Childhood Sexual Abuse and Depression among American Indians in Adulthood

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The present study investigated distal and proximal factors associated with depression among a sample of 479 American Indian (AI) adults in the Midwest. Distal factors included histories of childhood sexual abuse (CSA) and other childhood adversities. Proximal factors included levels of health self-efficacy and treatment for alcohol problems. The study also examined the moderating effect of treatment for alcohol problems on the relationship between CSA and depression. In model 1, results indicate that CSA was positively related to depression after controlling for demographic and background variables. In model 2, childhood adversities and treatment for alcohol problems were associated with increased depression in AI adults; CSA became nonsignificant. As a protective factor, level of health self-efficacy was negatively associated with depression. In model 3, treatment for alcohol problems magnified the effect of CSA on depression. These findings suggest that early traumatic experiences may have persistent, harmful effects on depression among AIs; one mechanism exacerbating the impact of CSA on depression is treatment for alcohol problems. Targeted interventions are needed to mitigate the long-term negative health effects of childhood trauma in this population and to strengthen proximal protective factors, such as health self-efficacy.

KEY WORDS: *adverse childhood adversities; American Indians; childhood sexual abuse; depression; health self-efficacy*

American Indians (AIs) are a culturally heterogeneous, historically oppressed segment of the U.S. population comprising approximately 5.2 million people who are affiliated with more than 573 federally recognized tribes (Indian Health Service [IHS], 2018). Due to a range of systemic issues including pervasive historic trauma (Evans-Campbell, 2008) and structural or institutional racism (Bailey et al., 2017), this group faces persistent disparities in behavioral health in contemporary society. Compared with the general population, AIs experience higher rates of severe psychological distress and suicidality (IHS, 2018; O'Keefe et al., 2014), as well as specific problems such as posttraumatic stress disorder (Kisely et al., 2017). AI mental health needs are often unmet because of treatment barriers and limitations in funding, staffing, and culturally competent options (Gone & Trimble, 2012).

One of the most prevalent mental health problems for AI adults is depression (Beals et al., 2005; Warne et al., 2017). Some research has found no differences in prevalence rates for depressive disorders between indigenous and nonindigenous groups (Kisely et al., 2017), but scholars note that this may reflect measurement problems and underreporting among AIs. Furthermore, depression is related to other psychiatric problems such as suicidality (LeMaster, Beals, Novins, & Manson, 2004), which is the second leading cause of death among AI adolescents and young adults (Centers for Disease Control and Prevention [CDC], 2009). Unfortunately, there is a dearth of empirical studies on predictors of depression among AI adults.

To help address this gap in the knowledge base, the current study used a life course perspective to examine distal and proximal factors (Ensel & Lin, 1996) associated with depression among a large sample of AI adults in the Midwest. Our first aim was to investigate the potential long-term impact of childhood sexual abuse (CSA) on depression for this group. The second aim was to examine the effect of other stressors (that is, childhood adversities, treatment for alcohol problems) and protective factors (that is, health self-efficacy [HSE]) on depression. The final aim was to test whether treatment for alcohol problems moderated the relationship between CSA and depression. Understanding depression and its antecedents

among AI communities will inform culturally relevant prevention and treatment services by social workers and health professionals.

LITERATURE REVIEW
CSA and Depression

According to Ensel and Lin (1996), who emphasized the importance of considering both proximal and distal factors in health research, distal stressors refer to life events that occurred in the distant past, such as CSA, and have potential to undermine current functioning. CSA is an especially pernicious trauma that affects both girls and boys, often leaving survivors with lasting feelings of betrayal, shame, guilt, self-blame, and anger. One meta-analysis found that nearly 20 percent of women and 8 percent of men were sexually abused in childhood (Pereda, Guilera, Forns, & Gómez-Benito, 2009), although rates may be suppressed due to reporting and disclosure barriers (Easton, Saltzman, & Willis, 2014). Numerous studies have linked CSA to depression in early adulthood for women in the general population (for example, Barrios et al., 2015). More recently, scholars have found evidence that CSA is also related to depression for men in middle and late life (Easton & Kong, 2017; Easton, Kong, Gregas, Shen, & Shafer, 2017).

