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A COMMUNITY-BASED EVALUATION OF A CULTURALLY GROUNDED, AMERICAN INDIAN AFTER-SCHOOL PREVENTION PROGRAM: THE VALUE OF PRACTITIONER-RESEARCHER COLLABORATION

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Abstract: Programs serving American Indian (AI) youth are an important component of maintaining cultural identity and healthy lifestyles. The current research took a community-engaged approach to evaluate an urban AI youth after-school program that has transitioned into a culturally grounded prevention program. Ways to create a successful research collaboration between AI communities and academics is discussed as well as implications for understanding the importance of culturally-grounded programs for AI youth who reside in urban areas. Overall, the cultural and health components that are integrated into the after-school program were highlighted as primary strengths because they help foster a healthy lifestyle and deeper connection to the heritage/culture for the youth who participated.

INTRODUCTION

Research indicates that American Indians (AI) endure many difficulties as they attempt to thrive in a mainstream culture that is markedly different from their own cultural beliefs and practices (Garrett et al., 2014). This is particularly true for AIs who reside off the reservation in urban settings due to forced immersion into mainstream U.S. culture and an experienced disconnect from native lands, family members, language, and culture (Brown, Dickerson, & D'Amico, 2016; Garrett, Bellon-Harn, Torres-Rivera, Garrett, & Roberts, 2003; Schweigman, Soto, Wright, & Unger, 2011). These differences in culture often are not compatible with one another and can result in further difficulties in navigating these distinct worldviews. Other challenges include poverty and differing health disparities which impact this population at a disproportionate rate (Weaver, 2012). These include elevated rates of behavioral health issues such

as substance use and suicide. Many of these disparities stem from factors such as early trauma and childhood abuse, cultural displacement, unemployment, discrimination, and poverty within AI communities (Rieckmann, et al., 2012). Additionally, AIs have some of the highest rates of chronic health diseases, accidental death, and other comorbid conditions. To further compound the problem, AI individuals have limited access to resources and health care, which can cause more issues pertaining to these disparities (Rieckmann et al., 2012).

AI youth, similar to their adult counter-parts, show increased risk for a number of health-related issues including use of tobacco, alcohol, and drugs; mental illness; and suicidal behaviors (Langdon et al., 2016; May, Serna, Hurt, & DeBruyn, 2005; Rieckmann et al., 2012; Sarche & Whitesell, 2012; Schinke, Tepavac, & Cole, 2000; Weaver, 2012). To address these issues within the AI community, research has often focused on the concept of cultural identity. The promotion and maintenance of cultural identity has been associated with a number of positive youth outcomes including better physical and psychological health, school success, and suicide and drug use prevention (Friesen et al., 2014; Herman-Stahl, Spencer, & Duncan, 2003; Jones & Galliher, 2007; Schinke et al., 2000; Whitbeck, Hoyt, Stubben, & LaFromboise, 2001; Schweigman et al., 2011). There is general consensus amongst the literature that a strong cultural identity positively impacts youth because it allows them to place their own experiences within a historical perspective and promotes an awareness of "…how the past, present, and future are tied together" (Friesen et al., 2014, pg. 4; Wexler, 2009). Underlying this historical perspective is an understanding of historical trauma associated with AI populations across the United States and how their torrid history of colonialization and forced assimilation has impacted intergenerational trauma outcomes (Walls & Whitbeck, 2012; Ehlers, Gizer, Gilder, & Yehuda, 2013).

The Role of Culturally Grounded and Indigenous Prevention Programs

In order to promote cultural identity and subsequently assist in the prevention of adverse health outcomes for AI youth, two approaches to prevention programs have been developed. Culturally grounded programs start within the targeted community and are built "…from the values, behaviors, norms, and worldviews of the populations they are intended to serve" (Okamoto, Kulis, Marsiglia, Steiker, & Dustman, 2014, pg. 2). Culturally grounded programs take a bottom-up approach and are situated within a collaborative relationship between researchers and community partnerships where both groups work together to develop a culturally appropriate evidence-based prevention program (Lauricella, Valdez, Okamoto, Helm, & Zaremba, 2016).

Indigenous prevention programs, while also being derived from the ground up and have a foundation in cultural values and practices, do not incorporate researcher/academic involvement, but instead rely solely on community stakeholders to develop the program (Lee, Vu, & Lau, 2013). Literature on Indigenous approaches is far more limited than culturally grounded approaches, likely due to the absence of researchers who typically publish the work.

Lauricella and colleagues (2016), in their literature review of minority youth culturally grounded prevention programs, acknowledge the variety of Indigenous culturally grounded programs for youth that have been studied, and they suggest additional research on effective prevention methods for this group. Additionally, Lauricella et al. (2016) build on other research that emphasizes the importance of community-based participatory research (CBPR) strategies for building culturally grounded programs in minority communities. CBPR has been shown to be an effective tool for building a collaborative and engaged partnership between AI communities and academics to promote the end goal of reduced health disparities (Langdon et al., 2016; Stacciarini, Shattell, Coady, & Wiens, 2011; Wallerstein & Duran, 2006). Lastly, the systematic literature review by Lauricella et al. (2016) identifies that most culturally grounded programs reside within rural communities, likely because of the diversity in cultures present in more urban settings, which can be a challenge to the development and sustainability of culturally grounded programs.

Pathways Youth Program

Pathways youth program (referred to as Pathways throughout remainder of the paper) is an after-school program of the Native Americans for Community Action (NACA), which is a non-profit organization serving AIs in northern Arizona. Pathways is free of charge and relies heavily upon external grant funding from the Indian Health Service (IHS) and the United Way. The program was originally developed over thirty years ago using an Indigenous approach with a curriculum developed by individuals within the community organization without input from researchers/academics. Over time, the program staff members have worked with various academic entities to enhance programmatic content while still prioritizing cultural values, norms, and practices. Currently, the program has a strong partnership with an academic institution to assist it with further curriculum development and evaluation, thus it has now crossed-over into a culturally grounded program.

Pathways serves elementary and middle school-aged (5-13) AI youth who are considered "at-risk" and live off-reservation in urban areas. In a fiscal year, the program staff interact with

approximately 90 children, with regular, consistent program attendance of around 40 youth. The participants in the program are considered "at-risk" due to factors such as low self-esteem, academic underachievement, inadequate support systems, parental instability, accessibility of alcohol/drugs, etc. Some of these difficulties may also stem from unresolved trauma caused by cultural assimilation, forced relocation, livestock reduction, and other modes of institutionalized discrimination occurring over multiple generations (Walls & Whitbeck, 2012; Ehlers et al., 2013). In order to best combat this historical trauma, Pathways is a multi-faceted program with an emphasis on substance abuse resistance while also promoting various life skills which foster personal growth and overall wellness.

Pathways is structured as a non-traditional after-school program in that it has designated time for free play and homework instruction/tutoring similar to other after-school programs, but it also incorporates *culturally appropriate* programmatic content on substance abuse and whole-body wellness, including physical fitness, nutrition, and healthy lifestyle choices. It is estimated that 150 curricular sessions take place in a fiscal year. The program operates Monday through Thursday from 2:30-6:00. In the past, children could attend every day, but given the demand for participation in the program and to allow more children the opportunity to participate, attendance is capped at two days a week. The foundation of the program is rooted in a commitment to promoting Indigenous cultural identity. The targeted outcome of the program is increased resiliency in AI youth through the Developmental Assets framework and approach to youth development (Benson, 1997). Resilience for the purposes of Pathways incorporates increased self-esteem, understanding a holistic view on healthy living including risks associated with substance abuse, and skill-building in decision-making, conflict resolution, and effective communication. The mechanism to build resilience is specific programming that supports AI youth in academics, enrichment activities, healthy lifestyle options, and AI language and culture.

The Pathways curriculum is designed to give the students many opportunities to learn about and practice the uniquely special aspects of their Indigenous cultures. From learning how to introduce themselves by clan in their native language, to learning winter "coyote stories," to practicing weaving, beading, and moccasin making, the participants remain actively engaged in many aspects of their culture, which serve to strengthen their self-worth and ability to make positive life choices. The program also has a strong academic component and receives weekly academic progress reports from a majority of participants' teachers, which guides the need for tutoring or homework assistance. The academic assistance that Pathways provides helps build the

students' academic confidence and alleviates some homework-related stress for the students and their families. Overall, Pathways strives to be a multi-level, effective after-school program for AI youth in which the participants feel welcomed, heard, and supported in an environment that values and celebrates their heritage.

Current Research Objectives

This article describes using a community-engaged approach to evaluate (via parent/ caregiver satisfaction surveys) an AI-serving after-school program that has transitioned from an Indigenous to a culturally grounded program. The primary objective is two pronged: 1) describe what elements are key to a successful research collaboration between AI communities and academics and 2) highlight the results from the research collaboration that emphasize positive attributes of a culturally grounded after-school program for AI youth.

METHODS

Process for Project Set-up

The development and implementation of a collaborative project with a community partner was funded by an external grant from the National Institute on Drug Abuse aimed at training graduate students in behavioral health and translating research into practice. The first step was for the academic team to make contact with the community partner (Native Americans for Community Action; NACA) to gauge interest in building a collaborative group that would work toward developing and implementing a research project that would serve the needs of the community organization. The initial contact was made by the Principal Investigator (PI) of the grant who had worked previously with NACA. In addition, our academic institution has had a long-standing working relationship with NACA, so the groundwork had been laid to build upon a trusting relationship. After a number of in-person meetings and contact via phone and e-mail, the community organization suggested Pathways would be a good fit in terms of need and guidelines set forth by the funding agency. The collaborative team included several key people from NACA: the CEO, the clinical director of behavioral health, and the program manager for Pathways, as well as from the academic institution: one of the principal investigators, a faculty mentor, and graduate students. The entire team initially started to brainstorm specific project ideas based on the needs of Pathways. These discussions were led by the program director and entailed a thorough history

and description of Pathways with a focus on the program's mission and values. Practicality was also a central component of the conversations as both the community partner and academic team wanted to construct a feasible project that could provide meaningful results that the community organization could use to garner future support for the continuation of the after-school program. Through these conversations, the program manager emphasized two primary needs: 1) the program was short-staffed and could use assistance in the programming component for the youth, and 2) the program director wanted to know how the parents/caregivers who had children in the program felt about various aspects of the program and where it could be improved. The program director also specifically requested an evaluation to gauge if the parents/caregivers felt that the program was meeting the needs of the AI community. The academic team then took the lead on turning the verbalized needs of Pathways into a practical research project. A three phased approach to conduct an evaluation of the program was proposed and met with great enthusiasm by the community partner. The three-phase approach was structured as follows: Phase I – Participant observation and direct programming; Phase II – Parent/caregiver and staff interviews; Phase III – Survey evaluation.

Setting

There were two settings involved across the three phases. Phase I (observation and programming) and Phase III (survey) were completed at elementary schools where Pathways is held. The program has access to classrooms, the gym, and the playground, and both phases took place within those locations. Observation of the program, providing direct programming for the youth, and the implementation of the survey all took place at the elementary school.

Phase II (parent/caregiver and staff interviews) was completed over the phone to make participation as easy and convenient as possible.

Instruments

Two primary instruments were developed for the project. The collaborative team worked together to create interview questions for both the parents/caregivers (19 open-ended questions) and the Pathways staff (11 open-ended questions) that focused on identifying the perceived strengths and weaknesses of Pathways. The interviews were conducted using a semi-structured interview method. Additionally, the collaborative team worked through a multi-stage process to

create a survey evaluation instrument. This involved many rounds of back-and-forth conversations between the academic team and the community partner where drafts of the survey were tweaked and revised to ensure appropriate language was used and content was covered. The final survey consisted of 35 Likert-style questions ranging from (1) Strongly disagree to (5) Strongly agree and (6) Don't know. Four open-ended questions were also included: What do you think is your child's favorite part of Pathways?; As a parent, what do you appreciate most about Pathways?; Have you or your child ever had a negative experience with Pathways?; and Is there anything specific you would like to see changed regarding Pathways? All Likert-style questions were worded in an affirmative way such that a rating of (5) Strongly agree represented that the program was doing a good job in that area. Questions were categorized into eight areas of investigation: child engagement, cultural component of program, emotional well-being component of program, positive socialization, programmatic content, programmatic values, programmatic structure, and general assessment of the program. The survey was administered via hard copy form to parents.

Procedures

Phase I

Phase I consisted of conducting observations of Pathways and providing direct programming for the youth. Observations and programming took place two days a week for an hour over four weeks. The purpose of these activities was to use the observation of the program and the direct interaction via programming responsibilities to experience and learn about the program first-hand and, more importantly, build rapport with staff and youth involved in the program. Additional observations and site visits were continued throughout the next six months, but in a much less formalized manner, in an effort to continue to strengthen the relationship between the academic team and community partner. Members of the academic team spent approximately 50 hours of time observing, prepping, and programming with the youth in Pathways.

