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## Indian Boarding School Experience, Substance Use, and Mental Health among Urban Two-Spirit American Indian/Alaska Natives

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### Abstract

**Background**—Systematic efforts of assimilation removed many Native children from their tribal communities and placed in non-Indian-run residential schools.

**Objectives**—To explore substance use and mental health concerns among a community-based sample of 447 urban two-spirit American Indian/Alaska Native adults who had attended boarding school as children and/or who were raised by someone who attended boarding school.

**Method**—Eighty-two respondents who had attended Indian boarding school as children were compared to respondents with no history of boarding school with respect to mental health and substance use.

**Results**—Former boarding school attendees reported higher rates of current illicit drug use and living with alcohol use disorder, and were significantly more likely to have attempted suicide and experienced suicidal thoughts in their lifetime compared to non-attendees. About 39% of the sample had been raised by someone who attended boarding school. People raised by boarding school attendees were significantly more likely to have a general anxiety disorder, experience posttraumatic stress disorder symptoms, and have suicidal thoughts in their lifetime compared to others.

### Keywords

American Indian/Alaska Native; mental health; substance use; boarding school

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#### Declaration of Interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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#### Notes on Contributors

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## BACKGROUND

The history of colonization experienced by American Indian/Alaska Native (AIAN) people is well documented (1,2) and includes centuries of targeted attacks on tribal sovereignty and well-being. Over successive generations, AIAN people have experienced community massacres, forced relocation, and prohibition of cultural practices (3). By the mid-1800s, American expansionist attitudes had led to major American Indian removal policies and tens of thousands of AIAN people had been relocated from their ancestral homelands. Soon after, the US government began systematic efforts of assimilation through a boarding school campaign during which thousands of AIAN children were removed from their tribal communities and placed in non-Indian-run residential schools (4).

Between 1880 and 1930, a period often referred to as the US “boarding school era,” increasing numbers of AIAN children were placed in off-reservation boarding schools, and by 1930, nearly half of all AIAN children attending school were enrolled in institutions (5) often hundreds, and sometimes thousands, of miles away. At the schools, students were forbidden to engage in cultural practices or speak their languages and suffered harsh punishment if they disobeyed. Instead, they were raised in institutional settings with few adult role models and forced to take on new, often foreign ways of life. Reports of child abuse and neglect at the schools were common and cultural disruption was profound (1,6). By the 1970s, a number of schools were closed and the mission of the remaining schools shifted away from overt assimilation. In recent decades, many boarding schools have focused on providing education to Native<sup>1</sup> children living in remote areas or at-risk Native youth. Although the mission of these modern schools is not assimilation, the children and youth attending boarding schools continue to endure separation from family and community.

## BOARDING SCHOOL, SUBSTANCE USE, AND MENTAL HEALTH

In recent years, the history of the Indian boarding school movement, related policies, and personal student experiences have been well documented (e.g., Ref. 7). Although numerous scholars have suggested that there is a relationship between boarding school attendance, substance use, and mental health, few studies have explored these relationships directly. Research conducted with current school-based boarding school samples demonstrates high rates of mental health problems (e.g., Ref. 8) and substance use (e.g., Refs. 9 and 10). The implications of these studies are complicated by the fact that some boarding schools now serve at-risk youth who may have been sent to boarding school because of existing substance abuse or mental health issues, yet these findings clearly highlight the need for more research in this area. Studies exploring the relationship between boarding school attendance, substance use, and mental health over the lifetime and across generations are needed.

While informative, previous research has focused on tribally specific and/or school-based samples, challenging generalizability to other AIANs, particularly those living in urban areas or AIANs who negotiate multiply oppressed statuses, such as two-spirit populations,

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<sup>1</sup>The terms American Indian/Alaska Native (AIAN) and Native are used interchangeably throughout the article.

and does not illuminate the impact of boarding school over the life course. In order to deepen our understanding of the relationship between Indian boarding school and Native wellness, we utilize a community-based study of health among urban AIAN two-spirit people and present empirical findings related to boarding school experience, mental health, and substance use (Honor Project, RO1MH65871).