Our knowledge of CSA and its potential long-term effects on AI adults is vastly underdeveloped (Bohn, 2003). Prevalence rates for CSA among AIs were comparable to those for the general population in one study (Libby, Orton, Novins, Beals, & Manson, 2005), but rates were elevated for AI women (26 percent) and men (14 percent) in another study (Brockie, Dana-Sacco, Wallen, Wilcox, & Campbell, 2015). The few studies that examined CSA and depression in adulthood for AIs have produced mixed results. For example, Brockie et al. (2015) found that CSA was not related to depressive symptoms among young AI adults. However, a small exploratory study found preliminary evidence that CSA was related to depression for AI female adolescents and young adults (Bohn, 2003). In another study (Libby et al., 2005), CSA doubled the likelihood of lifetime depressive disorders for AI men and women affiliated with tribes in the Southwest but not in the Northern Plains. Despite limited extant literature, we hypothesized that CSA would be positively related to depression in our study (hypothesis 1).

Other Childhood Adversities and Depression

Because CSA often occurs in a constellation of environmental stressors (Finkelhor, Ormrod, & Turner, 2009), we also examined the role of other childhood adversities, such as child physical abuse or parental mental illness, on depression. In the general population, childhood adversities are prevalent, often occur in clusters, and are related to long-term depressive disorders (Finkelhor et al., 2009; Merrick et al., 2017). Research has consistently demonstrated that compared with the general public, AIs experience a higher total number of childhood adversities as well as elevated rates of child abuse, neglect, and household dysfunction (Kenney & Singh, 2016; Warne et al., 2017). Furthermore, the number of childhood adversities is positively related to depression for AIs in childhood (Kenney & Singh, 2016), early adulthood (Brockie et al., 2015), middle adulthood (Warne et al., 2017), and late life (Burnette et al., 2017; Roh et al., 2015). Based on empirical literature, we hypothesized that the number of childhood adversities (other than CSA) would be positively related to depression (hypothesis 2).

HSE and Depression

We also examined proximal factors (Ensel & Lin, 1996) that could influence depression among AIs, including HSE. Grounded in Bandura's (1977) theory of behavioral change, *HSE* is the level of confidence in one's ability to practice healthy routines in terms of exercise, nutrition, and emotional self-care (Becker, Stuifbergen, Oh, & Hall, 1993). Self-efficacy is closely related to concepts such as personal mastery, locus of control, and self-esteem (Sherer et al., 1982) and has been associated with better mental health across countries and cultures (Luszczynska, Gutiérrez-Doña, & Schwarzer, 2005). Despite calls for research on protective factors among AIs (Roh et al., 2015), our search did not locate any studies that examined HSE and depression in this population. Based on self-efficacy theory, we predicted that HSE would be positively related to depression (hypothesis 3).

Alcohol Problems and Depression

Another proximal factor that may affect current levels of depression among AIs is substance abuse. It is well documented that rates for many substance

use disorders among indigenous peoples are higher than those in the general population and represent a pressing behavioral health concern for this population (Beals et al., 2005; Gone & Trimble, 2012). More specifically, AIs use and abuse alcohol and other substances at younger ages and higher rates than their nonnative counterparts (Stanley, Harness, Swaim, & Beauvais, 2014). Alcohol disorders are often comorbid with affective disorders such as depression in the general population (Boden & Fergusson, 2011). In the current study, we used a proxy for alcohol abuse (that is, treatment for alcohol problems) and hypothesized that it will be positively related to depression among AI (hypothesis 4).

Finally, previous research has linked CSA and alcohol problems in adulthood in the general population (Afifi, Henriksen, Asmundson, & Sareen, 2012; Wu, Schairer, Dellor, & Grella, 2010). One perspective is that substance abuse may represent a form of self-medication, whereby survivors attempt to mask or numb unresolved pain from early trauma (Khantzian, 1997). Thus, we tested for an interaction between CSA and treatment for alcohol problems, predicting that treatment would exacerbate the effect of CSA on depression (hypothesis 5).