Observations consisted of the academic team being present during the normal functioning of the program and observing activities, interactions, structure of the program, etc. Detailed field notes were taken electronically using an app on a cellular phone, and those notes were later uploaded into a word processing program. The academic team regularly debriefed following observation time. Field notes were used for ethnographic purposes in that they were used to describe the population, culture, and program values. Direct programming consisted of the academic team leading educational activities for the youth that focused on culturally relevant

factors of self-esteem, decision making, and healthy lifestyle choices. The community partner expressed particular interest in developing programming in these specific areas. The programming piece was a vehicle to get access to the program and contribute in a meaningful way to the community organization to continue to strengthen the collaborative relationship.

Phase II

Phase II involved interviewing parents/caregivers and staff associated with Pathways to gather qualitative data to compliment the quantitative survey data in Phase III. All interviews were conducted via phone and recorded for research purposes. The academic team interviewed the program director of Pathways, one Pathways staff member, and seven parents/caregivers who have children enrolled in Pathways. Pathways staff were identified for interviews based on their degree of involvement with the program. It is important to note that at the time of the interviews, the program only had two consistent staff members along with other volunteers who come on an intermittent basis. To recruit parents/caregivers, the academic team created a flyer to distribute to parents/caregivers upon picking up their children that requested their participation and contact information. Interviews took place over the phone and were scheduled at the convenience of the parent/caregiver. Participants were required to agree to a verbally provided consent to participate, which involved informing the parent/caregiver that participation was completely voluntary, that all information provided would remain confidential, and that no personal identifying information would be collected. Once he/she consented to participate, he/she was given a pseudonym of "Parent 1," "Parent 2," and so on for data collection purposes. Interviews were then conducted in a semi-structured way with 19 open-ended questions. Upon completion of the interviews, transcriptions were completed from the recorded interviews to appropriately code and identify themes in the analysis phase.

Phase III

Phase III incorporated the development and implementation of a parent/caregiver satisfaction survey to quantitatively evaluate Pathways. The academic team used the information collected in Phases I and II to develop a first draft of a survey. In particular, the academic team used the data gleaned from the observations and interviews to construct specific questions about the program. For example, both observations and interviews identified the importance of health education that was culturally appropriate, thus a specific question was created to formally assess that. The survey went through numerous iterations as the community partner and academic team

worked collaboratively to cover all aspects in an appropriate way. This collaborative process was conducted in order to have individuals with a deep knowledge of the program provide feedback on the content of the survey and also ensure that it aligned with and covered all of the areas that they were interested in investigating. Once the informed consent and content of the survey was finalized, the collaborative group worked together to construct a plan for optimal return rates of the hard copy surveys. To facilitate completion of the survey by parents/caregivers, it was handed out at program pick-up time with both members of the academic team as well as the program coordinator present to answer any questions and explain the purpose of the survey. Parents/caregivers were given the option to complete the survey in person or take it home. If they took it home and returned it later, the program manager collected and stored the informed consent forms and survey responses separately to ensure anonymity. The surveys were available for completion for approximately three weeks. At the end of those three weeks, the collaborative team decided it would be useful to do a distribution and collection of the survey at a social event being held by the team as a thank you to youth and parents/caregivers involved in the program. The collaborative team explained the survey's purpose at the social event and asked for people to voluntarily complete it. All survey data were entered into a separate Excel file (with no identifying information) and eventually transferred to an SPSS file for analysis purposes.

RESULTS

Phase I

In Phase I, the academic team successfully built rapport with the organization, assessed areas for development, and observed cultural norms and practices that are foundational components of the program; all of which were imperative to building Phases II and III of the project. Large themes drawn from the observations included 1) youth enjoyment and engagement in traditional cultural practices such as beading and making frybread; 2) the importance of having positive interactions with adult mentors, including AI matriarchs like grandmothers, who volunteered with the program and staff within the program; 3) youth interest in discussing issues related to health and wellness and sharing their personal experiences on those topics; and 4) the occasional use of gendered language and activities such that playing basketball was reinforced for boys and not for girls (one example). The hands-on time spent with youth and staff in the program in this phase was integral to the success of this partnership and project. Phase I was critical because

it established and strengthened a relationship of trust between the academic team and the community organization, program staff, and the youth who participate in the program. Additionally, Phase I allowed parents/caregivers who had children in the program become familiar with the academic team members which, in turn, created an environment where they were more willing and able to assist with the future phases of data collection.

Phase II

A total of two Pathways staff were interviewed (including the program director) and seven parents. Qualitative open coding was used to investigate major themes that parents/caregivers relayed throughout the interviews. The major themes were divided into two broad categories of 1) strengths of the program and 2) areas for improvement. Strengths of the program included the program's adherence to and incorporation of cultural values and practices, the programmatic component, the socialization component, the structure of the program, and the staff (see Table I). Areas of improvement included the desire for more space, availability, awareness, and creating a more gender-neutral environment (see Table 1).

Table 1
Phase II Strengths and Weaknesses of Pathways Program

Strengths Definition = qualities of the program described using positive language by the parents	
Cultural Component	*I like [Pathways] because being Native American and living off the reservation. I don't have the opportunity to expose my child to cultural aspects just because we live off the reservation. I like that Pathways introduces some cultural aspects to my daughter. (Interview 7)*
Programmatic Component	*[My kids] tell me about like what he learned at Pathways. I really liked the presentation that was done on cigarettes and tobacco. And he really like understood what they were talking about. And he's like only 7 years old. They tell him that smoking is bad but how they did a little project with them showing them like how to make a lung like your lungs out of a paper bag and showing the effects that a tobacco has on your lungs so you can feel like telling me basically everything you know. (Interview 4)*
Socialization Component	*I feel like there's more camaraderie with other kids. It just builds healthy relationship amongst their peers and with the adults there that are running the program. (Interview 6)*
Structure	*Oh so they go all year long and they're there when school starts and the way till school ends then the summer program as well. This is actually their I want to say their fourth year. (Interview 2)*
Staff	*You have that home feel when you get there. It doesn't even stop at Pathways. They give you a phone call, sometimes they just check in on you to see how you're doing, or to give you a heads up on upcoming events. They're more like family than they are just people who just work and their time ends. (Interview 3)*

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Table 1 Continued
Phase II Strengths and Weaknesses of Pathways Program

Weaknesses Definition = Qualities or criticisms of the program that were described negatively by the program	
Space	*I think they don't have the funds to hire more people and the location is so small that where they're at if they have to make do with it. So what you said then yeah a bigger location. (Interview 2)*
Structure	*Like I said it's very popular in my community. That the fact that so much that we went from a whole week at pathways to just two days. (Interview 2)*
Awareness	*Yes, that's unfortunate that it's just something that some of the people in the community are unaware of, the education and the resources. (Interview 1)*
Gendered Structure and Language	*When some of these issues are brought to their attention, I mean it has this gentlemen's club and they just kind of like, 'Okay. We heard it.' Then, just leave it at that. (Interview 1)*

Phase III

The total number of parents/caregivers who completed the survey was 14, with 13 filling it out in its entirety. It is estimated that approximately 35-40 parents/caregivers were provided with the survey, giving a response rate of between 35-40%. Overall, for 23 of the 35 Likert-style questions on the survey, 100% of respondents said they agree (4) or strongly agree (5), meaning that parents felt positively about the program (see Table 2). The remaining twelve questions had varied responses, with most people responding that they agree (4) or strongly agree (5), and a few people responding with either neutral (3) or I don't know (6); (see Table 2 for additional details). There were two questions that had slightly lower agreement rates than the others, one of which had an agreement rating that fell below 50% (less than half of the respondents said they agreed (4) or strongly agreed (5) with the statement). These two questions were: "The program could be strengthened by including a behavioral/emotional health youth group offered one time a week" and "The program is currently free, but I would be able and willing to pay for my child to attend this program." For the behavioral/emotional health group question, 15% of respondents provided a neutral (3) rating, 62% said they agreed (4) or strongly agreed (5), and 23% said they did not know (6). For the question about willingness to pay, 7% of respondents said they strongly disagreed (1) with willingness/ability to pay for the program, 7% said they disagreed (2), 35% gave a neutral (3) rating, 43% gave an agree (4) or strongly agree (5) rating, and 7% said they did not know (6). Additionally, there were four open-ended responses at the end of the survey that echoed much of the numeric responses as well as the interview responses from Phase II.

Table 2
Phase III Parent/Caregiver Survey Responses

Areas of Investigation	Questions: "The NACA Pathways youth program…"	% Agree or Strongly Agree	% Disagree or Strongly Disagree	% Neutral	% I don't know
Child Engagement	Is something that my child talks to me about including things like what activities they complete and what they learn.	100	0	0	0
	Is something my child enjoys and looks forward to going to.	100	0	0	0
Cultural Component	Has a strong component of cultural identity and cultural value.	86	0	7	7
	Incorporates a sufficient amount of culture specific activities.	86	0	0	14
	Provides my child with accurate and culturally appropriate information regarding health and wellness.	100	0	0	0
Emotional Well-Being	Promotes my child's self-esteem and self-confidence.	100	0	0	0
	Encourages, develops, and instills resilience within my child.	100	0	0	0
	Encourages social emotional learning such as being able to express emotions and be empathetic.	86	0	0	14
	Helps my child learn positive coping and problem-solving skills such as deep breathing techniques.	79	0	7	14
	Encourages my child to express themselves in creative and artistic ways.	100	0	0	0
Positive Socialization	Promotes children's abilities to form positive peer relationships.	100	0	0	0
Programmatic Content	Incorporates the importance of physical fitness.	100	0	0	0
	Promotes healthy eating habits and nutrition.	100	0	0	0
	Provides educational information about substance use and abuse, as well as healthy relationships to my child.	86	0	0	14
	Has helped my child learn about the importance of not abusing substances - both legal (medication, cigarettes, alcohol) and illegal.	79	0	0	21
	Teaches my child about diseases and ways to prevent and avoid becoming ill (ex: washing hands).	79	0	0	21
	Engages the children in meaningful field trips (ex: Diamondbacks game).	86	0	0	14
	Incorporates age-appropriate activities that align with my child's level of development.	100	0	0	0
	Provides homework assistance and tutoring to students as needed	100	0	0	0
	Promotes career development and encourages the children to think about what they want to be when they grow up.	86	0	0	14
	Has guest speakers who come to present important and valuable information on a wide variety of health related topics.	77	0	8	15

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Table 2 Continued
Phase III Parent/Caregiver Survey Responses

Areas of Investigation	Questions: "The NACA Pathways youth program…"	% Agree or Strongly Agree	% Disagree or Strongly Disagree	% Neutral	% I don't know
Programmatic Values	Promotes values of respect and kindness.	100	0	0	0
	Promotes inclusion and values each child's unique abilities.	100	0	0	0
	Is a positive environment and has a positive atmosphere.	100	0	0	0
	Teaches my child practical knowledge that they can apply to their everyday life and will be useful to them in the future.	100	0	0	0
Programmatic Structure	Could be strengthened by including a behavioral/ emotional health youth group offered one time a week	62	0	15	23
	Is an organized program.	100	0	0	0
	Promotes physical safety and takes appropriate safety precautions.	100	0	0	0
	Is led by highly qualified individuals who effectively instruct the children.	100	0	0	0
	Provides my child with structure and consistent expectations.	100	0	0	0
	Is currently free, but I would be able and willing to pay for my child to attend this program.	43	14	36	7
General assessment	Has helped my child grow and change in concrete and observable ways.	100	0	0	0
	Helps my child learn new skills and be successful.	100	0	0	0
	Overall is a valuable use of my child's time and has been a positive experience for my child.	100	0	0	0
	Is a program that I would recommend to my friends and family for other children.	100	0	0	0

Overall Findings

Results across all three phases of the project identified clear strengths of Pathways, including its commitment to promoting cultural identity; providing health education in a relevant and culturally driven way; having staff that are consistent, reliable, and trustworthy; and lastly, that the program is widely accessible because it is free. Results across all three phases also identified some possible areas for improvement for the program. Parents identified space and structural issues with the program, focusing on the desire for a bigger, nicer space for the program and for the program to serve children every weekday, instead of twice a week (the structure that is currently in place). Additionally, parents thought the program could be promoted more (evident through the interviews as well as survey responses) to the greater AI community as well as the promotion of the program's mission and values to the families that participate in the program.