## **NATIVE TWO-SPIRIT PEOPLE**

Many indigenous societies in North America have historically acknowledged and incorporated the existence of diverse gender and sexual identities among community members (11–13). Gay, lesbian, bisexual, or transgender (hereafter collectively referred to as two-spirit) people often have specific cultural roles tied to their indigenous communities (14,15). Over the past several centuries, however, colonization including the Indian boarding school movement had particularly pernicious cultural impacts on contemporary AIAN two-spirit populations and succeeded in undermining traditional roles and cultural acceptance (15). Missionaries in boarding schools and government agents on reservations enforced strict compliance with European and Christian standards of conduct, including prohibition of cultural practices and conformity to rigid gender roles. This denial of heritage due to colonization has increased contemporary two-spirit vulnerability to struggle with identity and mental health.

## **NATIVE MENTAL HEALTH AND SUBSTANCE USE**

The AIAN community is incredibly diverse, with members representing over 565 federally recognized tribes and more than 100 state-recognized tribes (16). Over 60% of AIANs currently live in urban settings (17). Given the historical context of Native communities, it is not surprising that AIANs have the highest rates of mental health disorders in the United States. (18). In one nationally representative sample of adults in the United States, AIANs reported higher rates of frequent distress (14%) compared to the population in general (8% (19)), whereas smaller studies have found rates of depression ranging from 10% to 30% (20). Rates of posttraumatic stress disorder (PTSD) are also higher among AIAN adults (22%) compared to adults in general (8%) (20). Complicating the interpretation of these statistics, the effects of historical and cumulative trauma may be hard to detect and, as a result, many studies might yield underestimates of traumatic stress symptoms in AIAN communities (21).

The statistics for substance use among AIAN populations are equally disturbing. AIAN people tend to drink earlier, drink more in quantity and frequency, and experience more alcohol-related consequences than other groups (22). Natives are 5 times more likely to die of alcohol-related causes than non-Natives (45.5/100,000) (23). Use of illicit drugs is also much higher among AIANs. The 2009 National Survey on Drug Use and Health reported that AIANs had the highest rate of current illicit drug use of any racial or ethnic group (18.3%) and the highest rate of substance dependence or abuse (11.1% (24)). AIAN youth have the highest rates of drinking and illicit drug use of any ethnic group (25).

## METHODS

The current investigation was part of a comprehensive multisite, cross-sectional national health survey of Native two-spirit people from seven metropolitan areas in the United States. The project was guided by a project Leadership Circle Advisory Board as well as national and regional leaders. Project staff worked extensively with local, national, and regional two-spirit community groups and Native agencies to seek input and advice on methods. Our survey was piloted and reviewed by our project advisory board, AIAN two-spirit key informants, focus groups, and research consultants for item clarity, coherence, and cultural relevance prior to its administration.

### Participants and Setting

Eligibility criteria included (1) self-identifying as American Indian, Alaska Native, or First Nations and either being enrolled in their tribal nation or reporting at least 25% total American Indian blood; (2) self-identifying as gay, lesbian, bisexual, transgender, or two-spirit or having engaged in same-sex sexual behavior in the past 12 months; (3) being 18 years of age or older; (4) speaking English; and (5) residing, working, or socializing in one of the urban study sites.

We used multiple sampling strategies to minimize selection bias including targeted, partial network, and respondent-driven sampling (RDS) techniques. Six to eight diverse (by gender and age) first-wave “seeds” ( $n = 36$ ) were identified across all sites, of which 33 participated. A second wave of RDS generated 58 nominees, of whom 50 participated. Volunteer respondents were also solicited through newsletters, brochures, posters, and word of mouth. We achieved a total response rate of 80.1%. There were no significant differences between RDS (seeds and nominees) and volunteer respondents for the cohort overall or by site on key sociodemographic variables (i.e., gender, education, employment, income, or housing).

Each respondent received \$65.00 for completing a 3–4-hour computer-assisted self-interview. A total of 451 respondents were interviewed between July 2005 and March 2007. Of these, four respondents were later excluded due to ineligibility, leaving a total of 447 participants. The study was approved by the University of Washington research ethics board and written consent was obtained from all participants.