METHOD
Data Source
A cross-sectional design was used to collect data for the 2013 General Well-being among Native Americans Survey, a project that examined cancer screening literacy among AIs in the Midwest (for more information, see Roh et al., 2018). After approval from the institutional review board at the University of South Dakota, researchers collected data over a nine-month period (September 2013 to May 2014) from AI women (18 years of age and older) and men (40 years of age and older) who resided in South Dakota. The gender-specific age criteria reflected guidelines developed by national health organizations, based in part on different cancer screening tests for women (for example, cervical cancer) and men (for example, prostate cancer). Participants were recruited from 12 different off-reservation sites including senior housing complexes; senior centers; AI churches; and pow-wows in Brookings, Sioux Falls, and Vermillion, South Dakota. Snowball sampling was also used; participants were encouraged to share the research opportunity with geographically or socially isolated friends or family members who met eligibility criteria.

Participants listened to presentations on study purpose and procedures; example questions; and issues surrounding confidentiality, risks and benefits, and voluntary participation. After providing written consent, participants completed the 200-item, self-administered survey and received an honorarium of $10. Trained research staff were on-site to answer questions and provide assistance, as needed. We started with 488 participants, but nine cases were removed due to early termination. The final sample comprised 479 AI adults.

Sample
Among a total sample of 479 AIs, 39.9 percent ($n = 191$) were male, 31.3 percent ($n = 150$) were married, and 64.1 percent ($n = 307$) reported that their health status was good or excellent. The average age of participants was 47.4 years ($SD = 13.54$). Study participants completed 13.2 years of education, on average ($SD = 2.95$), and 60.5 percent ($n = 290$) were born on a reservation (see Table 1). Among key variables of the study, we found significant gender differences for age and birthplace. As expected, female participants (44.5 years) were younger than male participants (51.6 years) [$t(469) = 5.7$, $p < .001$]. More male participants were born on a reservation (66.8 percent) than female participants (57.1 percent) [$\chi^2(1, N = 469) = 6.5$, $p < .05$].

About three-quarter of participants ($n = 387$) reported that their monthly household income was less than $2,500. Most participants (85.2 percent, $n = 408$) reported that they were enrolled as a member of a Dakota, Nakota, and Lakota tribe. One-third of respondents ($n = 155$) identified their spiritual or religious affiliation as traditional tribal spirituality; others reported Protestant or Catholic (23.2 percent, $n = 111$) or AI church (22.1 percent, $n = 106$). Over half of the sample ($n = 262$) reported that they could speak or understand their native language.

Measures
Depression Severity. The Patient Health Questionnaire (PHQ-9) was used to assess the dependent variable in our study: severity of depression symptoms (Kroenke & Spitzer, 2002). PHQ-9 is a well-established and commonly used nine-item instrument to screen, diagnose, and monitor depression. The instrument asks participants to report the frequency with which they had been bothered by a list of nine symptoms over the past two weeks. Symptoms are based on DSM-IV criteria for depression and include,

Table 1: Sample Characteristics (*N* = 479)

Variable	Total Sample % or *M (SD)*	Range	Non-CSA % or *M (SD)*	CSA % or *M (SD)*	Significant Differences[a]
Age	47.39 (13.54)	18–95	47.28 (13.61)	47.78 (12.46)	
Male	39.87		43.20	30.77	*
Years of education	13.23 (2.95)	1–22	13.14 (2.83)	13.56 (3.36)	
Born on reservation	60.54		61.19	62.92	
Good/excellent health condition	64.09		64.77	68.89	
CSA	18.96				
Other childhood adversities	2.91 (2.56)	0–9	2.46 (2.27)	5.04 (2.60)	***
Health self-efficacy	71.69 (23.31)	0–112	72.44 (23.54)	69.89 (21.62)	
Treatment for alcohol problem	30.26		29.08	38.64	
Depression	5.26 (5.88)	0–27	4.87 (5.70)	6.62 (6.29)	*

Notes: CSA = childhood sexual abuse. Descriptive statistics are reported prior to correction for skewness and missingness.
[a]A series of *t* tests and chi-square tests were conducted to examine a significant group difference.
*$p < .05$. ***$p < .001$.

for example, "feeling tired or having little energy"; "poor appetite or overeating"; and "feeling down, depressed, or hopeless." Responses are based on a four-point scale ranging from 0 = not at all to 3 = nearly every day and were summed to produce a total score (range = 0–27). Clinical cut points were 5–9 (mild), 10–14 (moderate), 15–19 (moderately severe), and 20–27 (severe) (Kroenke & Spitzer, 2002). Cronbach's alpha coefficient in the current study was .91.