Finally, there was a suggestion to incorporate and strengthen the use of gender-neutral activities and language into the program to make it more inclusive.

DISCUSSION

The primary objective of this paper was to describe what elements were key to a successful research collaboration between AI communities and academics and to highlight the results from the research collaboration that emphasize positive attributes of a culturally grounded after-school program for AI youth. In regards to the elements of a successful collaboration and community-engaged approach to a program that originated without researcher involvement (Indigenous approach), there are a number of points to underscore (see Table 3). Throughout the implementation of this project, both the academic team and the community partner were fully committed to making this a successful partnership where both groups could learn from one another to benefit the greater community. Upon initial meetings and conversations, it was imperative that the academic team listen to the expressed needs of the community partner, and specific to working with AI populations, it was critical for the academic team to have an in-depth understanding of the importance of cultural identity as it is represented in the youth after-school program. The community partner's willingness to allow full access to the program and openness to adopting a research design allowed the project to fully develop in a time efficient way. Similarly, a basic understanding and appreciation for evidence-based program evaluation on behalf of the community partner was important for the partnerships shared value system. Additionally, the rapport building through Phase I and hands-on time in the program built the foundation of trust and acceptance, which was necessary to complete the project. With an understanding of issues associated with historical trauma within Indigenous populations in the United States, hesitation to work with academic institutions is understandable and can only be overcome when genuine trust is established.

The collaboration between the academic team and the community partner, which was created through efforts mentioned above, led to the successful completion of the research project and produced findings that have implications for understanding the importance of culturally-grounded programs for AI youth. In this way, the partnership was valuable to both parties; the community partner was able to utilize the academic team's expertise in research methodology and program evaluation to identify the strengths and weaknesses of the program and make subsequent

improvements, and the academic team was able to engage in community-based research with an underserved population and contribute to a growing area of research. While the current work did not evaluate youth perceptions of the program or directly assess program effectiveness, it did assess parent/caregiver satisfaction with the program with a focus on the strengths and weaknesses. Overwhelmingly, parents/caregivers identified the cultural and health component of the program as strengths and expressed sentiments that these pieces fostered a healthy lifestyle and deeper connection to the heritage/culture, while most of the indicated areas for improvement centered on the need for more of the program. This is particularly meaningful in the context of the program serving urban, off-reservation youth.

Table 3
Recommendations for a Successful Practitioner-Research Collaboration

Role	Recommendations for Successful Collaboration
Academic Team/Community Partner	Commitment to a successful partnership
Academic Team	Listening to the expressed needs of the community partner
Academic Team	Understanding of the importance of cultural identity for Indigenous youth
Community Partner	Full access to the program and being open to research design
Community Partner	Understanding the value of evidence-based program evaluation
Academic Team	Rapport building that includes hands-on time in the program
Academic Team	Understanding of and appreciation for issues associated with historical trauma within Indigenous populations

Lauricella et al. (2016) identified that most culturally grounded youth programs were located in rural environments. Findings from this study indicate that culturally grounded prevention programs can positively contribute to urban AI communities as well. Parents/caregivers of youth in the program specifically identified the importance of emphasizing cultural identity and belonging for youth who reside off the reservation because they are less connected to tribal traditions and practices because of location. While Lauricella et al. (2016) offers that the diversity present within urban minority communities may pose a challenge to the building and sustainability of culturally grounded programs, these programs may be particularly beneficial to urban youth populations to promote a sense of identity, belonging, and connection to their culture.

Along with importance of a culturally grounded prevention program, parents/caregivers also highlighted the significance of committed and responsible staff and open accessibility such that they could take advantage of the benefits of the program at no cost. Both of these central parts to a successful program pinpoint the need for resources, both to run the program at no cost as well

as to be able to hire and maintain professional, invested staff for program continuity. All findings from this project were shared with Pathways staff and administrators and will be used to strengthen and continue to grow the program in feasible and meaningful ways. Additionally, the findings were shared with a larger audience of practitioners and scholars at a national conference in order to promote culturally grounded programs that serve AI communities. Due to the structure of the larger grant that supported the work, the collaboration between the researchers and the community partner is ongoing, and another project with Pathways is currently underway.

Limitations and Future Research

Pathways is a relatively small after-school program, in a singular location, serving specific tribal youth. Therefore, generalizability of findings is limited, but it is likely that the large overarching outcomes of this specific project are transferrable to other populations (i.e., the resounding strengths of the program are the cultural and health components, the committed staff, and the accessibility of the program). The limitation of non-generalizability and issues with replication are not unique to this program as these are characteristic of both Indigenous and culturally grounded programs. Similarly, while the response rate was relatively high for the survey, additional strategies could have been used to increase the number of parents/caregivers that completed the survey. For example, the social event hosted by the research team facilitated the completion of the surveys so additional events spread out over time may be a useful strategy for more data collection when working with community members.

Additionally, Pathways was not originally designed as a culturally grounded prevention program as it originated well before this term was readily used, and it was created by individuals within the community organization (no researcher/academic involvement). It also functions as a non-traditional after-school program. Thus, while it includes programming and curricular components associated with culture and prevention, it also incorporates free play, games, and academic tutoring/homework assistance. Still, it currently meets criteria for being considered a culturally grounded program because “methods are used in which curricular components evolve from the ‘ground up’… and therefore look and sound familiar to the participants” (Okamoto et al., 2014, pg. 5; Marsiglia & Kulis, 2009). Additionally, Pathways has transitioned from being a strictly defined Indigenous program to a culturally grounded program through its collaborative efforts with researchers. Other partnerships that develop between academics and strictly defined Indigenous programs may also encounter a transition into a culturally grounded program if the

community partner seeks a collaborative relationship that focuses on evidence-based evaluations of their existing prevention program.

As described throughout this paper, this project focused on parent/caregiver perceived strengths and weaknesses of the program as evaluated through a three-phase process. While this information is valuable, it does not provide an evidence-base for the efficacy of the prevention curriculum. Future research, if the community organization is so inclined, should work toward direct assessment and evaluation of the curricular components of the program. As Okamoto et al. (2014) explain, culturally grounded prevention programs have some inherent challenges in regards to evaluation because it forces the program developers to be cultural experts who simultaneously are able to develop age-appropriate prevention curriculum. Typically, individuals involved in the development of a program have expertise in either cultural competency *or* age-appropriate curriculum. This is an area where the partnership between academics and community organizations can provide value-added by combining areas of expertise. This is a difficult feat, but critically important for "at-risk" populations, such as AI youth, who have a long history of health disparities and can benefit from an effective prevention program.

IMPLICATIONS AND CONCLUSION

The research collaboration between Pathways and the academic team using a community-engaged approach produced a successful first-step evaluation of the program, which highlighted parent/caregiver satisfaction with the programs commitment to promoting cultural identity and healthy lifestyles amongst AI youth. The transition of Pathways from a strictly Indigenous approach to a culturally grounded approach has created the opportunity to further strengthen the program with the incorporation of evidence-based practices and evaluations via ongoing partnerships with researchers/academics. Pathways provides a much-needed service to the AI community by seeking to prevent adverse health outcomes in youth through participation in an after-school program that fosters a deeper connection to their culture and people.

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COMMUNITY AWARENESS OF OUTREACH EFFORTS TO REDUCE UNDERAGE DRINKING ON CALIFORNIA INDIAN RESERVATIONS

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Abstract: We report an evaluation of a combined individual- and community-level treatment and prevention effort to reduce underage drinking by American Indian (AI) youths on rural California Indian reservations. The interventions included: brief motivational interviewing and psychoeducation for Tribal youths, restricting alcohol sales to minors in alcohol sales outlets, and community mobilization and awareness activities. Surveys were collected from 120 adults and 74 teens to evaluate the awareness and effectiveness of the interventions. A high proportion of adult (93%) and youth (96%) respondents endorsed being aware of one or more of the intervention activities, and 88% of adults and 71% of youth felt the program impacted the community in a positive way. Eighty-four percent of adults and 63% of youth agreed that as a result of the activities that they decided to take action to reduce teen drinking in their community. Being aware of more of the intervention activities significantly increased the odds of taking action to change drinking behaviors. This study documents that a significant proportion of the community was aware of the intervention efforts and that awareness caused them to take action to reduce underage drinking. Such efforts may benefit other AI/AN communities seeking to reduce underage drinking.

INTRODUCTION

American Indians and Alaska Natives (AI/ANs) have significant health disparities with regard to alcohol use, substance use disorders, and related morbidity and mortality. It is particularly important that intervention efforts begin at a young age in AI/ANs since early initiation of alcohol use and heavy drinking increases the risks for lifetime alcohol use disorders (Grant & Dawson, 1997; Hingson, Heeren, & Winter, 2006), particularly among AI/ANs where it has been documented that drinking begins at a younger age than other groups (Chartier & Caetano, 2010;

Ehlers, Slutske, Gilder, Lau, & Wilhelmsen, 2006). Additionally, since youth from rural communities have elevated risk for underage drinking, as compared to their urban and suburban counterparts (De Haan, Boljevac, & Schaefer, 2009), AI/AN youth on rural Indian reservations may have particularly heightened risk (Blum, Harmon, Harris, Bergeisen, & Resnick, 1992; Cheadle & Whitbeck, 2011; Friese & Grube, 2008; Potthoff et al., 1998; Stanley, Harness, Swaim, & Beauvais, 2014; Walsh & Baldwin, 2015).

Recent reviews of interventions among AI/AN youth reveal that AI/AN populations have been relatively underrepresented in evidence-based prevention efforts to reduce underage drinking (Walsh & Baldwin, 2015). Many authors have additionally stressed the importance of using a community-based comprehensive and collaborative strategy to address the problems of youth substance abuse in AI/AN communities in order to effect long term solutions. One such program is the community readiness model (see Donnermeyer, Plested, Edwards, Oetting, & Littlethunder, 1997; Edwards, Jumper-Thurman, Plested, Oetting, & Swanson, 2000; Oetting et al., 1995; Oetting, Jumper-Thurman, Plested, & Edwards, 2001; Plested, Jumper-Thurman, Edwards, & Oetting, 1998; Plested, Smitham, Jumper-Thurman, Oetting, & Edwards, 1999). That model has six primary dimensions of which community knowledge of the efforts is a key component (Thurman, Plested, Edwards, Foley, & Burnside, 2003). Another program aimed at increasing community awareness and providing psychoeducation focusing on empathy, cultural humility, and cultural responsiveness in substance use disorder (SUD) treatment is the "Through the Diamond Threshold" program (Robbins, Stare, & Riggin, 2019). Community involvement and awareness of SUD programs thus is key to obtaining stakeholder buy in to a program and to foster sustainability.

In a review of the epidemiology and etiology of substance use in AIs, Whitesell and colleagues (2012) also suggest that "the development of effective prevention strategies, built through collaboration between researchers and Native communities, drawing from the wisdom of both, is a high priority" (p. 1). Novins and Baron (2004) found few studies with sufficient research rigor to draw firm conclusions about effectiveness, but another review by Jiwa, Kelly, and Pierre-Hansen (2008) highlighted infrastructure development and community involvement as key components of successful AI substance use prevention programs. More recently, two studies have demonstrated that multi-level prevention trials can successfully reduce alcohol use among AI teens (Komro et al., 2017; Moore et al., 2018), opening up the possibility that such programs can be successfully applied more widely to reduce substance-related harm among AIs. One study used a multi-level prevention trial among AI teens in the Cherokee Nation (see Komro et al., 2017; Komro

et al., 2015). That study found that the combination of a community organizing intervention targeting alcohol access and a school-based screening with brief intervention was effective in reducing 30-day alcohol use and heavy episodic drinking. In our own study, reported in Moore and colleagues (2018), we found that a multi-level intervention was also successful in reducing past 30-day drinking and heavy episodic drinking in rural California Indian reservation communities exposed to the interventions.

In assessing the effectiveness of a multi-level intervention, it is not always possible to determine 1) to what extent the youth and other community members were aware of the intervention and 2) which programs among the intervention efforts were the most effective. The present study reports data assessing the awareness and perceived effectiveness of the successful multi-level intervention we carried out (see Moore et al., 2018) from 2008–2011 to reduce and prevent underage drinking in nine contiguous rural California Indian reservations. The main results of the study have been described previously (see Gilder et al., 2017; Gilder, Gizer, Lau, & Ehlers, 2014; Gilder et al., 2011; Lee et al., 2015; Moore et al., 2018; Moore et al., 2012). The overall project was initiated following requests from leaders of these sovereign Tribal nations and included both individual-level and community-level strategies (described later). Extended outreach efforts aimed at raising the awareness of alcohol problems and mobilizing extended community support for the project goals were also accomplished. Since the Tribal communities did not want to participate in a randomized control study, previous assessments of the overall impacts of the combined interventions relied on alcohol use data from the California Healthy Kids Survey (CHKS). This anonymous survey was collected in the school districts serving the nine participating reservations and in nine comparison reservations who were not part of the intervention. Although evaluation of the CHKS spotlighted the effectiveness of the multi-level intervention (Moore et al., 2018), the aims of the present report are to: 1) more fully describe the methods used in the community outreach program, 2) present results of a community survey that queried youth and adults on their awareness of the different aspects of the interventions, and 3) describe results from the survey that assessed the perceived effectiveness of the interventions.

