120*, 105179.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Anguksuar L.R. (1997). A postcolonial perspective on western [mis] conceptions of the cosmos and the restoration of indigenous taxonomies. In S. Jacobs, W. Thomas (Navajo), & S. Lang (Eds.), *Two-spirit people: Native American gender identity, sexuality, and spirituality* (pp. 217–222). Chicago: University of Illinois Press.
- Arthur, M. W., Hawkins, J. D., Pollard, J. A., Catalano, R. F., & Bagliani, A. J., Jr. (2002). Measuring risk and protective factors for use, delinquency, and other adolescent problem behaviors: The Communities That Care Youth Survey. *Evaluation Review, 26*(6), 575–601.
- Ashbaugh, A. R., Houle-Johnson, S., Herbert, C., El-Hage, W., & Brunet, A. (2016). Psychometric validation of the English and French versions of the posttraumatic stress disorder checklist for DSM-5 (PCL-5). *PLoS One, 11*(10), e0161645.
- Balsam, K. F., Huang, B., Fieland, K. C., Simoni, J. M., & Walters, K. L. (2004). Culture, trauma, and wellness: A comparison of heterosexual and lesbian, gay, bisexual, and two-spirit Native Americans. *Cultural Diversity and Ethnic Minority Psychology, 10*(3), 287.
- Beals, J., Novins, D. K., Whitesell, N. R., Spicer, P., Mitchell, C. M., Manson, S. M., American Indian Service Utilization, P. E., Risk, & Team, P. F. P. (2005). Prevalence of mental disorders and utilization of mental health services in two American Indian reservation populations: Mental health disparities in a national context. *American Journal of Psychiatry, 162*(9), 1723–1732.
- Beals, J., Belcourt-Dittloff, A., Garroutte, E. M., Croy, C., Jervis, L. L., Whitesell, N. R., Mitchell, C. M., & Manson, S. M. (2013). Trauma and conditional risk of posttraumatic stress disorder in two American Indian reservation communities. *Social Psychiatry and Psychiatric Epidemiology, 48*(6), 895–905.
- Benson, B. J., Gohm, C. L., & Gross, A. M. (2007). College women and sexual assault: The role of sex-related alcohol expectancies. *Journal of Family Violence, 22*, 341–351.
- Boehmer, T. K., Koumans, E. H., Skillen, E. L., et al. (2022). Racial and ethnic disparities in outpatient treatment of COVID-19 – United States, January – July 2022. *MMWR. Morbidity and Mortality Weekly Report, 2022*(71), 1359–1365. <https://doi.org/10.15585/mmwr.mm7143a2>
- Brave Heart, M. Y. H. (2003). The historical trauma response among natives and its relationship with substance abuse: A Lakota illustration. *Journal of Psychoactive Drugs, 35*(1), 7–13.
- Brave Heart, M. Y. H., Chase, J., Elkins, J., & Altschul, D. B. (2011). Historical trauma among Indigenous Peoples of the Americas: Concepts, research, and clinical considerations. *Journal of Psychoactive Drugs, 43*(4), 282–290.
- Brockie, T. N., Dana-Sacco, G., Wallen, G. R., Wilcox, H. C., & Campbell, J. C. (2015). The relationship of adverse childhood experiences to PTSD, depression, poly-drug use and suicide attempt in reservation-based Native American adolescents and young adults. *American Journal of Community Psychology, 55*(3–4), 411–421.
- Campbell, J. C. (2004). Helping women understand their risk in situations of intimate partner violence. *Journal of Interpersonal Violence, 19*(12), 1464–1477.
- Campbell-Sills, L., & Stein, M. B. (2007). Psychometric analysis and refinement of the Connor-Davidson Resilience Scale (CD-RISC): Validation of a 10-item measure of resilience. *Journal of Traumatic Stress: Official Publication of the International Society for Traumatic Stress Studies, 20*(6), 1019–1028.
