



Mental Health, Physical Health, and Cultural Characteristics Among American Indians/Alaska Natives Seeking Substance Use Treatment in an Urban Setting: A Descriptive Study

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Abstract

Although approximately 70% of American Indians/Alaska Natives (AI/ANs) reside in urban areas, our knowledge of risk and protective factors among AI/ANs seeking substance use treatment within urban areas is limited. We analyze substance and commercialized cigarette use, AI/AN cultural identity and involvement, physical health and cognitive functioning, and mental health symptoms among 63 AI/AN adults seeking substance use treatment within an urban area in California. Alcohol (37%), marijuana (27%), and methamphetamine (22%) were the most commonly reported substances. Sixty-two percent used commercialized tobacco use. The majority of AI/AN adults (78%) engaged in at least one traditional practice during the past month and endorsed high levels of spiritual connectedness. Those who engaged in traditional practices demonstrated significantly less depression ($p = 0.007$) and anxiety ($p = 0.04$). Medical and mental health issues were not prominent, although participants revealed high levels of cognitive impairment. Results highlight the importance of utilizing AI/AN traditional practices for AI/AN adults seeking substance use treatment within urban areas. *Clinical Trials Registry Number* NCT01356667.

Keywords American Indians · Alaska Natives · Mental health · Substance use · Urban

Introduction

Substance use disproportionately affects American Indians/Alaska Natives (AI/ANs) (Wilson et al. 2020; SAMHSA 2019). AI/ANs had the second highest overdose rates from all opioids in 2017 (15.7 deaths/100,000 population) among racial/ethnic groups in the U.S. according to the most recent Centers for Disease Control (CDC) report (Wilson et al.

2020). Furthermore, the most recent data show that the percentage of adults who needed and did not receive substance use treatment at a specialty clinic in 2018 was highest among AI/ANs (9.4%), followed by Native Hawaiian/Other Pacific Islander (NHOPI) (8.6%), “two or more races” (8.3), and non-Hispanic Whites (8.3%) (SAMHSA 2019). Addiction is a multi-dimensional disease, and is associated with various biological, psychological, and social risk and protective factors (Nikmanesh et al. 2014; Skewes and Gonzalez 2013). This is important to recognize as these factors may lead to success or failure in substance use treatment. Although approximately 70% of AI/ANs reside in urban areas (U.S. Census 2010), our knowledge of risk and protective factors among those seeking substance use treatment in urban areas is limited. Furthering our knowledge of these risk and protective factors can help optimize culturally appropriate substance use treatment approaches, thus helping decrease the burden of substance use among urban AI/ANs.

Recreational alcohol and other drug (AOD) use prior to European and Russian contact did not exist among AI/ANs. Historical traumas including forced relocations from Native lands, numerous broken treaties, forced placement

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into boarding schools, and laws prohibiting use of spiritual practices contributed to disrupted AI/AN communities and numerous health disparities, including substance use (Mancall 1993; Brave Heart 2005; Duran and Duran 1995; Johnson 2006). Many AI/AN elders and community leaders believe that a decrease in cultural involvement among some AI/ANs has contributed to greater substance use among this population (Dickerson et al. 2012a, b; NAHC 2012). In addition, the Relocation Act of 1954, which sought to assimilate AIs into urban areas, has contributed to numerous health disparities known to exist among this population, resulting in less access to community based support systems and engagement in traditional and spiritual practices (Myhra 2011; Myhra and Wieling 2014).

In order to optimize substance use treatment approaches for urban AI/ANs, it is first important to understand substances used by urban AI/ANs seeking substance use treatment. According to the most recent National Survey of Drug Use and Health (NSDUH), in 2018, the most reported substance used within the past month among AI/ANs was alcohol (39.2%), followed by marijuana (15.1%), methamphetamine (0.9) and misuse of pain relievers (0.9) (SAMHSA 2019). AI/ANs also have the highest commercialized tobacco use rates compared to all other ethnic/racial groups in the U.S. (CDC, n.d.). However, few studies describe the substance and commercialized tobacco use among urban AI/ANs seeking substance use treatment.