METHODS

This project represents a collaboration between AI/AN clinicians and community members among nine consortium Tribes within a half-hour drive of a primary and satellite

branch of the Southern California Tribal Health Clinic (a pseudonym used to protect confidentiality) and prevention scientists. Prior to the advent of the study, an advisory panel of AI leaders was convened to ensure community participation and approval (Lee et al., 2011). A description of the overall strategy has been published previously (Moore et al., 2018). Briefly, the individual-level strategy included eligible youths that were randomized to receive a culturally tailored brief motivational interviewing (MI) session or a psychoeducation (PE) session. The MI component assessed the readiness of the individual youth to change their alcohol drinking (or not start) and then implemented a directive psychotherapeutic treatment tailored to that stage of change (Miller, 1996; Miller & Rollnick, 2013; Venner, Feldstein, & Tafoya, 2006). The PE session was delivered by the therapist and consisted of watching two DVDs on the consequences of drinking and dangers of binge drinking. MI and PE were delivered in both individual and group formats (Gilder et al., 2017). The community-level Environmental Prevention strategy included a Reward and Reminder program aimed at reducing youth access to alcohol. This program enlisted AI young adults who were aged < 21 years, but judged to look younger, to visit off-premise alcohol stores located on and near the reservations and attempt to purchase alcoholic beverages (Moore et al., 2012). Project staff "rewarded" clerks who asked for age identification or "reminded" clerks who did not request identification of the existence of underage sales laws (Biglan et al., 1996; Biglan, Ary, Smolkowski, Duncan, & Black, 2000; Flewelling et al., 2013).

The treatment and prevention strategies were supported by a community outreach program to: 1) raise community awareness about the risks of underage substance use, 2) inform the community members about the different strategies that were being used to reduce drinking in youth, and 3) to mobilize support for the interventions. The research team developed informational materials on underage alcohol use for distribution to youths, parents, Tribal leaders, and health clinic professionals. Presentations were given using clinical and scientific information on the risks of underage drinking and prevention strategies that were combined with traditional arts activities and discussion of historical trauma that was tailored to the age group of the participants and the particular venue of the presentations. In addition, "activities" were used to engage parents and youth to participate and to listen carefully to the presentations. These activities included a series of five games that are presented in Table 1.

Table 1
Presentation Activities

Activity	Description
Who wants to be a millionaire	Prior to the activity, the team presents on the consequences of underage drinking. Then, following the format of the popular television show, youth are quizzed on information presented earlier in the activity.
Puzzle piece	Each youth receives a white puzzle piece after a presentation on preventing underage drinking. Pens, markers, and sharpies are available for the youth to write, draw, color or however they choose to express what alcohol means to them.
Obstacle course	Youth are asked to walk through an obstacle course with beer goggles (i.e., goggles worn to simulate the effect of intoxication). Obstacles included walking on a line that was curved and straight, shooting a basketball in a basket and jumping through hula hoops.
Distract-A-Match	Youth count out loud from 100 back to 0 while matching shapes and colors. Youth then wear beer goggles (i.e., goggles worn to simulate the effect of intoxication) and try to complete the same tasks while counting backwards from 100.
Nuts and bolts	Youth must unscrew and screw a nut off a bolt and then re-screw the nut. Next, the youth must complete the same task wearing thick gloves. Finally, youth wear the beer goggles (i.e., goggles worn to simulate the effect of intoxication) and try to complete the same tasks.

A total of 298 presentations and activities were completed. Research staff from the local AI communities presented the materials and activities and discussed alcohol-related risks and alcohol-free strategies with the youths and parents. The venues included health fairs, pow-wows, and cultural gatherings (98 events). The research staff also gave presentations at after-school programs for each Tribe, at a reservation charter school, at Tribal councils, and other meetings (101 presentations to youths and 72 to parents and Tribal leaders), and gave presentations and trainings to the medical, dental, and community health departments at the tribal health clinics (27 events), as seen in Table 2. As an additional outreach strategy, Tribal youths were invited to design billboards placed alongside roads on and between reservations that contained messages aimed at reducing underage drinking among Tribal youth (Moore et al., 2012). Cultural tailoring of the activities was a focus of the outreach effort but to an extent was complicated by the fact that the study area contains at least four major language groups and nine reservations, which share some, but by no means all, spiritual, symbolic, and artistic traditions. Therefore, the tailoring touched on familiar elements of local storytelling styles and referenced some familiar iconography from basket designs, but could be characterized as "surface" rather than "deep" cultural adaptation (Resnicow, Baranowski, Ahluwalia, & Braithwaite, 1999). For example, to create the billboard, the study team held a series of youth workshops on the different reservations in which various alternative designs were presented, including reference to local traditional musical instruments

(e.g., gourd rattles) and dreamcatchers. Youth offered their own designs (some relying upon generic Western cultural motifs and others more focused on Tribal imagery) and then voted on their favorites, which contributed to a collaborative ownership of the billboard when it was printed and placed along a central roadway linking many of the reservations.

Table 2
Format of Community Outreach Activities

Activity	Number
Information Booths	98
Age-Tailored Presentations to Youth	101
Presentations to Parents and Tribal Leaders	72
Presentations to Tribal Clinic Health Professionals	27
Total	**298**

At the conclusion of the interventions, a survey was taken of the local community to assess the awareness and perceived effectiveness of the interventions, including the outreach component. Surveys were collected at multiple tribal events from 120 adults (21 yrs. and older) and 74 youth (20 yrs. or less) who were residing in the reservation study area. The survey queried, for each component of the intervention, whether an individual was aware of the component and, if aware, whether he or she took action to reduce underage drinking (adults) or reduced their own drinking (youth, if they had already begun drinking). Additional questions assessed whether the intervention as a whole (all components) moved individuals along the transtheoretical model of stages of behavior change from pre-contemplation to action to reduce underage drinking.

Statistical Analyses

Descriptive statistics of participants' ages and gender, and how many participants endorsed each scale item were tabulated and compared. Two sets of outcome variables from the surveys were analyzed: awareness of an intervention and perceived effectiveness to change a behavior. Awareness of an activity was a dichotomous measure (yes vs. no). Perceived effectiveness was assessed using Likert scale variables, and they were treated as dichotomous (“Strongly agree” and “Agree” vs. “Neutral,” “Disagree,” and “Strongly disagree”). In the youth survey a participant could also indicate that they had never drank and, thus, would not be included in the perceived effectiveness measure. Gender effects on outcome variables were conducted using Fisher’s exact

test. Age effects on outcome variables were determined using ANOVA. Fisher's exact test was also used to compare responses between adults and youth. Logistic regression, that included age and/or gender when it was significant for that item, was used to determine the relationship between the number of interventions that the participant was aware of and the perceived effectiveness of the intervention to change behavior. Analyses were carried out using SPSS Version 20 (IBM Corp., 2011). Significance was set at $p < 0.05$.

RESULTS

This study sought to evaluate the awareness and perceived effectiveness of combined individual- and community-level interventions to reduce underage drinking by AI youths on rural California Indian reservations. A survey was drafted to query both adults (n = 120) and youth (n = 74).

Adult Survey

The mean age of the adults who completed the survey was 43.5 years (± 2.6). There were 90 women and 30 men who participated in completing the survey. As seen in Table 3, the first five questions of the survey queried the participant as to whether they: 1) were aware of the existence of the overall intervention; 2) saw the billboard; 3) were aware of the Reward and Reminder program; 4) were aware of the MI/PE intervention; and 5) were aware of the alcohol information outreach activities described in the present report. A high proportion (93%, n = 111) of respondents endorsed being aware of one or more of the intervention activities. With respect to individual items, as seen in Table 3, the highest percentage were aware of the Reward and Reminder (77%; n = 92), and the least number (49%; n = 59) had seen the billboard. There were no age differences in the proportion of participants who responded positively to having been aware of any of the intervention activities. The only gender difference seen was in response to the Reward and Reminder program where a higher proportion of men endorsed knowing about that program than women (Fisher's exact test = 4.0; df = 1,119; $p < 0.05$).

The second seven items on the survey are listed in Table 4, as well as the proportion of adult respondents who agreed or disagreed with each item. There were no age or gender differences in the proportion of respondents who agreed or disagreed with these items. Ninety percent (n = 108) of respondents agreed to liking the intervention activities, and 88% (n = 106) felt the

interventions impacted the community in a positive way. Seventy-one percent (n = 84) agreed that the overall intervention prompted them to take an action against teen drinking. Sixty-seven percent (n = 78) said that the Reward and Reminder program and 64% (n = 76) said that the MI/PE program helped them to take an action to reduce a teen's drinking. The most highly endorsed item was the alcohol information presentations. Seventy-two percent (n = 85) of adults indicated that the presentations helped them to take an action to reduce a teen's drinking.

Table 3
Awareness of Prevention Activities. Number and percent shown for those surveyed who was aware of prevention activities.

	Community Prevention Activities Awareness Survey Question	Adult	Youth
1	I was aware of the youth alcohol prevention efforts conducted by the Southern California Tribal Health Center (SCTHC) preventing underage drinking program	91 (76%)	54 (73%)
2	I saw the billboard with the alcohol prevention message along the [name removed] state highway on the [name removed] Reservation	59 (49%)	23 (31%)
3	I was aware of the convenience store checks that the program conducted to ensure proper ID checking by clerks when selling alcohol	92 (77%)	50 (68%)
4	I was aware of the motivational interviewing and alcohol education videos conducted by the SCTHC's preventing underage drinking program	76 (63%)	45 (61%)
5	I was aware of the alcohol information presentations that SCTHC staff conducted at local schools, tribal afterschool programs, and community youth events	78 (65%)	55 (74%)

Table 4
Effectiveness of Prevention Activities. Number and percentage of those surveyed who "strongly agree" or "agree."

	Community Prevention Activities Awareness Survey Question	Adult	Youth
6	I liked these prevention activities	108 (90%)	32 (55%)
7	These activities impacted the community in a positive way	106 (88%)	44 (71%)
8	These activities prompted me to take an action against a teen's drinking (cut down or stop drinking)	84 (71%)	20 (56%)
9	The billboard helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	70 (60%)	18 (56%)
10	The convenience store checks helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	78 (67%)	21 (64%)
11	The motivational interviewing or alcohol education videos helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	76 (64%)	18 (56%)
12	The alcohol information presentations helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	85 (72%)	19 (63%)

Note: Survey wording differed slightly for adult and youth, with youth survey indicated in parentheses. Total numbers of youth answering each question varied because on the Youth Survey youth had an option to answer "Didn't know about them" (Questions 6-7) and "I don't drink" (Questions 9-12).

The final three items on the survey queried whether, as a result of the activities, the person felt empowered to do something about teen drinking and if they moved along the transtheoretical model of stages of behavior change from pre-contemplation to contemplation or from contemplation to preparation to take action to reduce drinking. There were no age or gender effects on these three items. As seen in Table 5, a high percentage of respondents (80%, n = 86) agreed that they went from not realizing there was a problem to realizing there was a problem with teen drinking in their community. Eighty-four percent (n = 93) said that the activities resulted in their going from thinking that they couldn't do anything to thinking that they could do something about teen drinking in their community. Eighty-four percent (n = 92) agreed that as a result of the activities they decided to take action to reduce teen drinking in their community.

Table 5
Empowerment (Q14) and Movement along the Transtheoretical Model of Stages of Behavior Change from Pre-contemplation to Contemplation (Q13) and from Contemplation to Preparation (Q15). Number and percent shown for those surveyed whom "strongly agree" or "agree."

	Community Prevention Activities Awareness Survey Question	Adult	Youth
13	As a result of these activities I went from not realizing there was a problem to realizing there was a problem with teen drinking in my (family or) community	86 (80%)	20 (57%)
14	As a result of these activities I went from thinking I couldn't do anything to thinking I could do something about teen drinking in my (family or) community	93 (84%)	19 (63%)
15	As a result of these activities I decided to take action to reduce teen drinking in my family or community	92 (84%)	19 (63%)

Note: Survey wording differed slightly for adult and youth, with youth survey indicated in parentheses. Total numbers of youth answering each question varied because on the Youth Survey youth had an option to answer "Already realized it" (Question 13), "Already thought so" (Question 14), and "Already decided" (Question 15).