### Measures

**Boarding School Experience**—To assess boarding school experience, participants were asked whether they were raised by someone who ever attended Indian boarding school and whether they themselves attended boarding school. To assess any harm during boarding school, respondents were asked if while at boarding school they or the person who raised them experienced physical or sexual abuse in boarding school. Among those who attended boarding school, general experience was captured with six items: (1) if they were sent to boarding school willingly or against their parents’ will, (2) if they were able to visit family, (3) if they were expected to attend church, (4) if they were allowed to practice culture and tradition (if known), (5) if they were instructed not to speak their native language (if known),

and (6) asked to rate their overall experience on a 5-point Likert scale (from very good to very bad).

**Substance Use**—Current alcohol dependence and abuse (coded as yes/no) was assessed using the Mini-International Neuropsychiatric Interview (MINI; Mini screen 5.0.0/English version/DSM-IV, 11/1/03) (26,27). Dependence was defined as the presence of three or more of the seven diagnostic criteria and abuse with one or more of the four in the DSM-IV. Preceding 12-month drug use was assessed by asking about use of cocaine, club drugs, marijuana, methamphetamine, and narcotics.

**Mental Health**—General Anxiety Disorders was assessed using the MINI (26,27). A diagnosis was defined as having three or more of the six items in the DSM-IV. PTSD symptoms were measured using the Posttraumatic Diagnostic Scale (PDS) which yields a PTSD diagnosis in accordance with the DSM-IV. The scale captures 17 symptoms in the past month and includes symptoms of reexperiencing, avoidance, and arousal. Participants were considered to have experienced PTSD symptoms if they reported having one or more PTSD symptoms in the past month related to a traumatic event but did not meet diagnostic criteria (yes/no). *Depression* was measured using the Centers for Epidemiological Studies Depression Short Scale (CESD-10), a nondiagnostic screening measure for examining the prevalence of nonspecific psychological distress in community samples. The frequency with which each of 10 depressive symptoms was experienced (e.g., “I was bothered by things that usually don’t bother me”) was rated from 1 (*rarely or none of the time/less than 1 day in the past week*) to 4 (*most or all of the time/5–7 days in the past week*). Total scores ranged from 0 to 30, with scores of 10 or above indicating the cases of possible clinical depression. The CESD-10 has demonstrated high-predictive validity compared with the full CESD ( $\kappa$  .97,  $p < .001$ ), high internal consistency ( $\alpha = .89$ ), and stable test–retest reliability (12-month interval,  $r = .59$ ) (28). Cronbach’s alpha in this study was .88.

*Sociodemographic characteristics* were assessed with standard formats and coded as follows: gender (male, female, transgender), education (below high-school graduation/General Educational Development (GED), above or equivalent to high-school graduation/GED), age, housing status (stable housing vs. unstable housing (half-way house, shelter, welfare hotel, on the streets or in parks, woods, abandoned buildings, or homeless), employment (part- or full-time employment vs. unemployed), and income (dichotomized at \$18,000 per year).

## DATA ANALYSIS

Descriptive statistics were calculated for the boarding school items. Pearson’s chi-square ( $\chi^2$ ) tests and *t*-tests with an alpha of .05 were used to identify associations with socio-demographic, mental health, and substance use characteristics that differed between participants with boarding school experience versus no boarding school experience.

## RESULTS

The 447 AIANs surveyed had a mean age of 39 years (standard deviation (SD) = 11) and the majority (87.7%) had a high school or higher level of education. About 41% were employed

and the majority (67.7%) reported annual household incomes of \$18,000 or less. Among the 206 who reported any boarding school experience, 176 (39.4%) were raised by someone who attended boarding school and 82 (22.9%) attended boarding school as children. Of those who had attended boarding school, 52 were also raised by someone who had attended boarding school.