AI/ANs also experience a high burden of physical health issues commonly associated with substance use. For example, from 1999 to 2016, annual increases in cirrhosis related mortality are most pronounced for Native Americans (designated as “American Indians” in the census database) (4.0%, 95% CI 2.2–5.7%, $p = 0.002$) (Tapper and Parikh 2018). Also, in a study conducted among Native and Mexican American adults ($n = 228$), those with lifetime history of alcohol use disorder (AUD) showed higher rates of systolic and diastolic hypertension and obesity than participants without lifetime AUD (Criado et al. 2016). One study conducted among a Plains tribe found extensive cognitive impairment among current male drinkers (Harris et al. 2003). This is important to recognize as cognitive impairment can contribute to low quality of life and higher substance use treatment dropout rates (Andreassen et al. 2019).

In terms of mental health, AI/ANs often report high rates of traumatic exposure, depression and anxiety (Emerson et al. 2017). Based on data from the 2012 to 2013 U.S. National Epidemiologic Survey on Alcohol and Related Conditions–III, findings indicate a trend whereby AI/ANs with posttraumatic stress disorder (PTSD) are also more likely to have AUD compared to non-Hispanic Whites in the general U.S. population (Emerson et al. 2017). Furthermore alcohol use and legal intoxication prior to completed suicide are highest among AI/ANs (Caetano et al. 2013).

Among those struggling with substance use, personal relationships and attachment can also play a role (Owens et al. 2014; Flores 2001; Padykula and Conklin 2010; Riggs et al. 2007). For example, low levels of emotional involvement in close relationships is associated with attachment avoidance that may lead to maladaptive behaviors and addiction issues (Liu and Ma 2019).

It is also important to note that AI/ANs have historically placed high importance on traditional and spiritual practices that have helped to sustain healthy communities (Dickerson et al. 2012a, b; NAHC 2012) and decrease substance use (Walton-Moss et al. 2013; Stone et al. 2006; Kulis et al. 2012); however, few studies address these cultural domains among urban AI/ANs. A recent study by our group found that the majority of urban AI/AN adolescents enrolled in a substance use prevention study had participated in many different traditional practices (D’Amico et al. 2019), and urban AI/AN adolescents who identified as AI/AN on their survey reported better mental health, less alcohol and marijuana use, lower rates of delinquency, and increased happiness and spiritual health (Brown et al. 2019).

This paper addresses gaps in understanding urban AI/ANs seeking substance use treatment by providing descriptive information on risk and protective factors in a sample of 63 urban AI/AN adults age 20 to 65 enrolled in a feasibility clinical trial analyzing the potential benefits of Drug-Assisted Recovery Therapy for Native Americans (DARTNA) (Dickerson et al. 2012a, b; Dickerson et al. 2014). We provide information on substance and commercialized tobacco use, AI/AN cultural identity and involvement, physical health and cognitive functioning, and mental health from a baseline assessment. Given previous work in this area, we hypothesized that: (1) alcohol would be the most frequently used substance, (2) approximately 50% of urban AI/ANs would report commercialized tobacco use, (3) the sample would report low levels of AI/AN cultural identity and involvement due to the urban location, (4) physical health and cognitive functioning would be below average due to health disparities present among this population, (5) depression and anxiety would be clinically prevalent, (6) and utilization of close relationships would be low.