- Chartier, K., & Caetano, R. (2010). Ethnicity and health disparities in alcohol research. *Alcohol Research & Health, 33*(1–2), 152.
- Cole, A. B., Armstrong, C. M., Giano, Z. D., & Hubach, R. D. (2022). An update on ACEs domain frequencies across race/ethnicity and sex in a nationally representative sample. *Child Abuse & Neglect, 129*, 105686.
- Collins, R. L., Parks, G. A., & Marlatt, G. A. (1985). Social determinants of alcohol consumption: The effects of social interaction and model status on the self-administration of alcohol. *Journal of Consulting and Clinical Psychology, 53*(2), 189.
- Collins, A. B., Boyd, J., Cooper, H. L., & McNeil, R. (2019). The intersectional risk environment of people who use drugs. *Social Science & Medicine, 234*, 112384.
- Compton, W. M., Thomas, Y. F., Stinson, F. S., & Grant, B. F. (2007). Prevalence, correlates, disability, and comorbidity of DSM-IV drug abuse and dependence in the United States: Results from the national epidemiologic survey on alcohol and related conditions. *Archives of General Psychiatry, 64*(5), 566–576.
- Connor, K. M., & Davidson, J. R. (2003). Development of a new resilience scale: The Connor-Davidson Resilience Scale (CD-RISC). *Depression and Anxiety, 18*(2), 76–82.
- Craig Rushing, S., Stephens, D., Shegog, R., Torres, J., Gorman, G., Jessen, C., Gaston, A., Williamson, J., Tingey, L., & Lee, C. (2018). Healthy native youth: Improving access to effective, culturally-relevant sexual health curricula. *Frontiers in Public Health, 6*, 225.
- Cunningham, J. K., Solomon, T. A., & Muramoto, M. L. (2016). Alcohol use among Native Americans compared to whites: Examining the veracity of the ‘Native American elevated alcohol consumption’ belief. *Drug and Alcohol Dependence, 160*, 65–75.

- Cunningham, J. K., Solomon, T. G. A., Ritchey, J., & Muramoto, M. L. (2022). Dual diagnosis and alcohol/nicotine use disorders: Native American and White hospital patients in 3 states. *American Journal of Preventive Medicine*, 62(2), e107–e116.
- Currie, C., Wild, T. C., Schopflocher, D., & Laing, L. (2015). Racial discrimination, post-traumatic stress and prescription drug problems among Aboriginal Canadians. *Canadian Journal of Public Health*, 106(6), e382–e387.
- Dardis, C. M., Ullman, S. E., Rodriguez, L. M., Waterman, E. A., Dworkin, E. R., & Edwards, K. M. (2021). Bidirectional associations between alcohol use and intimate partner violence and sexual assault victimization among college women. *Addictive Behaviors*, 116, 106833.
- Dedoose Version 9.0.62. (2022). Sociocultural Research Consultants, LLC. <http://www.dedoose.com>.
- Duran, B., Magarati, M., Parker, M., Egashira, L., & Kipp, B. J. (2013). Working together: Wellness and academic achievement at tribal colleges and universities. *Tribal College Journal of American Indian Higher Education*, 2, n2.
- Dworkin, E. R., Sessarego, S. N., Pittenger, S. L., Edwards, K. M., & Banyard, V. L. (2017). Rape myth acceptance in sexually assaulted adolescents' school contexts: Associations with depressed mood and alcohol use. *American Journal of Community Psychology*, 60(3–4), 516–526.
- Enoch, M. A., & Albaugh, B. J. (2017). Genetic and environmental risk factors for alcohol use disorders in American Indians and Alaskan Natives. *The American Journal on Addictions*, 26(5), 461–468.
- Evans-Campbell, T. (2008). Historical trauma in American Indian/Native Alaska communities: A multilevel framework for exploring impacts on individuals, families, and communities. *Journal of Interpersonal Violence*, 23(3), 316–338.