Table 6 presents the odds ratios and p-values for a set of analyses that investigated whether having been aware of multiple numbers of the intervention activities (responses to items 1 to 5 in Table 2) resulted in an increase in the odds that they would endorse the 10 other items in the survey. Using logistic regression, it was found that being aware of more of the activities significantly increased the odds of positively endorsing all other items except two of the change items (moving from not knowing there was a problem to knowing, and going from thinking they couldn't do anything to thinking that they could).

Table 6
Increased Awareness of Prevention Activities and Effect on Action

	Community Prevention Activities Awareness Survey Questions	Adult		Youth	
		OR	*p*	*OR*	*p*
6	I liked these prevention activities	2.06	0.001	1.86	0.009
7	These activities impacted the community in a positive way	1.61	0.008	1.76	0.012
8	These activities prompted me to take an action against a teen's drinking (cut down or stop drinking)	1.40	0.01	2.01	0.024
9	The billboard helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	1.63	0.001	1.29	0.472
10	The convenience store checks helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	1.46	0.004	1.45	0.156
11	The motivational interviewing or alcohol education videos helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	1.59	0.001	1.66	0.114
12	The alcohol information presentations helped me to take an action to reduce a teen's drinking (cut down or stop drinking)	1.59	0.001	1.45	0.168
13	As a result of these activities I went from not realizing there was a problem to realizing there was a problem with teen drinking in my (family or) community	1.16	0.32	1.36	0.263
14	As a result of these activities I went from thinking I couldn't do anything to thinking I could do something about teen drinking in my (family or) community	1.25	0.16	1.45	0.17
15	As a result of these activities I decided to take action to reduce teen drinking in my family or community	1.67	0.003	1.45	0.17

Note: Survey wording differed slightly for adult and youth, with youth survey indicated in parentheses.

Youth Survey

The mean age of the youth who completed the survey was 14.2 years (± 0.5). There were 38 girls and 36 boys who participated in completing the survey. There were no age or gender differences in the proportion of youth who responded positively to having been aware of the intervention activities. A high proportion (96%, $n = 71$) of youth endorsed being aware of one or more of the activities. With respect to individual items, as seen in Table 3, the highest percentage were aware of the educational outreach (74%; $n = 55$), and the least number (31%; $n = 23$) had seen the billboard.

The second seven items on the survey are listed in Table 4, as well as the proportion of youth respondents who agreed or disagreed with each item. There was only one age difference on these items. Youth who agreed that the billboard helped them to cut down on or stop drinking were younger than those who did not agree with this item ($F = 9.3$; $df = 1,93$; $p < 0.005$). There were also some gender differences in the proportion of respondents who agreed or disagreed with these items. Girls were more likely to say that the billboard ($F = 8.7$; $df = 1,31$; $p < 0.005$) and the MI/PE ($F = 5.0$; $df = 1,31$; $p < 0.04$) helped them to cut down or stop drinking as compared to boys. Fifty-five percent ($n = 32$) of youth agreed to liking the intervention activities, and 71% ($n = 44$) felt the

interventions impacted the community in a positive way. Fifty-six percent (n = 20) agreed that the overall intervention prompted them to cut down or stop drinking. The most highly endorsed items that prompted them to change their drinking behavior were the alcohol presentations at the community outreach sessions (63%; n = 19) and the Reward and Reminder program (64%; n = 21).

There were no age effects on the final three items on empowerment and the transtheoretical model of stages of behavior change from pre-contemplation to action to reduce drinking in the youth. However, girls were more likely than boys to agree that they went from not realizing there was a problem to realizing there was a problem with teen drinking in their family or community (F = 5.04; df = 1,34; $p < 0.04$). As seen in Table 5, 57% (n = 20) overall agreed that they went from not realizing there was a problem to realizing there was a problem, 63% (n = 19) said that the activities resulted in them going from thinking that they couldn't do anything to thinking that they could do something, and 63% (n = 19) agreed that as a result of the activities they decided to take action to reduce teen drinking in their family or community.

Table 6 presents the odds ratios and p-values for a set of analyses that investigated whether having been aware of multiple numbers of the intervention activities (responses to items 1 to 5 in Table 3) resulted in an increase in the odds that the youth would endorse the 10 other items in the survey. Using logistic regression that included age and/or gender when it was significant for that item revealed that being aware of more of the activities significantly increased the odds of positively endorsing three of the items (liking intervention activities, feeling they positively impacted the community, and activities prompted me to cut down or stop drinking).

Comparison of Youth and Adult Surveys

There were some differences between the youth and adults in endorsement of individual items on the survey. A higher percentage of adults endorsed having seen the billboard (F = 6.1; df =1,193; $p < 0.02$) than youth. Adults were more likely than youth to endorse liking the activities (F = 28.2, df = 1,177; $p < 0.0001$) and that the activities impacted the community positively (F = 8.5; df = 1,181; $p < 0.007$). Adults were also more likely than youth to endorse that they overall agreed that they went from not realizing there was a problem to realizing there was a problem (F = 7.5, df = 1,141; $p < 0.01$), said that the activities resulted in their going from thinking that they couldn't do anything to thinking that they could do something (F = 6.05, df = 1,140; $p < 0.02$), and agreed that as a result of the activities they decided to take action to reduce teen drinking in their family or community (F = 6.5, df = 1,138; $p < 0.02$).

DISCUSSION

It has been suggested that health outcomes in intervention studies are the result of three factors: 1) the magnitude of the effect of the intervention, 2) the awareness and penetration of an intervention into the community, and 3) the sustainability of the effects (Hawe, Noort, King, & Jordens, 1997). Several studies have shown the efficacy of Environmental Prevention strategies to reduce community alcohol problems, including underage drinking, by reducing commercial alcohol availability (Holder et al., 2000; Treno, Gruenewald, Lee, & Remer, 2007; Treno & Lee, 2002; Wagenaar, Toomey, & Erickson, 2005). However, few investigators have described interventions on alcohol use among AI/AN youths (see Cheadle et al., 1995; Gabriel, Leichtling, Bolan, & Becker, 2013; Kulis, Ayers, & Harthun, 2017; May & Moran, 1995; Usera, 2017; Wagenaar, Livingston, Pettigrew, Kominsky, & Komro, 2018; Whitesell et al., 2012; Williams & Perry, 1998). A few studies have included AI/ANs in the study design but were not powered to test for effects that might be specific to the AI/AN sample (Livingston et al., 2018; Perry et al., 2000; Perry et al., 1996). In one of those studies, community-level and individual approaches were employed and the 2-year intervention resulted in significant reductions in alcohol use (Komro et al., 2017). However, that study also found a convergence in outcomes during the final year, suggesting that the effects of the intervention might not have been sustained (Komro et al., 2017). The overall study, on which the current set of analyses are based, was a multi-level intervention for underage drinking in AI youth that included analyses for two years before the intervention and four years following the intervention. That study showed a significant and sustained effect on underage drinking (Moore et al., 2018).

The current study described the response to a multi-component community-based intervention to reduce and prevent underage drinking that could be culturally tailored by other tribal communities. A small survey of youth visiting an Indian Health Clinic, in the catchment area of this study, found that 37% of boys and 54% of girls had drunk one or more standard drinks in their lifetimes, and that 27% of boys and 39% of girls reported having been intoxicated with alcohol one or more times (Gilder et al., 2013), thus documenting the need for reducing underage drinking. With respect to the interventions, we found that a high proportion of AI individuals queried endorsed knowing about one or more of the intervention activities (93% of adults and 96% of youth). There were some differences between adults and youth in what individual components of the intervention they were aware of, with adults being more likely to know about the intervention activities than youth. The importance of engagement of youth in intervention activities

has been stressed by others who have conducted successful multi-level trials for reducing adolescent alcohol use (Perry et al., 2000).

In assessing the effectiveness of a multi-level intervention, it is not always possible to determine which components among the intervention efforts were the most effective. The present study sought to query both youth and adult AIs as to what activities they thought led to changes in their (teen) or their teen's (adult) drinking behaviors. Overall, over half of the adults felt that the interventions prompted them to behavioral change with the most highly endorsed individual item being alcohol information presentations at the community outreach sessions. Interestingly, a lower percentage of youth agreed that the interventions prompted them to cut down or stop drinking (although many youth also indicated that they did not drink). Additionally, there were some gender differences in youth responses with girls appearing to have been more affected by the interventions than boys. Overall, the youth also felt that the alcohol presentations at the community outreach were effective in prompting them to cut down or stop drinking.

These data are consistent with a component analysis of the effects of different intervention strategies that were used in Project Northland, a multi-level intervention trial to prevent and reduce alcohol use in rural Minnesota that included some AI youth (Stigler, Perry, Komro, Cudeck, & Williams, 2006). In those sets of analyses, the strongest effects were documented for the planners of parent program components and extra-curricular activities, and only modest effects were seen for the classroom curricula. There has been widespread consensus that although classroom education programs are the most common venue for prevention (Botvin & Griffin, 2007), they have resulted in sparse evidence for efficacy in reducing teen substance use (Pan & Bai, 2009; Spoth, Greenberg, & Turrisi, 2009). There have been some suggestions that the most effective programs include interactive activities (Botvin & Griffin, 2007). Our studies support this construct and further suggest that engaging both parents and teens in interactive educational activities can result in action toward behavioral change of underage drinking by both adults and teens.

Our results suggest that exposure to multiple types of intervention strategies can significantly enhance the odds that an adult will take action to prevent underage drinking and that a teen will change their drinking behavior. These findings support the multi-level intervention approach. It has been suggested that a "paradigm shift" from using European American prevention science techniques to those that are culturally relevant to the community are needed in order to create a "grass roots" level approach to AI substance use prevention (Whitbeck, Walls, & Welch, 2012). Our study group supports this idea and our study suggests that involving both teens and

adults in each step of the process in designing an intervention is important. Our findings are of particular importance for AI/AN communities because of the value AI/AN Tribes place on the well-being of their children, which can be potentially threatened by alcohol involvement (Connors, 2011). Considering the relative young age of many AI/AN populations (National Congress of American Indians, 2019), developing culturally relevant and effective interventions to reduce youth drinking takes on additional significance.

This study has several limitations and strengths that should be considered. Working within the guidelines of tribal consent, this survey was not conducted using randomized sampling methods and may represent a biased sample of the AI community. Among adult respondents there were more women than men who chose to participate. Furthermore, although the results strongly suggested that the interventions had substantial effects, we were also unable to randomly assign reservations to intervention and control conditions. Additionally, since the Reward and Reminder component was not designed to modify individuals' behaviors, but to reduce commercial availability of alcohol to underage youths at the community level, exposure to this component could also not be randomized. Study strengths included tribal participation and the demonstration of significant impact and multiplicative effects of the interventions. Tribal leader ownership and support of this project was key in the successful implementation of the described project activities and provided ongoing insight and guidance that ensured that intervention activities and goals were locally acceptable and culturally appropriate. In addition, participation by young adult AI/AN project research staff might well have been critical to the successful outcomes achieved. In conclusion, this study documents that a significant proportion of the community was aware of the intervention efforts and that awareness caused them to take action to reduce underage drinking. Such efforts may benefit other AI/AN communities seeking to reduce underage drinking.

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UNDERSTANDING RISK AND PROTECTIVE FACTORS INFLUENCING URBAN AMERICAN INDIAN /ALASKA NATIVE YOUTH GRADUATION EXPECTATIONS

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Abstract: Utilizing data collected by the Monitoring the Future project between 2005-2015, this study assesses the effect of risk and protective factors in shaping the graduation expectations of urban American Indian/Alaska Native (AI/AN) students as compared to their non-Hispanic White (NHW) peers. The responses of nearly 150,000 8th- and 10th-grade students reveal that single race and multi-race AI/AN students experienced 13 of 15 risk factors at higher proportions than NHW students, and 12 of 15 risk factors corresponded to single race AI/AN students and a third of risk factors corresponded to multi-race AI/AN students having higher odds of expecting not to graduate. Additionally, for the majority of the 14 protective factors analyzed, both single race and multi-race AI/AN students showed lower odds of expecting to graduate compared to their NHW peers.