Among boarding school attendees, the average age of entering boarding school was 10 years old and the average number of years spent in boarding school was 3.8 (SD = 2.6; range 1–12 years). Overall 35 (42.7%) rated their experience poorly and 20 (24.4%) indicated that it was neither good nor bad. Fifteen of those interviewed (18.3%) indicated that they were sent to boarding school against their parents' will. Most were allowed to visit their families at least once during the year (79.3%) and during the summer (86.6%). While in boarding school, 37 (45.1%) were expected to attend church. Among the 69 who knew their cultural practices ( $n = 69$ ), 28 (40.6%) were not allowed to practice their tradition. Of the 65 who spoke their tribal language, 41 (63.1%) were instructed not to speak their Native language. A substantial number of attendees reported that they were physically 28 (34.2%) or sexually 24 (29.3%) harmed while at school. Of those who were raised by someone who attended boarding school, 117 (66.5%) reported that the person who raised them was physically harmed and 33 (18.8%) were sexually harmed while in boarding school.

Table 1 summarizes the sociodemographic characteristics among 82 (22.9%) AIANs who attended boarding school compared to those who had no boarding school experience ( $n = 365$ ). There were no important sociodemographic between those who had boarding school experiences and those who did not. As illustrated in Table 2, there were several important differences between those who attended boarding school compared to those who had not in terms of substance use and mental health. Specifically, former boarding school attendees were significantly more likely to have a diagnosis of alcohol abuse or dependence (58.5% vs. 44.6%,  $\chi^2 = 4.97$ ,  $p < .05$ ) and to report using certain illicit drugs more than once in the past year including: cocaine (65.4% vs. 48.4%,  $\chi^2 = 5.12$ ,  $p < .05$ ), narcotics (92.3.4% vs. 51.6%,  $\chi^2 = 7.29$ ,  $p < .01$ ), and club drugs (78.9% vs. 38.5%,  $\chi^2 = 10.64$ ,  $p < .001$ ) more than once in the past 12 months. They were also significantly more likely to report having attempted suicide at some point (75% vs. 53%,  $\chi^2 = 8.85$ ,  $p < .01$ ) and ever having suicidal thoughts (92.5% vs. 88.2%,  $\chi^2 = 6.39$ ,  $p < .05$ ). Participants were not asked the reason that they were sent to boarding school and, consequently, we cannot speculate on the type of boarding school attended or the reason for attendance. Further, we did not gather data on mental health and substance abuse experiences prior to boarding school attendance and thus cannot assume that participants entered boarding school without health or mental health problems. It is notable, however, that the average age at start of boarding school was quite young (10 years old).

We also found notable difference between those who had been raised by someone who had attended boarding school compared to others (see Table 3). Respondents who were raised by someone who attended boarding school (176) were significantly more likely to have general anxiety disorder (48.9% vs. 36.5%,  $\chi^2 = 6.69$ ,  $p < .01$ ) and to experience PTSD symptoms (90.3% vs. 83%,  $\chi^2 = 6.2$ ,  $p < .05$ ). Like former boarding school students, they were also more likely to have had suicidal thoughts at some point in their lifetime (90.3% vs. 83%,  $\chi^2$

= 6.2,  $p < .05$ ). We found no significant differences in terms of substance use between those raised by a former boarding school student and others.

## DISCUSSION

Findings from this study of 447 urban two-spirit AIANs are highly informative, providing some of the first data on boarding school experience, caregiver boarding school experience, mental health, and substance use among an urban two-spirit AIAN community sample. Almost a quarter of those interviewed (22.9%) had attended Indian boarding school, with a significant percentage rating their experience negatively. In addition, approximately 40% of the study participants had been raised by someone who attended boarding school, suggesting that recent boarding school experience affects many AIAN people either directly or indirectly.

Several limitations should be considered when interpreting the results. The research design is cross-sectional and so cannot offer insight into the causal relationships among the constructs studied. Moreover, our sample is made up of urban two-spirit AIANs and, consequently, our findings may not be generalizable to AIANs who are not two-spirit or who live in rural or reservation communities. Given the dearth of information on the impact of boarding school attendance for AIAN mental health and substance use, however, even a small preliminary study such as the current one merits attention.