CSA. Sexual abuse was measured using a single item drawn from the Adverse Childhood Experiences (ACE) scale (CDC, 2014). The item asked participants if an adult or person at least five years older ever touched or fondled them in a sexual way or tried to (or had) oral, anal, or vaginal sex with them. Participants who responded yes received a score of 1 (no = 0).

Other Childhood Adversities. We assessed traumatic or stressful events experienced during childhood (other than CSA) by using an adapted version of the ACE questionnaire (CDC, 2014). Nine items asked participants whether they experienced adversities in childhood such as physical abuse, neglect, witnessing interpersonal violence, and caregiver substance use. Response options were yes = 1 or no = 0. An index was created by summing scores for items (range = 0–9), with higher scores indicating more adversities. Other childhood adversities and CSA were correlated (*r* = .40, *p* < .05), but in the low to moderate range.

HSE. This concept was measured with the Self-Rated Abilities for Health Practices Scale (SRAHP) (Becker et al., 1993), a 28-item instrument that assesses confidence in one's ability to practice healthy behaviors in areas such as exercise, nutrition, psychological care, and general health. Responses are based on a five-point Likert scale ranging from 0 = not at all to 4 = completely. Responses were summed to produce a total score (range = 0–112), with higher scores indicating greater self-efficacy. SRAHP has demonstrated adequate validity and reliability (Callaghan, 2003). In the current study, Cronbach's alpha was .97.

Treatment for Alcohol Problems. One item asked participants whether they have sought professional or focused help for alcohol problems: "Have you gone anywhere or seen anyone for a reason that was related in any way to your drinking (for example, physician, counselor, Alcoholics Anonymous, community agency)?" The item was drawn from the National Epidemiologic Survey on Alcohol and Related Conditions (Grant, Moore, Shepard, & Kaplan, 2003). Participant response options were yes = 1 and no = 0.

Control Variables. Participants were asked their current age and gender. Responses to the latter item were transformed into male = 1, not male = 0. For level of education, participants were asked to indicate the highest grade in school that they completed (range = 1–22). A single item assessed whether participants were born on a reservation (1 = yes, 0 = no). To assess health status, participants were asked, "How would you rate your overall health at the present time?" Responses were based on four categories (poor, fair, good, excellent), which were later transformed into a new category: good or excellent health (1 = yes, 0 = no).

Health & Social Work   Volume 44, Number 2   May 2019

Analytic Plan

In addition to descriptive statistics, we conducted bivariate analyses to examine differences in the key variables between adults who reported a history of CSA and those who did not (see Table 1). After univariate and bivariate analyses, multiple regression analyses were performed (see Table 2). We used ordinary least squares (OLS) regression to examine factors related to depression, controlling for sociodemographic variables. Diagnostic analyses indicated that all other conditions for regression models were met.

Item nonresponse for most measures was low (<10 percent). To handle incomplete data, we conducted multiple imputation by chained equations in Stata 15.0, which generated 20 data sets with imputed values. Multivariate analyses were then sequentially conducted. In model 1, CSA and control variables were entered. In model 2, other childhood adversities, HSE, and alcohol problem treatment were added. In model 3, we entered the interaction term between CSA and treatment for alcohol problem.

RESULTS

Table 1 presents differences in key variables between participants who reported a history CSA ($n = 91$) and those who did not ($n = 377$). Fewer men than women reported a history of CSA [$\chi^2(1, N = 469) = 4.69$, $p < .05$]. Adults with a history of CSA also reported more childhood adversities [$t(466) = -9.45$, $p < .001$] and heightened depression [$t(465) = -2.57$, $p < .05$].

Table 2 presents a summary of the results of multivariate OLS regression models based on imputed data. The first hypothesis was supported. In model 1, CSA was positively associated with depression in adulthood ($b = 1.96$, $p < .01$), after controlling for demographic and background variables. Hypotheses 2 through 4 were also supported in the expected directions. An increase in the number of childhood adversities (other than CSA) was associated with higher levels of depression ($b = 0.24$, $p < .05$). An increase in the level of HSE was associated with reduced depression ($b = -0.04$, $p < .01$). Treatment for alcohol problems was associated with greater depression ($b = 1.58$, $p < .01$). We also found a significant moderating effect of having an alcohol-related problem between CSA and depression (see Figure 1). The effect of CSA on depression was stronger for adults who were treated for an alcohol problem ($b = 3.21$, $p < .05$).