INTRODUCTION

Education levels for American Indian and Alaska Native (AI/AN) students are significantly lower than the general U.S. population. The high school graduation rate for AI/ANs in 2015 was 82%, which is the lowest of any racial and ethnic group in the United States, compared to the graduation rate for non-Hispanic Whites (NHW) of 95% (Musu-Gillette et al., 2017). Additional research has shown that AI/AN students drop out of high school at nearly twice the rate as their NHW peers (15% vs. 7%; DeVoe, Darling-Churchill, & Snyder, 2008). These disparities highlight a lack of cultural and structural support within the Westernized education system, stemming from the effects of institutionalized racism and ongoing oppression within societal structure and systems (Aspray, 2016; Keith, Stastny, & Brunt, 2016; Vincent, Tobin, & Van Ryzin, 2017). Years before students don caps and gowns, they begin developing expectations of graduation that are influenced by an array of risk and protective factors that either detract from or encourage their pursuit of a

high school diploma. This study seeks to assess the impact of those factors on expectations of graduation by comparing the experiences of AI/AN students to their NHW peers.

Stereotypes often portray AI/AN people as living only in rural areas or isolated on reservations, which do not accurately represent the contemporary AI/AN experience (Martinez, Sage, & Ono, 2016). Through forced migration, government mandate, and individual choice, AI/AN people have moved to urban areas throughout the United States and have created growing and thriving communities (Martinez et al., 2016). In the 2010 Census, over 5.2 million Americans identified as AI/AN alone or in combination with another ethnic group (Norris, Vines, & Hoeffel, 2012). With approximately 78% of those people living in urban areas, it is imperative to incorporate urban AI/AN communities into research and interventions focused on improving the overall health and well-being of Indian Country (Martinez, 2014; Norris, et al., 2012). In an effort to center the perspectives of urban dwelling AI/ANs, the study specifically focused on urban AI/AN youth due to the fact that they represent 40% of the urban AI/AN population and are of an age where negative health outcomes can be more readily addressed through prevention and intervention (Dominguez, Appanaitis, Simpson, Yang, & Lind, 2016; Blum, Harmon, Harris, Bergeisen, & Resnick, 1992).

Furthermore, by focusing on educational outcomes, this study seeks to guide the implementation of meaningful programs within the urban AI/AN community, as access to a quality education is essential to positive health outcomes across the life course (Kaplan, Fang, & Kirby, 2017). Education lays the groundwork for health literacy, as it allows patients to accurately comprehend nutrition and medication labels, understand medical diagnoses and physician recommendations, and advocate for themselves in a complex health care system (Foster, Idossa, Lih-Wen, & Murphy, 2016). Education is also a precursor to employment, which is linked to improved health outcomes through increased access to housing, nutritious food, clean water, clothing, and more (Day & Newburger, 2002). However, it is important to understand that access to education itself does not counterbalance the totality of ways in which health disparities are linked to institutional and structural inequalities that dictate society today.

Critical Race Theory (CRT) was utilized to conceptualize the theoretical foundations of what the data represents, as well as what it means in the lived realities of the AI/AN youth in the study, with the recognition that race plays a role in the day-to-day activities of those socially identified as non-White. We sought to incorporate the main pillars of CRT into the theoretical conceptualization of the study in order to examine the roots of inequity in health and educational

outcomes that stem from the systems and institutions that continue to uphold and enforce institutionalized racism (Delgado & Stefanic, 2012).

CRT demands the acknowledgement of the continued existence of systems of oppression within modern society that inequitably affect people of color, especially AI/AN communities, and that these systems contribute to persistent educational disparities (Delgado & Stefanic, 2012). In their work, Ford and Airhihenbuwa (2010) have explained the importance of using CRT in addressing public health concerns in order to challenge colorblindness with race consciousness, understand the complex and insidious mechanisms of structural racism, and work towards centering the perspective of marginalized populations, all while using a reflexive and iterative praxis in which knowledge gained from personal experiences as well as theory and research inform each other.

In an effort to support and address the remediation of institutionalized oppression and inequity, protective factors were intentionally incorporated into the analysis as a way to start focusing on some of the strengths of our AI/AN communities. A paradigm shift away from focusing solely on deficits is needed and academic research must work to identify strengths among urban AI/AN youth, while simultaneously examining the perpetuation of the structural injustices affecting their lives. Due to the deficit-based model that is most Westernized scientific research and due to the data that is available, approximately half the variables in this study are risk factors. Yet, they have been included with the acknowledgment that AI/AN communities and students have demonstrated incredible resiliency not only through legacies of oppressive education policies but continue to do so in the face of structural and institutional racism in the education system.

Research on AI/AN dropout rates hold many methodological puzzles that make it difficult to accurately capture dropout rates for this population. For one, definitions of the variable of "dropping out" can differ. School dropout and completion rates metrics are rarely defined and present an important methodological challenge in this field of research (De Witte, Cabus, Thyssen, Groot, & van den Brink, 2013). Measurements vary from "freshman graduation rates" to "status dropout rates" and often include varying criteria like "permanent vs. temporary" dropout measurements (Cataldi, Laird, & KewalRamani, 2009; De Witte et al., 2013). AI/AN communities are a highly mobile population, in which some students may completely drop out and never return to the education system, some may decide to obtain a GED, and others may "dropout" of one school but re-enroll in another, completing their high school education (Faircloth & Tippeconnic, 2010).

Although our study cannot address the methodological issues of research in this area, a primary goal of the study was to add a unique perspective to the current body of knowledge around urban AI/AN students' graduation expectations by 1) assessing the risk and protective factors facing AI/AN youth; 2) highlighting the differences in exposure between single race AI/AN students, multi-race AI/AN students, and their NHW counterparts; and 3) analyzing the influence of race on graduation expectations for students with that exposure. By focusing on AI/AN youth in urban settings, the study adds to the knowledge and understanding of AI/AN youth health and allows the identification and utilization of protective factors to promote and improve the educational and health outcomes for the urban AI/AN community. This increased understanding of the protective and risk factors faced by AI/AN youth can lead to improved educational outcomes and thus better health and well-being throughout their life course (Henson, Sabo, Trujillo, & Teufel-Shone, 2017; Silmere & Stiff, 2006).

METHODS

Data Sources

Analysis was done using data collected by the national Monitoring the Future (MTF) project (http://www.monitoringthefuture.org/) from 2005 to 2015. MTF is an on-going cross sectional survey of the attitudes, behaviors, and values of 8th-, 10th-, and 12th-grade students in the United States, with a focus on substance use as well as the way attitudes and values change over time. It is funded primarily through the National Institute on Drug Abuse and conducted by the University of Michigan ("Monitoring the Future," 2017). The survey uses a randomly selected, multilevel sampling design to establish a nationally representative sample. Sample weights are also used to account for variations in school sample size and selection probability. Surveys are distributed to students during the school day and are self-administered in classrooms ("Monitoring the Future," 2017). The demographic information, risk, and protective factors used in this study were from 8th- and 10th-grade students from the years 2005-2015. This study focused on 8th- and 10th-grade students due to interest in potential for early intervention. The data used for this analysis only includes students attending schools based in standard metropolitan statistical areas as utilized by the U.S. Census Bureau (Office of Management and Budget, 2010). Students were also selected based on self-identified race/ethnicity, focusing on AI/AN and Non-Hispanic White (NHW) students only. For the analysis, AI/AN students were divided into two groups: those who identified

as AI/AN only and those who chose AI/AN in combination with another race/ethnicity. A total of 149,903 students were the focus of this analysis.

Measures

The primary outcome for the study was graduation expectation, which was defined as definitely/probably will not graduate or definitely/probably will graduate. The primary variables of interest for this analysis were year, age, gender, race/ethnicity, risk, and protective factors including substance use, school behavior, attitudes, and social support. Risk and protective factors were selected based on known risk and protective factors from previous research (Whitesell, Mitchell, & Spicer, 2009).

Fifteen risk factors were defined using the following questions. “Being not too happy these days” was categorized as being not too happy vs. pretty/very happy these days. “Binge-drinking in the last 2 weeks” was defined as having five or more drinks in a row. “Cut at least one school day in the last month” was operationalized as missing one or more days of school because of cutting school. “Schoolwork difficult to understand” was measured by a response of often/always (vs. never/seldom/sometime) to finding school work too hard to understand. “Hates school” was operationalized by a response of often/always (vs. never/seldom/sometime) to hating being in school. “Held back in school” was defined as having to repeat a grade in school. “Spent no time on homework” was measured by zero hours spent in an average week on homework, including both in school and out of school. “Missed school due to illness” was based on missing three or more whole days of school. “Punished for misbehaving” was measured by a response of often/always (vs. never/seldom/sometime) to getting sent to the office or having to stay after school because of misbehaving. “Didn’t complete school work” was operationalized by an often/always (vs. never/seldom/sometime) response to failing to complete or turn in assignments over the past year. “Skipped a class” was defined as going to school but skipping a class when not supposed to in the last month. “Attended summer school” was any “yes” response to ever attending summer school to make up for poor grades or to keep from being held back. “Suspended/expelled from school” was any “yes” response to ever being suspended or expelled from school. “Spent time home alone after school” was any “yes” response to the average time spent after school each day at home with no adults present. “Friends dropped out of school” was any “yes” response to having any friends who dropped out of school.

Fourteen protective factors were defined using the following questions. "Has adult to talk to" was categorized as any "yes" response to having at least one other adult, other than their parents, that they would feel able to talk to if they were having any problems. "Tried to do their best in school" was defined as a response of always/often (vs. never/seldom/sometime) to trying to do their best work in school. "Enjoyed being in school" was operationalized as a response of always/often (vs. never/seldom/sometime) to enjoying being in school. "Thought about future often" was measured by a response of always/often (vs. never/seldom/sometime) to thinking about their future beyond high school. "Average grade of A" was operationalized as having an A (93-100) as their average grade in their current school year. "Found school work interesting" was defined as a response of always/often (vs. never/seldom/sometime) to finding their school work interesting. "Have plan for after high school" was measured by a response of "I know exactly/pretty well what I will do" (vs. "I have a few/no ideas about what I might do") to best describing their plans after high school. "Expects to go to college" was based on definitely/probably will not go to college (vs. definitely/probably will). "Expects to go to technical/vocational school" was measured by definitely/probably will not go to technical/vocational school (vs. definitely/probably will). "Expects to serve in military" was operationalized by definitely/probably will not serve in military (vs. definitely/probably will). "Works in paid job" was defined as spending one or more hours per week working in a paid job. "Participated in community affairs/volunteer work" was measured by a response of "almost every day/at least once a week/once or twice a month" (vs. "a few times a year/never") to participating in community affairs or volunteer work. "Met with friends informally in free time" was defined by a response of "almost every day/at least once a week/once or twice a month" (vs. "a few times a year/never") to getting together with friends informally in their free time. "Participated in sports, athletics, exercise" was operationalized by a response of "almost every day/at least once a week/once or twice a month" (vs. "a few times a year/never") to actively participating in sports, athletics, or exercising.

Analysis

Chi-square tests were conducted to assess whether any significant differences existed in the frequencies of risk and protective factors between single-race AI/AN, multi-race AI/AN, and NHW students. Multivariate logistic models were used to evaluate whether any associations existed between race and graduation expectations among students with the shared risk/protective

factors when adjusting for the control variables (year, age, gender, and region). A p value < 0.05 and 95% confidence intervals were used to determine statistical significance. All analyses were conducted in SAS version 9.4 with survey design procedures (SAS Institute Inc., Cary, NC) and weighted to represent the population nationally.

Limitations

No socioeconomic status information was available in the data set; therefore, parental education was used as a proxy. Additionally, data were only available for the contiguous United States, indicating that the sample was not representative of all urban AI/AN students. Furthermore, MTF data was collected as a cross sectional survey, which only captures student answers at a single point in time, meaning that we will not know if these students end up completing their high school degree or not. This begs the question if the dependent variable of "intent to graduate" is an effective indicator for later dropping out. It may be that this dataset misses critical variables leading to dropout that are not captured, or it may be that the variables we included may be all important to those who actually do dropout but account for much stronger relationships than our research is able to unearth.

As a self-administered survey, social desirability bias can influence the way students chose to answer questions (Grimm, 2010). Additionally, racial misclassification consistently presents challenges for AI/AN populations and can lead to underestimation within the analysis (Jim et al., 2014). The data also does not allow for the ability to see what other race in combination with AI/AN that a respondent chose, meaning that we are not able to stratify multi-race AI/AN by subsets of that category, potentially missing important differences between those who may be African American and AI/AN or NHW and AI/AN, etc.

Although, ideally, we would be able to incorporate both Indigenous methodologies and CRT into the structure and conduct of analysis, we did not participate in data collection, and therefore cannot account for how race was classified and collected in the MTF survey. This also means the number of protective and resiliency factors that can be included in the analysis is limited.