Despite some of the limitations noted above, our findings on the substance use and mental health of former boarding school attendees were highly informative and have important implications for practice. Those who had attended boarding school were significantly more likely to be living with an alcohol disorder and to have used illicit drugs more than once in the past year. As noted previously, some respondents may have been sent to boarding school due to existing mental health or substance abuse problems which, in turn, may have increased the likelihood of later substance abuse problems. Unfortunately, we do not have data on childhood mental health or substance use and these findings should be interpreted with caution. It is notable, however, that most respondents started boarding school at a fairly young age, suggesting that they were sent to boarding school for reasons unrelated to substance use.

In contradiction to previous research findings (29,30), attendance was not associated with current depression or anxiety. Alarming, however, our findings showed that former boarding school attendees were significantly more likely than others to have attempted suicide and to have had suicidal thoughts at some point in their lifetime. An average of 26 years had passed from the time participants had attended boarding school and it is not clear if people had sought counseling or other mental health assistance in the ensuing time. It may be that those who attended school for a longer period of time or at a certain developmental stage were more negatively impacted. In any case, our findings raise a number of important questions and suggest that further research is warranted.

Notably, our findings suggest that boarding school may impact intergenerational health and mental health outcomes on AIAN people. Although the field of intergenerational

traumatology is relatively new, research indicates that the impact of major traumatic events may persist for generations (31–33) and that the trauma can manifest in poor mental (e.g., depression (34)) and physical (e.g., CVD) health in later generations (e.g., Refs. 35–37). Other research has also shown that descendants of survivors are not more likely than others to have mental health problems but may have a higher vulnerability to developing PTSD symptomology after stressful events in their own lifetimes (e.g., Refs. 33 and 38).

Participants who were raised by someone who attended boarding school were significantly more likely than others to report having experienced suicidal thoughts at some point. They were also more likely to have general anxiety and PTSD symptoms. Importantly, it is not clear what types of traumatic events are triggering PTSD symptoms. Is PTSD a response to hearing about boarding school experiences or to other lifetime events? Are there particular types of lifetime experiences that these individuals may be more vulnerable to? Although our findings did not show higher rates of substance use among people raised by a boarding school attendee, our mental health findings indicate that this population is at risk for substance use.

## IMPLICATIONS FOR PRACTICE

This study has important implications for the provision of culturally relevant services to AIAN people, particularly two-spirit populations. Given the substantial number of AIANs with some type of boarding school experience, it is clear that the boarding school experience should be viewed as a context for work with all AIANs. Our findings also suggest that Western models may not be adequate for interventions with AIAN people in that they tend to highlight the individual as the locus of trauma and focus of treatment. Traumatic experiences such as Indian boarding school impacted whole families and communities and trauma may become something that not only occurs to the collective, but is also experienced, and potentially healed, through the collective. While this does not eliminate the individual from our thinking about trauma, it highlights the need to consider the community as an additional target of interventions. Finally, given the high rates of substance use and mental health issues associated with boarding school attendance among two spirits in this sample, it is clear that practitioners will need to consider historical trauma experiences in addition to stressors commonly associated with sexual and gender nonconforming statuses in negotiating racism, heterosexism, and transphobia. Nevertheless, despite boarding school and other culturally disruptive policies, tribal communities have kept traditional roles alive. Moreover, some nations have revived traditions, whereas others have maintained their cultural traditions relative to two-spirit statuses and ceremonial roles. As Harlan Pruden, a two-spirit activist, has noted: “Two Spirit people are a part of the fabric of this land, and we stand here today as a testament of our collective strength and fortitude.”