DISCUSSION

The purpose of this study was to examine whether distal and proximal factors (Ensel & Lin, 1996) were associated with depression severity in adulthood for AIs. It is interesting that sexual abuse experienced in childhood was related to levels of depression for this population decades after it occurred. In model 1, AI adults who reported histories of CSA had significantly higher scores on depressive symptoms in the past two weeks than AI adults without a history of CSA. This finding is consistent with emerging research within the general population that CSA can undermine mental health for survivors in middle and late adulthood (Barrios et al., 2015; Easton & Kong, 2017; Easton et al., 2017), as well as with two early, exploratory

Table 2: Ordinary Least Squares Analyses Predicting Depression			
Factor	**Model 1** **b (SE)**	**Model 2** **b (SE)**	**Model 3** **b (SE)**
Childhood sexual abuse (CSA)	1.96 (0.67)**	0.98 (0.72)	–0.18 (0.88)
Other childhood adversities		0.24 (0.11)*	0.25 (0.11)*
Health self-efficacy		–0.04 (0.01)**	–0.04 (0.01)**
Treatment for alcohol problem		1.58 (0.58)**	0.86 (0.66)
CSA × alcohol treatment			3.21 (1.39)*
Age	–0.05 (0.02)*	–0.05 (0.02)*	–0.05 (0.02)*
Male	0.69 (0.56)	0.18 (0.56)	0.25 (0.56)
Years of education	–0.19 (0.09)*	–0.14 (0.09)	–0.16 (0.09)
Born on reservation	0.44 (0.56)	0.50 (0.55)	0.46 (0.54)
Good/excellent health	–2.33 (0.57)***	–1.70 (0.58)**	–1.68 (0.58)**
Constant	10.69 (1.57)***	11.59 (1.77)***	11.68 (1.76)***

Note: *SE* = standard error.
*$p < .05$. **$p < .01$. ***$p < .001$.

Figure 1: Moderating Effect of Alcohol Treatment on Childhood Sexual Abuse (CSA) and Depression
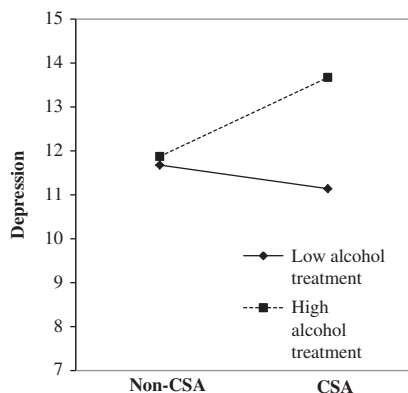
studies with AI samples (Bohn, 2003; Libby et al., 2005). However, our results differ from Brockie et al.'s (2015) study, possibly due to sample type; their study focused exclusively on young adults and our study included AIs in middle and late adulthood. Although more research is needed, this study is one of the first to document harmful long-term effects of CSA on depression for AI adults.

Furthermore, CSA was a significant predictor of depression levels for AIs of both genders. Post-hoc analyses (not presented in tables) revealed no differences in the effect of CSA on depression between AI men and AI women. Also, the prevalence of CSA among men was approximately 15 percent ($n = 28/191$), compared with 22 percent for AI women ($n = 63/289$). The CSA rate for AI men was nearly twice the rate within the general population (Pereda et al., 2009). Although most research on the effects of CSA on survivors has focused on women (Easton & Kong, 2017), it is clear from this study that CSA remains a public health problem for both genders within the AI community, which warrants further investigation.

Another type of early trauma—childhood adversities—was related to current levels of depression in AI in model 2, as CSA became nonsignificant. This suggests that the cumulative effect of multiple adversities may exert much more influence than any single form of abuse or maltreatment. Our finding is consistent with the growing literature on childhood adversities and long-term mental health in the general population (Finkelhor et al., 2009; Merrick et al., 2017) and among AIs

(Brockie et al., 2015; Roh et al., 2015; Warne et al., 2017). Results suggest that traumatic events from the distant past have potential to undermine current mental health functioning. Considering that AIs are disproportionately at risk of childhood adversities than other ethnic groups (Kong, Roh, Easton, Lee, & Lawler, 2018), our findings suggest that timely, trauma-informed interventions are needed to mitigate these long-term harmful effects.