Methods

Procedure

AI/AN adults seeking substance use treatment were recruited in a large urban area in southern California from 2016 to 2019 as part of a feasibility intervention trial testing DARTNA. Initially, to be eligible for the project, participants were required to be receiving outpatient substance use treatment and to meet *Diagnostic and Statistical Manual of*

Mental Disorders (DSM)-IV-TR criteria for a substance use disorder (APA 2000). To enhance feasibility and recruitment, based on discussions with our community advisory board (CAB), criteria were broadened later in the study to include those receiving either outpatient or inpatient substance use treatment, mental health services, AI/AN traditional practice engagement, or Alcoholics Anonymous (A.A.)/Narcotics Anonymous participation. With regard to substance use, participants only had to report any alcohol or drug use during the past year due to possible under-reporting of substance use by individuals interested in participating in the study. Expanding the inclusion criteria helps to gather data analyzing the potential benefits of DARTNA among AI/ANs who may benefit from this intervention. Data are from the baseline survey, and participants received \$25 for completing their survey. The RAND Institutional Review Board approved procedures for this study (#2016-0023-CR04). We utilized a Community-Based Participatory Research approach in our recruitment and engagement of the AI/AN community, which is reflective of an approach routinely used in National Institutes of Health (NIH)-funded studies of new health interventions with ethnic/racial minority groups (Dickerson et al. 2018; Wallerstein and Duran 2010). We held community information events to introduce and discuss the project, and attended Pow Wows and other community events. Our collaborator, Sacred Path Indigenous Wellness Center (SPIWC), and the DARTNA community advisory board worked closely with the research team to ensure that our recruitment and engagement methods were culturally appropriate.

Measures

Demographic Items

Demographic items include age, gender, race and ethnicity, education, employment, marital status, and tribal affiliation. Also, clients indicated if they were currently receiving either inpatient or outpatient services.

Substance and Commercialized Tobacco Use

Substance Use Inventory (SUI) This instrument collects data on number of days of use for a variety of substances (alcohol, tobacco, marijuana, cocaine, amphetamines, methamphetamines, barbiturates, benzodiazepines, hallucinogens, inhalants, ecstasy, opiates, PCP, and “any other drug”) over a 30-day period prior to the assessment (Weiss et al. 1995). We also collected number of drinks and cigarettes per day.

Urine Drug Screen We collected urine samples using temperature controlled urine drug test cups, which tested for the

presence of the following drugs: opioids, benzodiazepines, cocaine, amphetamine, methamphetamine, and marijuana.

The General Alcoholics Anonymous Tools of Recovery (GAATOR 2.1) This instrument measures adoption of the prescribed A.A. 12-step principles and practices (Tonigan et al. 1994). The total GAATOR score has shown good to excellent internal consistency, significant associations with increased abstinence, and good internal reliability (Montgomery et al. 1995; Tonigan et al. 2000). In a study analyzing 12-step program attendance, attrition, and outcomes among urban AIs, this 24-question assessment was successful (Tonigan et al. 2013). Possible answers were “definitely false,” “false,” “true,” and “definitely true.” We assigned a score of 0 for answers “definitely false” and “false.” We assigned a score of one for “true” and a score of two for “definitely true.” The highest possible score is 48. A score of 24 would indicate that respondents, on average, answered “true” to their application of the 12-steps in their lives and a score of 48 would indicate that respondents, on average, answered “very true” to their application of the 12-steps in their lives. The internal consistency reliability is high for this scale (Cronbach’s $\alpha = .90$).

AI/AN Cultural Identity and Involvement

Addiction Severity Index, Native American Version (ASI-NAV), Spirituality and Ceremonial Practices The ASI-NAV is an adaptation of the ASI developed to accommodate AI/AN traditional practices (Carise and McLellan 1999). The ASI demonstrates good reliability and validity among various populations (Grissom and Bragg 1991; Kosten et al. 1983; McLellan et al. 1985). We used eleven yes/no questions from the scale focused on spirituality and ceremonial practices.

Additional Traditional Practice Participation Participants also had the opportunity to write specific AI/AN traditional practices they participated in during the last month on their baseline assessment. They also reported how many days in the last month they participated in traditional practices. Participants in this study were able to voluntarily participate in AI/AN traditional practices at treatment centers and clinics.