- Evans-Campbell, T., Lindhorst, T., Huang, B., & Walters, K. L. (2006). Interpersonal violence in the lives of urban American Indian and Alaska Native women: Implications for health, mental health, and help-seeking. *American Journal of Public Health*, 96(8), 1416–1422.
- Evans-Campbell, T., Walters, K. L., Pearson, C. R., & Campbell, C. D. (2012). Indian boarding school experience, substance use, and mental health among urban two-spirit American Indian/Alaska Natives. *The American Journal of Drug and Alcohol Abuse*, 38(5), 421–427.
- Fish, J., Livingston, J. A., VanZile-Tamsen, C., & Wolf, D. A. P. S. (2017). Victimization and substance use among Native American college students. *Journal of College Student Development*, 58(3), 413–431.
- Freeman, B. M. (2019). Promoting global health and well-being of Indigenous youth through the connection of land and culture-based activism. *Global Health Promotion*, 26(3), 17–25.
- Fuentes, L., Asselin, H., Bélisle, A. C., & Labra, O. (2020). Impacts of environmental changes on well-being in Indigenous communities in eastern Canada. *International Journal of Environmental Research and Public Health*, 17(2), 637.
- Garland, E. L., Pettus-Davis, C., & Howard, M. O. (2013). Self-medication among traumatized youth: Structural equation modeling of pathways between trauma history, substance misuse, and psychological distress. *Journal of Behavioral Medicine*, 36(2), 175–185.
- Goins, R. T., Gregg, J. J., & Fiske, A. (2013). Psychometric properties of the Connor-Davidson Resilience Scale with older American Indians: The native elder care study. *Research on Aging*, 35(2), 123–143.
- Goldstein, R. B., Compton, W. M., Pulay, A. J., Ruan, W. J., Pickering, R. P., Stinson, F. S., & Grant, B. F. (2007). Antisocial behavioral syndromes and DSM-IV drug use disorders in the United States: Results from the National Epidemiologic Survey on alcohol and related conditions. *Drug and Alcohol Dependence*, 90(2–3), 145–158.
- Gone, J. P., Hartmann, W. E., Pomerville, A., Wendt, D. C., Klem, S. H., & Burrage, R. L. (2019). The impact of historical trauma on health outcomes for Indigenous populations in the USA and Canada: A systematic review. *American Psychologist*, 74(1), 20.
- Greenfield, B. L., Venner, K. L., Tonigan, J. S., Honeyestewa, M., Hubbell, H., & Bluehorse, D. (2018). Low rates of alcohol and tobacco use, strong cultural ties for Native American college students in the Southwest. *Addictive Behaviors*, 82, 122–128.
- Hamby, S., Elm, J. H., Howell, K. H., & Merrick, M. T. (2021). Recognizing the cumulative burden of childhood adversities transforms science and practice for trauma and resilience. *American Psychologist*, 76(2), 230.
- Hawkins, E. H., Cummins, L. H., & Marlatt, G. A. (2004). Preventing substance abuse in American Indian and Alaska native youth: Promising strategies for healthier communities. *Psychological Bulletin*, 130(2), 304.
- Hawkins, E. H., & Blume, A. W. (2002). Loss of sacredness: A history of alcohol use and health services for American Indians in the United States. In P. D. Mail, S. Heurtin-Roberts, S. E. Martin, & J. Howard (Eds.), *Alcohol use among American Indians and Alaska Natives: Multiple perspectives on a complex issue* (pp. 25–46). National Institute of Alcohol and Alcoholism Research Monograph Series, Research Monograph #37. Rockville, MD: United States Department of Health and Human Services.
- Heck, J. L. (2018). Screening for postpartum depression in American Indian/Alaska Native women: A comparison of two instruments. *American Indian and Alaska Native Mental Health Research (Online)*, 25(2), 74–102.
- Herman, K., Hautala, D., Aulandez, K., & Walls, M. (2023). The resounding influence of benevolent childhood experiences. *Transcultural Psychiatry* (in press).