RESULTS

Demographics

The sample included 2,365 single race AI/AN students, 7,807 multi-race AI/AN students, and 139,731 NHW students from 2005-2015 (Table 1). Comparing the three demographic groups, there were more male students in the single race AI/AN group (53.6% male students vs. 46.4% female students) while the multi-race AI/AN cohort had more females (56.5% female students vs. 43.5% male students). Among NHW students there was a roughly equal gender distribution (50.2% female students vs. 49.8% male students). Both the single race and multi-race AI/AN groups had a higher percentage of eighth graders (58.0% eighth graders in the single race AI/AN cohort; 55.0% eighth graders in the multi-race AI/AN group). There was a higher percentage of tenth graders in the NHW group (46.5% eighth graders vs. 53.5% tenth graders).

A significantly higher percentage of both single race and multi-race AI/AN students reported people outside of the immediate family living in the home compared to NHW students (21.4% single race AI/AN; 23.2% multi-race AI/AN; 11.4% NHW). Looking at parental education level, single race AI/AN students reported the greatest proportion of just one parent graduating from high school (15.9% single race AI/AN; 11.9% multi-race; 6.7% NHW) as well as the highest proportion of two parents completing just high school (30.3% single race AI/AN; 28.1% multi-race AI/AN; 21.8% NHW), whereas 44.9% of NHW students reported two parents graduating college compared with 27.8% of single race AI/AN and 31.8% of multi-race AI/AN students. While the majority of students in all three groups expected to graduate from high school, 3.1% of single race AI/AN students expected not to graduate compared with 1.8% of multi-race AI/AN students and 0.8% of NHW students.

Table 1
Demographic Characteristics of AI/AN and NHW Students in Urban U.S. Areas, 2005-2015

Total	Single race AI/AN, *n*= 2,314 No. (%)	Multi-race AI/AN, *n* = 7,617 No. (%)	NHW, *n* = 138,186 No. (%)
Age, years			
13	502.4 (21.5)	1,585 (20.6)	25,123 (18.1)
14	849.0 (36.3)	2,636 (34.3)	39,362 (28.3)
15	395.2 (16.9)	1,546 (20.1)	30,945 (22.3)
16	592.0 (25.3)	1,925 (25.0)	43,486 (31.3)

continued on next page

Table 1 Continued
Demographic Characteristics of AI/AN and NHW Students in Urban U.S. Areas, 2005-2015

Total	Single race AI/AN, *n*= 2,314 No. (%)	Multi-race AI/AN, *n*= 7,617 No. (%)	NHW, *n* = 138,186 No. (%)
Sex			
Male	1,240 (53.6)	3,317 (43.5)	69,612 (49.8)
Female	1,073 (46.4)	4,300 (56.5)	69,429 (50.2)
Survey Year			
2005	125.6 (5.3)	326.4 (4.2)	14,556 (10.4)
2006	299.9 (12.7)	728.1 (9.3)	15,327 (11.0)
2007	272.1 (11.5)	827.4 (10.6)	14,068 (10.1)
2008	228.9 (9.7)	684.5 (8.8)	12,779 (9.1)
2009	233.1 (9.9)	759.6 (9.7)	13,073 (9.4)
2010	230.9 (9.8)	677.3 (8.7)	12,958 (9.3)
2011	216.1 (9.1)	745.4 (9.5)	12,873 (9.2)
2012	196.1 (8.3)	722.3 (9.3)	12,674 (9.1)
2013	166.6 (7.0)	729.1 (9.3)	10,422 (7.5)
2014	207.1 (8.8)	792.6 (10.2)	9,566 (6.8)
2015	188.2 (8.0)	814.3 (10.4)	11,435 (8.8)
Grade			
8th	1,371 (58.0)	4,296 (55.0)	64,933 (46.5)
10th	993.6 (42.0)	3,516 (45.0)	74,798 (53.5)
School Region			
Northeast	406.6 (17.2)	1,273 (41.1)	32,621 (23.3)
Midwest	528.5 (22.4)	1,752 (22.4)	39,180 (28.0)
South	889.6 (37.6)	2,873 (36.8)	42,814 (30.6)
West	539.9 (22.8)	1,909 (24.5)	25,117 (18.0)
Number of Parents in Household			
None/One	772.4 (32.9)	2,814 (36.5)	25,917 (18.6)
Two	1,575 (67.1)	4,904 (63.5)	113,364 (81.4)
Siblings in Household			
0	531.9 (22.7)	1,787 (23.5)	26,266 (18.9)
1+	1,735 (77.3)	5,870 (76.5)	113,016 (81.1)
Others Besides Immediate Family in Household	501.7 (21.4)	1,790 (23.2)	15,832 (11.4)
Parents' Education Level			
Only 1 parent completed HS	338.9 (15.9)	856.5 (11.9)	8,846 (6.7)
Both parents completed HS	645.3 (30.3)	2,027 (28.1)	28,902 (21.8)
Only 1 parent completed college	551.8 (25.9)	2,041 (28.1)	35,429 (26.7)
Both parents completed college	591.8 (27.8)	2,298 (31.8)	59,599 (44.9)
Expecting to Not Graduate	71.9 (3.1)	137.4 (1.8)	1,163 (0.8)
Expecting to Graduate	2,259 (96.9)	7,541 (98.2)	138,889 (99.2)

Risk and Protective Factors

The percentages of students experiencing risk and protective factors are presented in Table 2. For 12 out of 15 of the examined risk factors, a significantly higher percentage of both single race and multi-race AI/AN students reported experiencing those factors when compared to NHW students. Significantly higher percentages of AI/AN students reported being "not too happy these days," truancy in the past month, difficulty understanding schoolwork, hating school, spending no time on homework, not completing schoolwork, skipping a class, and having friends who dropped out of school when compared to NHW students. Single race AI/AN students reported being held back in school and suspended/expelled from school at a rate twice that of NHWs (18.9% vs. 7.3%; $p < 0.0001$; 32.4% vs. 16.6%, $p < 0.0001$). Single race AI/AN and multi-race AI/AN students were also punished at twice the rate of NHW students for misbehaving (7.8% single race AI/AN; 7.4% multi-race AI/AN; 3.7% NHW; $p < 0.0001$). All AI/AN students reported attending summer school at nearly twice the rate of NHW students (24.8% single race AI/AN; 22.6% multi-race AI/AN; 11.9% NHW; $p < 0.0001$). A greater percentage of single race and multi-race AI/AN students missed school due to illness (15.0% single race AI/AN; 15.3% multi-race AI/AN; 10.6% NHW; $p < 0.0001$). There was no statistically significant difference between AI/AN students and NHW students for binge-drinking in the past two weeks or spending time home alone after school.

AI/AN students experienced similar percentages to their NHW counterparts for many of the protective factors (Table 2). For four out of the 14 protective factors analyzed, both groups of AI/AN students had higher percentages than NHW students, and for five factors, there was no statistically significant difference between AI/AN students and NHW students. A greater percentage of AI/AN students had a post-graduation plan (57.4% single race AI/AN; 61.7% multi-race AI/AN; 52.3% NHW; $p < 0.0001$), particularly among students planning to attend a technical or vocational school (37.4% single race AI/AN; 33.0% multi-race AI/AN; 24.9% NHW; $p<0.0001$) and among students planning to serve in the military (26.6% single race AI/AN; 23.5% multi-race AI/AN; 14.9% NHW; $p<0.0001$). A higher percentage of both single race and multi-race AI/AN students reported finding school work interesting when compared to NHW students (22.2% single race AI/AN; 21.2% multi-race AI/AN; 20.3% NHW, $p = 0.04$).

Table 2
Descriptive Statistics and Chi-Square Tests of Risk Factors and Protective Factors Comparing AI/AN and NHW Students in Urban U.S. Areas, 2005-2015

Risk Factors	Single race AI/AN, *N*=2,365 No. (%)	Multi-race AI/AN, *N*=7,807 No. (%)	NHW, *N*=169,440 No. (%)	
Not too happy these days	436.0 (18.6)	1,575 (20.4)	16,995 (12.2)	<.0001
Binge-drinking in last 2 weeks (5+ drinks in a row)	283.0 (13.2)	833.1 (11.8)	16,217 (12.2)	0.3054
Cut at least one school day in last month	341.3 (15.4)	1,044 (14.4)	15,886 (11.8)	<.0001
Schoolwork difficult to understand	528.7 (22.5)	1,495 (19.3)	21,811 (15.7)	<.0001
Hates school	872.4 (37.0)	2,812 (36.2)	46,420 (33.3)	<.0001
Held back in school	433.3 (18.9)	989.2 (13.1)	10,142 (7.3)	<.0001
Spent no time on homework	248.3 (10.6)	679.4 (8.8)	7,484 (5.4)	<.0001
Missed school due to illness	340.0 (15.0)	1,136 (15.3)	14,452 (10.6)	<.0001
Punished for misbehaving	183.2 (7.8)	577.9 (7.4)	5,226 (3.7)	<.0001
Didn't complete school work	461.9 (19.7)	1,546 (19.8)	18,675 (13.4)	<.0001
Skipped a class	408.3 (17.7)	1,368 (18.1)	15,697 (11.4)	<.0001
Attended summer school	571.0 (24.8)	1,708 (22.6)	16,476 (11.9)	<.0001
Suspended/expelled from school	744.3 (32.4)	2,686 (35.4)	22,895 (16.6)	<.0001
Spent time home alone after school	1,746 (74.7)	5,964 (77.4)	108,203 (77.8)	0.0096
Friends dropped out of school	799.8 (34.9)	2,593 (34.3)	30,029 (21.7)	<.0001
Protective Factors				
Has adult to talk to	1,542 (73.4)	4,983 (75.4)	98,152 (76.6)	0.0024
Tried to do their best in school	1,781 (75.8)	6,021 (77.6)	110,497 (79.4)	<.0001
Enjoyed being in school	873.8 (37.1)	2,996 (38.6)	54,528 (39.1)	0.1630
Thought about future often	1,159 (50.2)	4,541 (59.7)	69,848 (50.5)	<.0001
Average grade of A	568.2 (24.6)	2,138 (28.3)	55,625 (40.3)	<.0001
Found school work interesting	519.7 (22.2)	1,641 (21.2)	28,220 (20.3)	0.0486
Have plan for after high school	1,322 (57.4)	4,678 (61.7)	72,306 (52.3)	<.0001
Expects to go to college	2,056 (89.2)	7,129 (93.4)	129,912 (94.0)	<.0001
Expects to go to technical/ vocational school	839.8 (37.4)	2,413 (33.0)	32,919 (24.9)	<.0001
Expects to serve in military	612.0 (26.6)	1,784 (23.5)	20,571 (14.9)	<.0001
Works in paid job	690.2 (29.7)	2,041 (26.9)	38,072 (27.6)	0.0752
Participated in community affairs/volunteer work	685.6 (29.3)	2,488 (32.1)	43,299 (31.1)	0.0754
Met with friends informally in free time	2,177 (92.5)	7,100 (91.4)	131,999 (94.9)	<.0001
Participated in sports, athletics, exercise	1,896 (80.7)	6,407 (82.7)	119,270 (85.7)	<.0001

Graduation Expectation Rates

On almost all risk factors (12/15), single race AI/AN students showed statistically significantly higher odds of expecting not to graduate when compared to NHW students, while multi-race AI/AN students only showed statistically significant higher odds of expecting not to graduate on 5 of 15 risk factors (Table 3). For example, single race AI/AN students who missed school for illness had 2.7 times greater the odds of expecting not to graduate compared to NHW students who missed for illness, while multi-race AI/AN students who missed school due to illness had 1.8 times greater the odds of expecting not to graduate compared to their NHW peers who missed school while sick. Among students who cut school at least one school day in the last month, the odds of expecting to not graduate were 3.2 times higher for single race AI/AN students than NHW students, and twice as high for multi-race AI/AN students than NHW students. Lastly, single-race AI/AN students who spent time home alone after school had 4.4 times greater the odds of expecting not to graduate compared to NHW students who spent time home alone after school, while multi-race AI/AN students had twice the odds of expecting not to graduate compared to NHW students who spent time home alone after school. Furthermore, in comparison to NHW students, being punished for misbehaving was a statistically significant risk factor for expecting to not graduate among single race AI/AN students but not for multi-race AI/AN students. Among students who were suspended/expelled from school, the odds of expecting to not graduate were twice as high for single-race AI/AN students compared to their NHW peers; however, the odds of expecting to not graduate were not significant between multi-race AI/AN students and NHW students. As for students who had friends who dropped out of school, the odds of expecting to not graduate were twice as high for single race AI/AN students than for their NHW counterparts while not being significant between multi-race AI/AN students and NHW students. Conversely, being held back in school was a statistically significant risk factor for multi-race AI/AN students but not for single race AI/AN students compared to their NHW peers. Additionally, binge-drinking was not a statistically significant risk factor for expecting to not graduate among single race AI/AN students and multi-race AI/AN students when compared to their NHW counterparts. Although there was no statistical significance found, and this analysis focused on AI/AN youth living in urban settings, it is important to note that the proportions of binge drinking for single race and multi-race AI/AN in our analysis are similar to what Swaim & Stanley (2018) describe. Their research focused on AI/AN youth living on reservations but used MTF data as a comparison for

their original data collection. Our findings suggest similar rates for those who live in urban settings and reservations. Further research is needed to explore this potential association.