Urban American Indian Identity Attitude Scale (UAIIS) This 10-item self-actualization subscale examines AI/AN cultural identity (Walters 1999, 2006; Chae and Walters 2009; Walters 2009; Kulis et al. 2016). Questions on this survey include “I feel good about my Indian identity” and “Traditional Indian ways are not for me.” A Likert Scale is used with 1 = strongly disagree, 2 = somewhat disagree, 3 = somewhat agree, 4 = strongly agree. We reverse scored

some items so that higher scores on the derived scale indicated greater connection with AI/AN identity. The Cronbach's alpha for this scale in our study was .73.

Functional Assessment of Chronic Illness Therapy (FACIT)-Spiritual Questions Only Expanded Using a five-item Likert scale from 1 to 5, this 23-item spirituality scale measures comfort and strength derived from one's spiritual beliefs or connection to God or a Higher Power (Brady et al. 1999). This measure has demonstrated high reliability among diverse population samples (Bormann et al. 2009), including a small but representative AI/AN sample (Bormann et al. 2006). Higher scores indicate better quality of life (QOL). For this report, we analyzed the meaning/peace subscale (8 items) and faith subscale (4 items), both with satisfactory internal consistency. The Cronbach's alpha for these two subscales in our study were .84 and .76.

Physical Health and Cognitive Functioning

Physical Health Questionnaire (PHQ) The PHQ is a brief self-report scale of somatic symptoms (Schat et al. 2005). The first 3 questions include: "In general, would you say your health is (excellent, very good, good, fair, or poor)," "In the past month, I have been physically able to do the activities I enjoy most...(With no trouble, with a little trouble, with some trouble, or not able to do)," and "In the past month, I could do sports and exercise that other people my age could do (with no trouble, with a little trouble, with some trouble, with a lot of trouble, or not able to do)." Values from 1 to 5 were assigned to these three questions with a higher number indicating better health. This PHQ-Health subscale has acceptable internal consistency reliability, with Cronbach's alpha at .77. Physical ailments during the past 4 weeks included questions asking, "During the past 4 weeks, how much have you been bothered by any of the following problems? (a) stomach pain, (b) headaches, (c) feeling tired or having low energy, and (d) trouble sleeping. Answers included "not bothered at all," "bothered a little," and "bothered a lot." We calculated the sum of "bothered a little" or "bothered a lot" responses for the four problems for a range of zero to four. The PHQ-ailments subscale has acceptable internal consistency reliability, with Cronbach's alpha at .71.

Functional Assessment of Chronic Illness Therapy-Fatigue (FACIT-F), (Version 4) This 40-item scale includes five subscales that measure physical well-being, social/family well-being, emotional well-being, functional well-being, and additional concerns related to fatigue (Fisk et al. 1994). Each question has response options ranging from 1 = "Not at all" to 5 = "Very much." This scale has demonstrated good reliability and internal consistency (Hwang et al. 2003;

Yellen et al. 1997) and good validity (FACIT.org 2013), and various populations use this scale, translating it into 57 languages. We calculated the FACIT-F total as the sum of 27 of the 40 items (range 27–135), which includes the summation of the physical well-being score, social well-being score, emotional well-being score, and functional well-being score. For all FACIT scales and symptom indices, the higher the score, the better the quality of life. Cronbach's alpha for this scale is .76.

Functional Assessment of Cancer Therapy-Cognitive Function (FACT-Cog), Version 3 This 37-item cognitive function scale measures areas associated with cognitive function, including perceived cognitive impairments, comments from others (i.e., observations by others regarding cognition), perceived cognitive abilities, and impact on quality of life (Wagner et al. 2009). The FACT Cognitive Function Total score is derived from items on a Likert scale with responses ranging from 1 = "Never" to 5 = "Several times a day." and demonstrates good validity and reliability with diverse ethnic populations (Cheung et al. 2013). The higher the score the better the cognitive functioning. The score, a sum of the 37 items, has a range of 37–185, and Cronbach's alpha of .98.