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## References

1. Evans-Campbell T. Historical trauma in American Indian/Native Alaska communities: A multilevel framework for exploring impacts on individuals, families, and communities. *J Interpers Violence*. 2008; 23(3):316–338. [PubMed: 18245571]
2. Walters, KL., Beltran, R., Huh, D., Evans-Campbell, T. Displacement and dis-ease: Land, place and health among American Indians and Alaska Natives. In: Burton, LM.Kemp, SP.Leung, MC.Matthews, SA., David, T., editors. *Communities, Neighborhoods, and Health: Expanding the Boundaries of Place*. New York: Springer; 2011. p. 163-202.
3. Stannard, DE. *American Holocaust: The Conquest of the New World*. New York, NY: Oxford University Press; 1992.
4. Cross TA, Earle KA, Simmons D. Child abuse and neglect in Indian country: Policy issues. *Fam Soc*. 2000; 81(1):49–58.
5. U.S. Department of Health and Human Services. Administration on Children, Youth and Families. *Child Maltreatment: 1999*. Washington, DC: U.S. Government Printing Office; 2001.
6. Smith A. Soul Wound: The Legacy of Native American Schools. *Amnesty Now*. 2003 Summer;:14–17.
7. Adams, DW. *Education for Extinction: American Indians and the Boarding School Experience*. Lawrence, KS: University Press of Kansas; 1995.
8. Manson SM, Ackerson LM, Dick RW, Baron AE, Fleming CM. Depressive Symptoms among American Indian adolescents: Psychometric characteristics of the Center for Epidemiologic Studies Depression Scale (CES-D). *Psychol Assess*. 1990; 2:231–237.
9. Beauvais F. Characteristics of Indian youth and drug use. *Am Indian Alsk Native Ment Health Res*. 1992; 5:51–67. [PubMed: 1420541]
10. Dick RW, Manson SM, Beals J. Alcohol use among male and female Native American adolescents: Patterns and correlates of student drinking in a boarding school. *J Stud Alcohol*. 1993; 54:172–177. [PubMed: 8459711]
11. Brown LB. Women and men, not-men and not-women, lesbians and gays: American Indian gender style alternatives. *J Gay Lesbian Soc Serv*. 1997; 6(2):5–20.
12. Lang, S. *Men as Women, Women as Men: Changing Gender in Native American Cultures*. Vantine, JL., translator. Austin: University of Texas Press; 1998.
13. Little C, Wright JA, Brown LA. Gender selection in two American Indian tribes. *J Gay Lesbian Soc Serv*. 1997; 6(2):21–28.
14. Jacobs, SE., Thomas, W., Lang, S. Introduction. In: Jacobs, SE.Thomas, W., Lang, S., editors. *Two-Spirit People: Native American Gender Identity, Sexuality, and Spirituality*. Chicago, IL: University of Illinois Press; 1997. p. 1-18.
15. Walters KL, Evans-Campbell T, Simoni J, Ronquillo T, Bhuyan R. “My spirit in my heart”: Identity experiences and challenges among American Indian Two-Spirit Women. *J Lesbian Stud*. 2006; 10(1/2):125–149. [PubMed: 16873218]
16. U.S. Census. American Indian and Alaska Native Heritage Month. Profile American: Facts for Features. Nov 1.2011
17. U.S. Census Bureau. 2000 Census Summary File 1 (SF 1) 100% Data. 2000
18. Substance Abuse and Mental Health Services Administration (SAMHSA). *Culture, Race, and Ethnicity – A Supplement to Mental Health: A Report of the Surgeon General*. Rockville, MD: U.S DHHS; 2006.
19. Centers for Disease Control and Prevention. Self-reported frequent mental distress among adults, United States 1993–2001. *Morbidity and Mortality Weekly Report*. 2004; 53(41):963–966. [PubMed: 15496824]
20. Substance Abuse and Mental Health Services Administration (SAMHSA). *Summary Findings from the National Household Survey on Drug Abuse 1999 and 2000*. Rockville, MD: U.S. DHHS; 2001.
21. Evans-Campbell, T., Walters, KL. Catching our breath: A decolonization framework for healing indigenous families. In: Fong, Rowena, McRoy, Ruth, editors. *Intersecting Child Welfare*,