- Hoyt, T., & Yeater, E. A. (2010). Comparison of posttraumatic stress disorder symptom structure models in Hispanic and White college students. *Psychological Trauma: Theory, Research, Practice, and Policy*, 2(1), 19–30.
- Jacobsen, L. K., Southwick, S. M., & Kosten, T. R. (2001). Substance use disorders in patients with posttraumatic stress disorder: A review of the literature. *American Journal of Psychiatry*, 158(8), 1184–1190.
- Kruger, Rodgers, R. F., Long, S. J., & Lowy, A. S. (2019). Individual interviews or focus groups? Interview format and women's self-disclosure. *International Journal of Social Research Methodology*, 22(3), 245–255. <https://doi.org/10.1080/13645579.2018.1518857>
- Landen, M., Roeber, J., Naimi, T., Nielsen, L., & Sewell, M. (2014). Alcohol-attributable mortality among American Indians and Alaska Natives in the United States, 1999–2009. *American Journal of Public Health*, 104(Suppl 3), S343–S349. <https://doi.org/10.2105/AJPH.2013.301648>
- Liddell, J. L., & Herzberg, J. (2023). “They didn’t talk about stuff like that”: Sexual health education experiences of a native American tribe in the Gulf Coast. *American Journal of Sexuality Education*, 18(2), 231–260.
- Lines, L. A., & Jardine, C. G. (2019). Connection to the land as a youth-identified social determinant of Indigenous Peoples' health. *BMC Public Health*, 19(1), 1–13.
- Lopez, S. V., Leffingwell, T. R., & Cole, A. B. (2022). Social norms of alcohol use among American Indian/Alaska Native college students. *Psychology of Addictive Behaviors, No Pagination Specified-No Pagination Specified*. <https://doi.org/10.1037/adb0000835>
- Lucchesi, A., & Echo-Hawk, A. (2018). Missing and murdered Indigenous women and girls: A snapshot of data from 71 urban cities in the United States. Available at: *Our Bodies Our Stories*. Accessed October 23, 2022.

- Lujan, C., DeBruyn, L. M., May, P. A., & Bird, M. E. (1989). Profile of abused and neglected American Indian children in the Southwest. *Child Abuse & Neglect*, *13*(4), 449–461.
- Manson, S. M., Beals, J., Klein, S. A., Croy, C. D., & Team, A. S. (2005). Social epidemiology of trauma among 2 American Indian reservation populations. *American Journal of Public Health*, *95*(5), 851–859.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2018). *Qualitative data analysis: A methods sourcebook*. Sage publications.
- Mohatt, G. V., Rasmus, S. M., Thomas, L., Allen, J., Hazel, K., & Hensel, C. (2004). “Tied together like a woven hat.” Protective pathways to Alaska native sobriety. *Harm Reduction Journal*, *1*(1), 1–12.
- Murphy-Oikonen, J., Chambers, L., McQueen, K., Hiebert, A., & Miller, A. (2022). Sexual assault: Indigenous women’s experiences of not being believed by the police. *Violence against Women*, *28*(5), 1237–1258.
- Myhra, L. L. (2011). “It runs in the family”: Intergenerational transmission of historical trauma among urban American Indians and Alaska natives in culturally specific sobriety maintenance programs. *American Indian and Alaska Native Mental Health Research (Online)*, *18*(2), 17.
- Myhra, L. L., & Wieling, E. (2014a). Intergenerational patterns of substance abuse among urban American Indian families. *Journal of Ethnicity in Substance Abuse*, *13*(1), 1–22.
- Myhra, L. L., & Wieling, E. (2014b). Psychological trauma among American Indian families: A two-generation study. *Journal of Loss and Trauma*, *19*(4), 289–313.