Mental Health

Patient Health Questionnaire (PHQ-9) This assessment is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression. The PHQ-9 incorporates DSM-IV depression diagnostic criteria with other leading major depressive symptoms and thoughts of suicide into a brief self-report tool. PHQ-9 scores >10 have a sensitivity of 88% and a specificity of 88% for major depression (Kroenke et al. 2001). The Likert Scale responses range from zero ("Not at all") to three ("nearly every day") for each question with zero being not depressive to three to being the most depressed. A total score of 0–4 indicates minimal depression, 5–9 for mild depression, 10–14 for moderate depression, 15–19 for moderately severe depression, and 20–27 for severe depression. Cronbach's alpha for this scale is .87 in this study.

Generalized Anxiety Disorder (GAD-7) The GAD-7 consists of seven items that measure anxiety. Scores for each question range from 0 ("Not at all sure") to 3 ("nearly every day") with higher scores for more anxiety. This scale demonstrates good reliability and validity for the diagnosis of generalized anxiety disorder. In this study, Cronbach's alpha is .90. Scores on the GAD-7 range from 0 to 21; scores of 5, 10, and 15 represent mild, moderate, and severe anxiety symptoms, respectively. A later study (Spitzer et al. 2006) recommended a score of 8 or

greater as a cut-point to warrant further investigation on anxiety disorder. At a cut-point of 8 or greater, sensitivity and specificity approached or exceeded 75% for generalized anxiety disorder and other common anxiety disorders such as panic disorder, social anxiety disorder, and post-traumatic stress disorder (Spitzer et al. 2006).

Experiences in Close Relationships Scale-Short Form (ECR-S). This questionnaire assesses a general pattern of adult attachment (Wei et al. 2007). There is an anxiety subscale and an avoidance subscale. Examples of questions include “I turn to my partner for many things, including comfort and reassurance” and “I worry that romantic partners won’t care about me as much as I care about them.” Response options include 1 = “strongly disagree,” 4 = “neutral,” and 7 = “strongly agree.” The higher the score, the less an individual utilizes and has close relationships. This assessment demonstrates good reliability with Cronbach’s alpha of .74 for the anxiety subscale and .69 for the avoidance subscale.

Statistical Analysis

Given high levels of participation in traditional practices, we decided to explore the association between level of involvement in traditional practices and depression (PHQ-9 score) and anxiety (GAD-7 score) in this small sample. We conducted this analysis given work emphasizing the protective nature of traditional practice engagement on AI/AN mental health (APA 2017; Dickerson et al. 2014; UIHI 2012).

Results

Demographic Items

Sixty-three adults enrolled in our study. Prior to enrolling, all participants self-identified as AI/AN, and those who completed the demographics questionnaire (all but one participant) also identified as being AI/AN on their baseline questionnaire. Fifty-four percent of our sample also identified as Latinx (see Table 1). The majority of our sample was male (94%), with an average age of 39 years. Sixty percent were unemployed (past 3 months), the average number of years of completed education was 13 years, and 13% were legally married. Fifty participants (79%) were currently participating in inpatient substance use treatment. This sample represents thirty-three tribes. Due to confidentiality issues, we do not report specific tribal information as recommended in past research (Norton and Manson 1996).

Table 1 DARTNA sample demographics (n=62)

	N	Percent or mean (SD)
Age	62	38.9 (9.8)
Sex		
Female	3	5
Male	58	94
Transgender	1	2
Education completed (years)	62	12.6 (1.6)
Usual employment pattern (past 3 months)		
Full time	9	15
Part time	9	15
Student	0	0
In controlled environment	2	3
Service	0	0
Retired/disability	5	8
Homemaker	0	0
Unemployed	37	60
Current marital status		
Legally married	8	13
Living with partner/cohabitating	1	2
Widowed	1	2
Separated	5	8
Divorced	12	19
Never married	35	56
Latinx ethnicity	33	54

One participant did not complete the demographics instrument

Table 2 Substance and commercialized tobacco use in the past 30 days (n=63)