- Substance Abuse, and Family Violence: Culturally Competent Approaches. Alexandria, VA: CSWE; 2006.
22. Walters KL, Simoni JM, Evans-Campbell T. Substance use among American Indians and Alaska Natives: Incorporating culture in an “Indigenist” stress-coping paradigm. *Public Health Rep.* 2002; 117(Suppl):S104–S117. [PubMed: 12435834]
  23. Indian Health Service (IHS). *Regional Differences in Indian Health: 1998–1999*. Rockville MD: DHHS; 1999. Indian Health Service, Office of Planning, Evaluation, and Legislation, Division of Program Statistics; 1998–1999
  24. Substance Abuse and Mental Health Services Administration. *Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings*. Rockville, MD: SAMHSA; 2010. Office of Applied Studies, NSDUH Series H-38A, HHS Publication No. SMA 10-4856
  25. U.S. Department of Health and Human Services [USDHHS]. *The DASIS Report: American Indian/Alaska Native Treatment Admissions in Rural and Urban Areas: 2000*. Rockville, MD: Substance Abuse and Mental Health Services Administration, Office of Applied Studies; 2003.
  26. Sheehan D, Janavs J, Baker R, Lecrubier Y, Hergueta T, Weiller E. (INSERM-PARIS, FRANCE) T Proeschel M.I.N.I SCREEN 5.0.0/English version/DSM-IV July/1/06 © 2001–2006 Sheehan DV & Lecrubier Y. All rights reserved. 2006
  27. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, Hergueta T, Baker R, Dunbar GC. The Mini-International Neuropsychiatric Interview (MINI): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. *J Clin Psychiatry.* 1998; 59(Suppl. 20):22–33.
  28. Anderson EM, Malmgren JA, Carter WB, Patrick DL. Screening for depression in well older adults: Evaluation of a short form of the CESD-D. *Am J Preventative Med.* 1994; 10:77–84.
  29. Hamby SL, Skupien MB. Domestic violence on the San Carlos Apache reservation: Rates, associated psychological symptoms and current beliefs. *Indian Health Serv Provid.* 1998; 23:103–106.
  30. Robin, RW., Chester, B., Rasmussen, JK., Jaranson, JM., Goldman, D. *Am J Psychiatry.* Vol. 154. Rockville, MD: Laboratory of Neurogenetics, National Institute on Alcohol Abuse and Alcoholism; 1997. Prevalence and characteristics of trauma and posttraumatic stress disorder in a southwestern American Indian community; p. 1582-1588.
  31. Bar-On D, Eland J, Kleber R, Krell R, Moore Y, Sagi A, Soriano E, Suedfeld P, van der Velden PG, van IJzendoorn MH. Multigenerational perspectives on coping with Holocaust experience: An attachment perspective for understanding the developmental sequelae of trauma across generations. *Int J Behav Dev.* 1998; 22(2):315–338.
  32. Nagata D, Trierweiler S, Talbot R. Long-term effects of internment during early childhood in third generation Japanese Americans. *Am J Orthopsychiatry.* 1999; 69(1):19–29. [PubMed: 9990433]
  33. Yehuda, R. *Risk Factors for Posttraumatic Stress Disorder*. Washington, DC: American Psychiatric Press; 1999.
  34. Walters KL, Mohammed SA, Evans-Campbell T, Beltran R, Chae DH, Duran B. Bodies don’t just tell stories, they tell histories: Embodiment of historical trauma among American Indians and Alaska Natives. *Du Bois Rev.* 2011; 8(1):179–189.
  35. Barocas H, Barocas C. Separation and individuation conflict in children of Holocaust survivors. *J Contemp Psychol.* 1980; 38:417–452.
  36. Jasienska G. Low birth weight of contemporary African Americans: An intergenerational effect of slavery? *Am J Hum Biol.* 2009; 21:16–24. [PubMed: 18925572]
  37. Kuzawa CW, Sweet E. Epigenetics and the embodiment of race: Developmental origins of US racial disparities in cardiovascular health. *Am J Hum Biol.* 2009; 21:2–15. [PubMed: 18925573]
  38. Livanou M, BaSoglu M, Salcioglu E, Kalender D. Traumatic stress responses in treatment-seeking earthquake survivors in Turkey. *J Nerv Ment Dis.* 2002; 190(12):816–823. [PubMed: 12486369]

**TABLE 1**

Sociodemographic characteristics and boarding school experience among 447 AIANs.