- National Congress of American Indians. (2021). *Research policy update: A first look at the 2020 Census American Indian/Alaska Native Redistricting Data*. Retrieved November 29, 2022, from https://www.ncai.org/policy-research-center/research-data/prc-publications/Overview_of_2020_AIAN_Redistricting_Data_FINAL_8_13_2021.pdf
- Norton, I. M., & Manson, S. M. (1996). Research in American Indian and Alaska Native communities: Navigating the cultural universe of values and process. *Journal of Consulting and Clinical Psychology*, *64*(5), 856.
- Oetzel, J., & Duran, B. (2004). Intimate partner violence in American Indian and/or Alaska Native communities: A social ecological framework of determinants and interventions. *American Indian and Alaska Native Mental Health Research the Journal of the National Center*, *11*(3), 49–68.
- Presley, C. A., Meilman, P. W., Cashin, J. R., & Leichter, J. S. (1997). *Alcohol and drugs on American college campuses: Issues of violence and harassment*. Carbondale, IL: Core Institute, Southern Illinois University at Carbondale.
- Price, M., Szafranski, D. D., van Stolk-Cooke, K., & Gros, D. F. (2016). Investigation of abbreviated 4 and 8 item versions of the PTSD Checklist 5. *Psychiatry Research*, *239*, 124–130.
- Pride, T., Lam, A., Swansburg, J., Seno, M., Lowe, M. B., Bomfim, E., Toombs, E., Marsan, S., LoRosso, J., Roy, J., Gurr, E., LaFontaine, J., Paul, J., Burack, J. A., Mushquash, C., Stewart, S. H., & Wendt, D. C. (2021). Trauma-informed approaches to substance use interventions with Indigenous Peoples: A scoping review. *Journal of Psychoactive Drugs*, *53*(5), 460–473.
- Pumphrey-Gordon, J. E., & Gross, A. M. (2007). Alcohol consumption and females’ recognition in response to date rape risk: The role of sex-related alcohol expectancies. *Journal of Family Violence*, *22*(6), 475–485.
- Risser, H. J., Hetzel-Riggin, M. D., Thomsen, C. J., & McCanne, T. R. (2006). PTSD as a mediator of sexual revictimization: The role of reexperiencing, avoidance, and arousal symptoms. *Journal of Traumatic Stress*, *19*(5), 687–698.
- Ross, A., Dion, J., Cantinotti, M., Collin-Vézina, D., & Paquette, L. (2015). Impact of residential schooling and of child abuse on substance use problem in Indigenous Peoples. *Addictive Behaviors*, *51*, 184–192.
- Santelli, J. S., Grilo, S. A., Choo, T. H., Diaz, G., Walsh, K., Wall, M., Hirsch, J. S., Wilson, P. A., Gilbert, L., Khaun, S., & Mellins, C. A. (2018). Does sex education before college protect students from sexual assault in college? *PLoS ONE*, *13*(11), e0205951.
- Senn, C. Y. (2011). An imperfect feminist journey: Reflections on the process to develop an effective sexual assault resistance programme for university women. *Feminism & Psychology*, *21*(1), 121–137. <https://doi.org/10.1177/0959353510386094>
- Skewes, M. C., & Blume, A. W. (2019). Understanding the link between racial trauma and substance use among American Indians. *American Psychologist*, *74*(1), 88.
- Skinner, H. A. (1982). The drug abuse screening test. *Addictive Behaviors*, *7*(4), 363–371.
- Soto, C., West, A. E., Ramos, G. G., & Unger, J. B. (2022). Substance and behavioral addictions among American Indian and Alaska Native populations. *International Journal of Environmental Research and Public Health*, *19*(5), 2974.
- Spillane, N. S., Schick, M. R., Kirk-Provencher, K. T., Nalven, T., Goldstein, S. C., Crawford, M. C., & Weiss, N. H. (2022). Trauma and substance use among indigenous peoples of the United States and Canada: A scoping review. *Trauma, Violence & Abuse*, *15*248380221126184. Advance online publication. <https://doi.org/10.1177/15248380221126184>
- Tripp, J. C., Jones, J. L., Back, S. E., & Norman, S. B. (2019). Dealing with complexity and comorbidity: Comorbid PTSD and substance use disorders. *Current Treatment Options in Psychiatry*, *6*, 188–197.