Substance	Mean (SD)	Number of subjects who used (%)
Alcohol	2.9 (5.0)	23 (37%)
Marijuana	3.2 (7.0)	17 (27%)
Cocaine	0.3 (1.4)	5 (8%)
Methamphetamine	1.8 (4.7)	14 (22%)
Benzodiazepines	0.0 (0.0)	0 (0%)
Opiates	0.3 (1.2)	3 (5%)
Commercialized tobacco use	17.4 (14.6)	39 (62%)
Typical number of...		
Drinks per day	1.5 (4.5)	23 (37%)
Cigarettes per day	5.2 (6.8)	39 (62%)

Substance and Commercialized Tobacco Use

As shown in Table 2, alcohol was the most frequently reported substance used over the past 30 days among the sample with 37% reporting use on at least 1 day, followed by marijuana (27%) and methamphetamine (22%). Sixty-two percent reported use of commercialized tobacco during

the past 30 days. Urine drug screen results demonstrated 14 participants tested positive for marijuana, two tested positive for methamphetamine, and six tested positive for benzodiazepines. The GAATOR BL 2.1 total average score was 26.3 out of 48, indicating that respondents on average answered just above “true”, suggesting a moderate level of the applicability of the 12-steps.

AI/AN Cultural Identity and Involvement

Based on the ASI-NAV (Table 3), 73% of the sample reported regularly participating in traditional practices. Sixty-eight percent said that they had a spiritual leader or traditional culture person available for guidance. Also, three fourths said that they would like help with learning more about prayer (76%), and most indicated that they would like help learning more about meditation (87%). Another questionnaire asked participants to specify the types of AI/AN traditional activities they participated in during the last month, and how many of those days they engaged in traditional practices. Forty nine (78%) AI/AN adults wrote that they had participated in at least one traditional practice during the past month. The most frequently reported traditional practices reported were sweat lodge ceremony (40/63, 63%), talking circles (30/63, 48%) and attending a pow-wow (14/63, 22%). On average, participants engaged in traditional practices 6.3 days/month (range 0–31 days).

The average self-actualization score from the UAIIS was 3.4/4 indicating that participants typically answered

above “somewhat agree” about their self-actualization as an urban AI/AN (Table 4). In addition, the FACIT-Spiritual Questions Only-Expanded, meaning/peace subscale average score was 3.8 out of 5, and the Faith subscale was 4.0 out of 5, indicating high levels of spiritual connectedness.

Physical Health and Cognitive Functioning

Overall, participants indicated that their health was good (3.6 out of 5 on the PHQ-Health subscale; Table 4). Participants reported feeling bothered by an average of 2.4 of four physical ailments. The FACIT-F (version 4), FACT-G total average score was 98.3 out of 136, indicating high overall physical/social-family/emotional/functional well-being. The FACT-Cog (Version 3) total average mean (SD) was 45.0 (32.5) out of a possible total score of 185, indicating poor cognitive functioning.

Mental Health

As shown in Table 4, the average PHQ-9 score was 8.0, indicating mild depression, and the average GAD-7 score was 7.2, which is not indicative of having an anxiety disorder. The ECR-S anxiety subscale average score was 3.8 (very close to a neutral score of 4), and the avoidance subscale average scale score was 3.4, between “neutral” and “slightly disagree” with regard to respondents’ having close relationships.

Table 3 Spiritual and ceremonial practices from Addiction Severity Index, Native American Version (n=63)

	Answering “yes”	
	N	%
Spirituality-related questions		
Do you have belief in a “God” or a “Higher Power,” or a “Creator?”	63	100
Concerning your spiritual life, what changes would you like help making? ^a		
Learning more about prayer?	48	76
Learning more about meditation?	55	87
Education about a particular religion/spirituality?	45	71
Changing attitude toward God/Creator?	42	68
Do you have a spiritual leader or traditional culture person available for guidance?	43	68
Do you seek out and utilize this person from time to time?	39	62
Cultural activity participation-related questions		
Do you regularly participate in		
Native American religious ceremonies/activities?	42	67
Native American church meetings?	20	32
Native American cultural activities?	46	73
Native American dance activities?	15	24