In terms of proximal influences, HSE emerged as a significant protective factor against depression in our study. There is a robust, transnational literature on the mental health benefits of self-efficacy, generally, across cultures (Luszczynska et al., 2005). However, our literature review did not identify any studies that focused on self-efficacy in the health domain (that is, confidence in nutrition, exercise, and self-care behaviors) and its effect on depression among AI adults. Future research can build on the current study's unique findings by exploring ways to facilitate HSE and promote AI mental health.

As expected, participants who reported that they sought treatment for an alcohol problem had significantly higher levels of depression. The finding is consistent with prior research on comorbidity between alcohol problems and affective disorders in the general population (Boden & Fergusson, 2011). Given that substance use disorders are prevalent and constitute a major public health concern for AI communities (Beals et al., 2005; Gone & Trimble, 2012), the finding takes on even more significance. Furthermore, treatment for alcohol problems magnified the effect of CSA on depression in model 3. To our knowledge, this is the first study to demonstrate that interaction. One interpretation is that CSA survivors mask or numb psychological pain from early trauma through self-medication (Khantzian, 1997), and underlying pain may relate to depression. Prior studies show that adults who were exposed to childhood trauma tend to abuse alcohol and rely on its pharmacological benefits as coping devices (Tonmyr & Shields, 2017). Alternatively, CSA survivors may experience difficulties in forming supportive relationships with others, which may inhibit recovery from alcohol problems and amplify depressive symptoms. Additional research is needed to inform preventive strategies.

Strengths and Limitations

This study had several theoretical and methodological strengths, including a large sample of AI

men and women across a wide age range, including emerging, middle, and older adulthood. In addition, the depression measure (that is, PHQ) has been validated with diverse populations (Huang, Chung, Kroenke, Delucchi, & Spitzer, 2006) and used with AIs (Le & Gobert, 2015). Our conceptual model included both distal (for example, CSA) and proximal (for example, HSE) factors seldom explored in mental health research with AIs.

Nonetheless, limitations in design, sample, and measurement should be considered when evaluating study results. First, the cross-sectional design limits our ability to specify temporal ordering of variables, preventing conclusions about causality of findings. Future studies that use longitudinal design and collect data at various stages of the life course could expand our understanding of depression trajectories and predictors among AIs. Second, nonprobability sampling techniques were used to reach AIs in the Midwest. Future research based on representative samples of AIs, across tribes and geographic contexts, will enhance understanding of mental health for this population. Third, two variables—CSA and treatment for alcohol problems—were assessed with dichotomous measures. Replication studies should include more precise measures of CSA severity (for example, duration, force) and actual assessments of substance use (for example, frequency, quantity), instead of the proxy measure of treatment for alcohol problems.

Despite these limitations, results have implications for improving social work practice with AI communities. Based on the rates of CSA and links to depression for both genders in the study, CSA should be included in mental health assessments, general health screenings, and medical evaluations with AI. Detection of CSA histories would allow social workers to suggest psychosocial resources for understanding residual effects of trauma and, if necessary, clinical treatment options for both AI men and AI women. Other childhood adversities should also be included in assessments. Furthermore, substance abuse treatment options could be enhanced with targeted content on comorbid mental health conditions (for example, depression) and early life span trauma (for example, CSA). Because of heterogeneity among AIs across tribes, geographic locations, and faiths, social workers can advocate for much-needed intervention research (Gone & Trimble, 2012). This research is especially important given the trend toward tribal management and delivery of behavioral health services over the past decade, including integrated, holistic approaches that blend traditional healing options with standard biomedical care (IHS, 2015). Finally, social workers can design and deliver prevention and public awareness programs to bolster AI HSE in areas such as nutrition, exercise, and emotional self-care. The concept of self-efficacy, as well as self-esteem, personal mastery, and locus of control (Sherer et al., 1982), provides social workers with an opening to advance resilience–based health promotion among AIs. **HSW**

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