- Tucker, R. P., Wingate, L. R., O’Keefe, V. M., Hollingsworth, D. W., & Cole, A. B. (2016). An examination of historical loss thinking frequency and rumination on suicide ideation in American Indian young adults. *Suicide and Life-Threatening Behavior*, *46*(2), 213–222.
- U.S. Department of Health and Human Services. (2020). *Drinking levels defined*. National institute on alcohol abuse and alcoholism. Retrieved August 22, 2023, from <https://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking>
- U.S. Department of Health and Human Services. (2023). *Alcohol use in the United States: Age groups and demographic characteristics*. National institute on alcohol abuse and alcoholism. Retrieved August 22, 2023, from <https://www.niaaa.nih.gov/alcohols-effects-health/alcohol-topics/alcohol-facts-and-statistics/alcohol-use-united-states-age-groups-and-demographic-characteristics>
- Urbanoski, K. A. (2017). Need for equity in treatment of substance use among Indigenous people in Canada. *CMAJ*, *189*(44), E1350–E1351.
- US Department of Health and Human Services. (2010). *Trends in Indian Health: 2002–2003*. Indian Health Service. Retrieved November 2, 2022, from <https://www.ihs.gov/dps/publications/trends03/>
- Villegas, M., Ebarb, A., Pytalski, S., & Roubideaux, Y. (2016). *Disaggregating American Indian & Alaska Native Data: A review of literature*. Retrieved January 5, 2023, from A Report of the National Congress of American Indians to the Robert Wood Johnson Foundation: <https://www.policylink.org/sites/default/files/AIAN-report.pdf>
- Walls, M. L. (2008). Marijuana and alcohol use during early adolescence: Gender differences among American Indian/First Nations youth. *Journal of Drug Issues*, *38*(4), 1139–1160.
- Ward, B. W., & Ridolfo, H. (2011). Alcohol, tobacco, and illicit drug use among Native American college students: An exploratory quantitative analysis. *Substance Use & Misuse*, *46*(11), 1410–1419.

- Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD checklist for DSM-5 (PCL-5)*. Retrieved January 2, 2023, from the National Center for PTSD at <http://www.ptsd.va.gov>
- Wexler, L. (2014). Looking across three generations of Alaska Natives to explore how culture fosters Indigenous resilience. *Transcultural Psychiatry*, 51(1), 73–92.
- Whitbeck, L. B., Adams, G. W., Hoyt, D. R., & Chen, X. (2004). Conceptualizing and measuring historical trauma among American Indian people. *American Journal of Community Psychology*, 33(3–4), 119–130.
- Whitbeck, L. B., Walls, M. L., Johnson, K. D., Morrisseau, A. D., & McDougall, C. M. (2009). Depressed affect and historical loss among North American Indigenous adolescents. *American Indian and Alaska Native Mental Health Research (online)*, 16(3), 16.
- Whitesell, N. R., Beals, J., Mitchell, C. M., Spicer, P., Novins, D. K., Manson, S. M., AI-SUPERPFP Team. (2007). Disparities in drug use and disorder: Comparison of two American Indian reservation communities and a national sample. *American Journal of Orthopsychiatry*, 77(1), 131–141.
- Whitesell, N. R., Beals, J., Crow, C. B., Mitchell, C. M., & Novins, D. K. (2012). Epidemiology and etiology of substance use among American Indians and Alaska Natives: Risk, protection, and implications for prevention. *The American Journal of Drug and Alcohol Abuse*, 38(5), 376–382.
- Yudko, E., Lozhkina, O., & Fouts, A. (2007). A comprehensive review of the psychometric properties of the Drug Abuse Screening Test. *Journal of Substance Abuse Treatment*, 32(2), 189–198.

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