^aParticipant did not answer this question; thus the percentage is out of n=62

Table 4 Assessment scores with regard to 12-step knowledge, spirituality and cultural identity, physical health, and mental health

Assessment	Mean/max possible (SD)
12-step knowledge	
GAATOR BL 2.1 total score ^a	26.3/48 (8.3)
Culture and spirituality	
UAHS cultural identity scale ^b	3.4/4.0(0.5)
FACIT-spiritual questions only-expanded, meaning/peace subscale ^c	3.8/5.0 (0.8)
FACIT-spiritual questions only-expanded, faith subscale ^c	4.0/5.0 (0.9)
Physical health	
PHQ: health subscale ^d	3.6/5.0 (1.0)
PHQ: physical ailments subscale (0–4 count) ^e	2.4/4.0 (1.4)
FACIT-F, FACT-G total ^f	98.3/136 (18.9)
FACT cognitive function total score ^g	45.0/185 (32.5)
Mental health	
PHQ-9 ^h	8.0/27 (6.1)
GAD-7 ⁱ	7.2/24 (5.5)
Experiences in close relationships, anxiety ^j	3.8/7 (1.6)
Experiences in close relationships, avoidance ^k	3.4/7 (1.2)

^aScores range from 0 to 48. A score of 24 would indicate that respondents, on average, answered “true” to their application of the 12-steps in their lives and a score of 48 would indicate that respondents, on average, answered “very true” to their application of the 12-steps in their lives

^bThis is the average score for each question, ranging from 1 to 4. A higher level indicates greater connection with their AI/AN identity

^cScores range from 1 to 5. A higher score indicates more spiritual connectedness with these subscales

^dValues from 1 to 5 were assigned to the answers to each question with a higher number indicating better health

^eSum, with range 0–4, of “bothered a little” or “bothered a lot” responses to questions about stomach pain, headaches, feeling tired, and having trouble sleeping

^fScore range 27–135. A higher score indicates better quality of life as it relates to physical, social, emotional, and functional well-being

^gScore range 37–185. A higher score reveals better cognitive functioning

^hTotal score ranges indicate: 0–4: minimal depression, 5–9: mild depression, 10–14: moderate depression, 15–19: moderately severe depression, and 20–27: severe depression

ⁱScore range 0–21. A total score less than 8 indicates no anxiety disorder, and 8+ would be probably anxiety disorder

^jScore range 1–7. Higher values indicate greater anxiety about relationships

^kScore range 1–7. Higher values indicate more avoidance in relationships

Association Between Traditional Practice Engagement on Depression and Anxiety

Higher traditional practice engagement based on the frequency of participation was correlated with lower (healthier) PHQ9 score ($p = .007$) and GAD score ($p = 0.04$).

Discussion

The current study helps to fill a gap toward understanding risk and protective factors of urban AI/AN adults seeking substance use treatment. Findings from this sample of urban AI/AN adults reveal similar substances use compared to nationwide AI/AN data, with alcohol and marijuana

reported most frequently along with high commercialized cigarette use. Results also highlight that this sample of urban AI/AN adults engaged in many traditional practices, particularly sweat lodge ceremonies and talking circles, which correlates with their high levels of spirituality and cultural involvement. Integrating traditional practices within urban substance use programs can help ensure culturally responsive care for this population and hopefully decrease the burden of substance use among urban AI/ANs (D’Amico et al. 2020; Pomerville and Gone 2018). However, the utilization of traditional practices within the Western medical model creates various challenges, including the need for a more seamless integration model, empirically conducted research, and ethical responses to community-driven suggestions for more spiritual and cultural practices.