	Total	Attended boarding school	Did not attend boarding school	Test statistic
<i>N</i> = 447 (%)				
Gender				.51
Male	227 (50.8)	41 (50.0)	186 (51.9)	
Female	185 (41.4)	33 (40.2)	152 (41.7)	
Transgender	35 (7.8)	14 (6.8)	27 (7.4)	
Age ( <i>M</i> , <i>SD</i> )	39 (11.0)	39.2 (10.5)	39.4 (10.9)	2.33
High School/GED or higher	365 (81.7)	65 (79.3)	300 (82.2)	.38
Household income \$18,000	149 (33.3)	22 (27.5)	127 (36.0)	2.08
Employed (full or part time)	182 (40.7)	27 (32.9)	155 (42.5)	2.52
Stable housing	284 (63.5)	55 (70.0)	229 (65.8)	.42
Have a partner	196 (43.8)	30 (36.6)	166 (45.6)	2.21

Note: *M*, mean, *SD*, standard deviation.

There were no significant differences.

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**TABLE 2**

Differences between substance use and mental health among those who attended boarding school compared to those who had not attended boarding school among 447 AIAN.

	Total	Attended boarding school	Did not attend boarding school	Test statistic
	<b>447 (%)</b>			
Alcohol abuse or dependence	212 (47.4)	48 (58.5)	164 (44.6)	4.97*
Drug use in the past 12 months				
Club drugs	111 (24.8)	15 (78.9)	35 (38.0)	10.64***
Cocaine	278 (62.1)	36 (65.4)	108 (48.4)	5.12*
Marijuana	355 (79.4)	42 (60.8)	156 (54.4)	.90
Methamphetamine	104 (23.2)	10 (55.6)	35 (40.7)	1.34
Narcotics	73 (16.0)	12 (92.3)	31 (51.6)	7.29**
General anxiety disorder	185 (41.4)	32 (39.0)	153 (42.0)	.23
PTSD				.63
No PTSD	185 (41.4)	2 (2.4)	29 (8.0)	
PTSD symptoms	384 (86.0)	74 (90.0)	310 (84.9)	
PTSD DX	32 (7.0)	6 (7.3)	26 (7.1)	
Depression	236 (53)	60 (73.2)	266 (72.9)	.01
Suicidal thoughts	236 (53)	37 (92.5)	173 (88.2)	6.39*
Attempted suicide	236 (53)	30 (75)	104 (53.0)	8.85**

Note.

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$ .

**TABLE 3**

Differences between substance use and mental health among those who had been raised by someone who had attended boarding school compared to those who were raised by someone who had not attended boarding school.

	Total	Caretaker boarding school	No caretaker boarding school	Test statistic
	<b>447 (%)</b>			
Alcohol abuse or dependence	212 (47.4)	93 (52.8)	164 (43.9)	3.41
Drug use in the past 12 months				
Club drugs	111 (24.8)	22 (47.8)	28 (43.0)	.24
Cocaine	278 (62.1)	63 (55.2)	81 (49.3)	.92
Marijuana	355 (79.4)	81 (53.2)	117 (57.6)	.66
Methamphetamine	104 (23.2)	17 (41.4)	28 (44.4)	.08
Narcotics	73 (16.0)	18 (64.2)	25 (55.5)	.66
General Anxiety Disorder	185 (41.4)	86 (48.9)	99 (36.5)	6.69**
PTSD				6.2*
No PTSD	185 (41.4)	6 (3.4)	25 (9.2)	
PTSD symptoms	384 (86.0)	159 (90.3)	225 (83.0)	
PTSD DX	32 (7.0)	11 (6.3)	21 (7.8)	
Depression	236 (.53)	105 (51.7)	131 (54.4)	.31
Suicidal thoughts	236 (.53)	87 (94.6)	123 (85.4)	7.64*
Attempted suicide	236 (.53)	58 (63.0)	76 (52.7)	2.64

Note:

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$ .