Presently, there are very few evidence-based interventions that utilize or integrate traditional practices as few have undergone the NIH research process to demonstrate their effectiveness (Dickerson et al. 2018). However, the funding opportunity announcement, Interventions for Health Promotion and Disease Prevention in Native American Populations (R01), (PAR-14-260) (DHHS 2014), first implemented in 2011, was a call for studies to develop, adapt, and test the effectiveness of health-promotion and disease-prevention interventions in NA populations (Crump et al. 2020). Data generated from this initiative may ultimately help to demonstrate how traditional practices can help AI/ANs across a variety of conditions, and help devise implementation and dissemination strategies within substance use treatment programs (Jernigan et al. 2015, 2020). Very few studies, however, address the urban AI/AN population, and to date, only one study of 31 funded under the IRINAH mechanism analyzed the benefits of an intervention among urban AI/AN teens using an RCT design (Dickerson et al. 2018).

There is also a great need for culturally appropriate approaches to commercialized smoking among urban AI/ANs seeking substance use treatment. Studies conducted thus far have emphasized the benefits of evidence based treatment for patients within inpatient substance use treatment programs, and environmental restrictions to discourage tobacco use for patients within inpatient substance use treatment programs (Romano et al. 2019). Among AIs (ANs do not commonly use traditional tobacco), it is also important to provide education with regard to the traditional and ceremonial uses of tobacco among various tribes (Sanderson et al. 2018). Traditional tobacco is culturally and spiritually important among many AI tribes (NNN 2015).

The majority of the sample endorsed good health, although they reported poor concentration scores. Deficits in cognitive functioning are widely seen in the addiction cycle, and can contribute to addiction and relapse vulnerability (Ramey and Regier 2018). Recent work has shown that drumming can assist with concentration and in synchronizing brain activity (Drake 2019), thus helping individuals during their recovery process. We are currently analyzing the potential benefits of DARTNA, which includes drumming and singing, on concentration among our sample of urban AI/AN adults.

Participants in this study reported mild depression and anxiety symptoms. Their relatively mild symptoms may be due to the majority of the sample taking part in inpatient substance use treatment and being in a supportive environment. However, those who reported greater participation in traditional practices in the last month also reported less anxiety and depression. It is important to recognize the commonality of mental health disorders and substance use among this population. In addition to currently available evidence based treatments for substance use and mental health

disorders, utilization of sweat lodge ceremonies and talking circles, in particular, may help to enhance wellness among urban AI/ANs (Gone et al. 2017; Mehl-Madrona and Mainguy 2014). Results also highlight the potential benefits of traditional practice engagement on depression and anxiety. Research is needed with larger samples of urban AI/ANs to understand the potential benefits of traditional practices on depression and anxiety. In addition, participation in traditional practices may also help to enhance interpersonal skills by connecting more with available support networks, relationships, and family members which may help AI/ANs achieve and maintain sobriety.

This study is subject to various limitations. First, we conducted this study in one urban area in California and among a small sample mostly comprised of AI/AN adult males. Participants were also able to request and participate in traditional practices at treatment centers and clinics participating in this study. It is important to understand the differences in AI/AN traditional practice services between inpatient and outpatient substance use treatment centers serving AI/AN adults. Thus, this sample may not reflect actual traditional practice participation among urban AI/AN adults. In addition, we did not have information with regard to current and lifetime residential history between rural/reservation and urban areas.

Conclusion

Findings from this sample of urban AI/AN adults reveal similar substance use compared to nationwide AI/AN data. Our sample also reported high traditional practice involvement, highlighting the importance of providing an integrated treatment model that addresses their unique cultural and spiritual, physical and mental health care needs. Also, mental health and physical health issue levels were low. Given the dearth of data on urban AI/AN seeking substance use treatment, we suggest additional, larger studies analyzing protective and risk factors, thus helping to enhance treatment approaches and outcomes among this population.

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Compliance with Ethical Standards

Conflict of interest All authors declare that there is no conflict of interest. All authors certify responsibility. NIAAA supported this research (1R34AA024818, Dickerson, PI).

Ethical Approval All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964

Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Research Involving Human Participants and/or Animals This article does not contain any studies with animals performed by any of the authors.

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