Table 3
Adjusted Odds Ratios of Risk Factors Comparing AI/AN Students and NHW Students' Expectation Not to Graduate in Urban U.S. Areas, 2005-2015

Risk Factor	Single race AI/AN vs. NHW Adjusted OR (95% CI)	Multi-race AI/AN vs. NHW Adjusted OR (95% CI)
Not too happy these days	2.03 (1.26, 3.26)	1.43 (1.00, 2.04)
Binge-drinking in last 2 weeks (5+ drinks in a row)	1.66 (0.88, 3.13)	1.35 (0.84, 2.17)
Cut at least one school day in last month	3.21 (2.07, 4.98)	1.95 (1.40, 2.71)
Schoolwork difficult to understand	2.47 (1.59, 3.85)	1.29 (0.87, 1.91)
Hates school	2.68 (1.87, 3.88)	1.59 (1.21, 2.09)
Held back in school	1.38 (0.89, 2.15)	1.54 (1.07, 2.22)
Spent no time on homework	1.88 (1.13, 3.13)	1.18 (0.83, 1.68)
Missed school due to illness	2.68 (1.54, 4.65)	1.82 (1.15, 2.87)
Punished for misbehaving	2.08 (1.10, 3.93)	0.84 (0.54,1.30)
Didn't complete school work	2.11 (1.41, 3.17)	1.19 (0.89, 1.60)
Skipped a class	2.70 (1.73, 4.21)	1.17 (0.82, 1.66)
Attended summer school	1.50 (0.96, 2.34)	1.19 (0.85, 1.63)
Suspended/expelled from school	2.07 (1.41, 3.04)	1.08 (0.80, 1.45)
Spent time home alone after school	4.38 (3.23, 5.95)	2.03 (1.55, 2.64)
Friends dropped out of school	2.09 (1.43, 3.06)	1.26 (0.94, 1.70)

Note: CI = confidence interval. OR = odds ratio. Multivariable logistic models were adjusted for year, age, gender, and region.

When examining protective factors, single-race AI/AN students showed statistically significantly lower odds of expecting to graduate across all 14 protective factors when compared to their NHW counterparts, while multi-race AI/AN students had significantly lower odds of expecting to graduate on 11 of 14 protective factors (Table 4), regardless of whether they had statistically significant higher proportions of a particular protective factor. Single race AI/AN students who had a plan for after high school had 77% lower the odds of expecting to graduate than their NHW peers, while multi-race AI/AN students with a plan for after high school had 43% lower the odds of expecting to graduate than NHW students with a post-high school plan. Single race AI/AN students who met with their friends in their free time had 73% lower the odds of expecting to graduate than their NHW counterparts, while multi-race AI/AN students who spent

their free time with friends had 52% lower the odds of expecting to graduate than NHW students. Among students who participated in sports, athletics, and exercise, single race AI/AN students had 79% lower the odds of expecting to graduate when compared to their NHW counterparts, while multi-race AI/AN students had 56% lower the odds of expecting to graduate compared to NHW peers. Furthermore, the odds of expecting to graduate among single race AI/AN students who enjoyed being in school were 87% lower than the odds of their NHW counterparts; however, among multi-race AI/AN students who enjoyed school, their odds of expecting to graduate were in line with their NHW peers. Among students who expected to go to technical or vocational school, the odds of expecting to graduate were 67% lower for single race AI/AN than for their NHW counterparts, while there was no statistically significant difference between multi-race AI/AN students and NHW students. As for students who expected to serve in the military after high school, single race AI/AN students had 60% lower the odds of expecting to graduate compared to NHW peers; however, no statistically significant difference was found between multi-race AI/AN students and NHW students.

Table 4
Adjusted Odds Ratios of Protective Factors Comparing AI/AN Students and NHW Students' Expectation to Graduate in Urban U.S. Areas, 2005-2015

Protective Factor	Single race AI/AN vs. NHW Adjusted OR (95% CI)	Multi-race AI/AN vs. NHW Adjusted OR (95% CI)
Has adult to talk to	0.23 (0.16, 0.34)	0.44 (0.32, 0.59)
Tried to do their best in school	0.20 (0.13, 0.30)	0.37 (0.26, 0.52)
Enjoyed being in school	0.13 (0.08, 0.25)	0.99 (0.46, 2.15)
Thought about future often	0.24 (0.14, 0.40)	0.62 (0.39, 0.98)
Average grade of A	0.13 (0.06, 0.27)	0.32 (0.17, 0.64)
Found school work interesting	0.13 (0.06, 0.28)	0.33 (0.15, 0.71)
Have plan for after high school	0.23 (0.15, 0.36)	0.57 (0.38, 0.85)
Expects to go to college	0.17 (0.10, 0.28)	0.38 (0.22, 0.64)
Expects to go to technical or vocational school	0.33 (0.18, 0.60)	0.67 (0.36, 1.25)
Expects to serve in military	0.40 (0.24, 0.66)	0.81 (0.55, 1.20)
Works in paid job	0.33 (0.19, 0.59)	0.45 (0.29, 0.69)
Participated in community affairs or volunteer work	0.12 (0.07, 0.21)	0.27 (0.16, 0.46)
Met with friends informally in free time	0.27 (0.20, 0.37)	0.48 (0.38, 0.61)
Participated in sports, athletics, exercise	0.21 (0.15, 0.30)	0.44 (0.34, 0.58)

Note: CI = confidence interval. OR = odds ratio. Multivariable logistic models were adjusted for year, age, gender, and region.

DISCUSSION

Overall, our findings highlight the inequitable experiences AI/AN students face within the education system and the corresponding impact on graduation expectations. The results show single race AI/AN students are held back at higher proportions than multi-race AI/AN students and at more than 2.5 times the proportion of NHW students (18.9%; 13.1%; 7.3%). Further, 7.8% of single race AI/AN students report being punished for misbehaving, similar to the 7.4% of multi-race AI/AN students who report the same, compared to only 3.7% of NHW students who reported punishment for misbehavior. These findings are consistent with existing studies that have found AI/AN students facing disproportionate disciplinary action which contributes to the school-to-prison pipeline (Wallace, Goodkind, Wallace, & Bachman, 2008). In addition, previous studies have also provided evidence that discipline referrals, suspensions, and expulsions were disproportionately meted out to AI/AN students compared to their NHW peers and did not correlate with behavioral differences (Brown & Tillio, 2013; Gastic, 2017). It was also found that single race AI/AN students reported being held back in school at higher proportions than multi-race AI/ANs and NHWs (18.9%; 13.1%; 7.3%), which is confirmed by Dever, Raines, Dowdy, and Hostutler (2016) in their study on special education that showed AI/AN students being 86.4% more likely to be placed in special education when compared to their NHW peers.

However, these results should be interpreted with caution, as findings about students being held back or experiencing high disciplinary rates often lead to the assumption that these students are not engaged or participating in school. Yet, the data show the opposite. A larger percentage of both single race and multi-race AI/AN students, when compared to NHW peers, found school work interesting (22.2%; 21.2%; 20.3%) and had a post-graduation plan (57.4%; 61.7%; 52.3%). Particularly, this ability to look forward highlights' Indigenous protective cultural factors, as many Indigenous cultures rely on the ability to look forward into the future to overcome the obstacles of today. The Inuit articulate this as "[when] faced with adversity, people talk of hope and wait for it to reveal itself" (Kirmayer, Dandeneau, Marshall, Phillips, & Williamson, 2011, pg.88).

Despite having significant protective factors in place, the results show that protective factors do not enhance graduation expectations for the 1.6% single race AI/AN and 5.2% multi-race of AI/AN youth in this study in the same way protective factors boost these expectations in NHW students. Even with both groups of AI/AN students reporting higher proportions of exposure than NHW peers on four of the 14 protective factors, and three more in which one group of AI/AN students had a higher proportion of exposure, our findings show both groups of AI/AN students

were still more likely than NHW counterparts to not expect to graduate. For single race AI/AN students, they experienced lower odds of expecting to graduate on all 14 protective factors when compared to NHW students who reported the same exposures. It is important to note that the number of cases/sample size was limited, which impacted the analysis and limits the reporting of the results. Small sample sizes reduce statistical power and increase the chance of type II error, warranting caution that any statistically significant results or relationships in this study should be considered estimates and must be examined further.

Yet, although only a small percentage of the sample reported expectation of not graduating (3.1% single race AI/AN; 1.8% multi-race AI/AN; 0.8% NHW) and there is no way to confirm if these students actually do dropout, the importance of examining this small sample size is necessary as researchers often exclude AI/AN students in their analyses due to small numbers and being deemed statistically insignificant (Faircloth & Tippeconnic, 2010). Recognizing that the small population size of AI/ANs is directly related to the legacy of colonialization and genocide is a part of applying a culturally rigorous and equitable approach, which then places immense value on this small subset of the sample as it recognizes that every data point is a person, a story, a life, and a seminal piece of the health and well-being of future generations, no matter the size of the sample. CRT adds the acknowledgement that the impact of institutionalized and structural racism limits the power of the protective factors identified in this study to have the same positive impact on AI/AN students that they do on NHW students. With this in mind, future research should consider oversampling in data collection to address the limitations of small sample sizes, as well as mixed methods research approaches with use of qualitative data like storytelling, to strengthen any associations explored through statistical analysis. While statistical analysis provides us with a baseline understanding of some of these trends, qualitative data can provide a rich context to help understand statistical patterns more clearly.

Moving forward, additional research is needed to examine the cultural, historical, and geopolitical landscape of these communities to contextualize the disparities that are observed. Additional research is also needed on the types of variables leading to dropout as well as clear definitions of different types of dropping out. Further research should highlight that cultural practices and traditions, such as “thinking about the future,” double as both cultural and protective factors. Numerous studies of Native youth have identified culture as a key protective factor, which merits further investigation (Henson et al., 2017). A study of alcohol use in the Ojibwe and Dakota tribal communities identified the importance of challenging stereotypes through education and mentoring,

as well as the frustration associated with harmful intergenerational stereotypes, which could be further investigated as protective and risk factors (Myhra & Wieling, 2014). Another study of rural Alaska Native youth identified contribution to village welfare and subsistence and cultural activities as protective factors (Wexler, Dam, Silvius, Mazziotti, & Bamikole, 2016). By continuing to expand on the understanding of protective factors and incorporating urban AI/AN youth into studies and research, public health interventions for AI/AN youth can be improved and contribute to lifting the overall health and well-being of all AI/AN people. Prevention efforts that do not consider cultural and contextual factors may have lower chances of success (Swaim & Stanley, 2018). By understanding institutionalized racism and bias within the education system and focusing on protective factors, communities can move forward towards a positive, more inclusive future.

This work is a launching off point for additional expansion and culturally rigorous investigations around education achievement for AI/AN youth. As community is at the forefront of everything we do, a presentation of this data to AI/AN community members in the surrounding school district has been proposed, to gather feedback and experiences around this topic as well as create an opportunity to brainstorm with community on how to culturally define "risk" and "protective" factors that may differ with how it is discussed in Western academia. "Cultural rigor must include using local cultural protocols that promote a fundamental respect for knowledge of cultural leaders who can provide meaningful insight/explanations to important questions" (Tribal Evaluation Workgroup, 2013, pg 11). Shoalwater Bay Tribal Chair Charlene Nelson articulates this type of Indigenous research as an "exploration together" rather than the classic Western research approach which often focuses on research conducted by "experts" with no ties or investment in the community (Blacksher et al., 2016; Braun, Browne, Ka'opua, Kim, & Mokuau, 2014).

We want to build from the resiliency that AI/AN students have shown and strive to create systems and interventions that work for youth and promote better health and educational outcomes for urban AI/AN communities. A starting point for this will be the Urban Indian Health Institute's current effort to undergo a national urban Indian health programs Behavioral Risk Factor Surveillance System (BFRSS). Although BRFSS's are common, this will be the first to our knowledge that will collect data nationally from all urban Indian health programs. This BRFSS will also link questions to a direct social determinants of health question, as well as place an emphasis on cultural and protective factors to provide data that focuses on the strengths of our urban Indian population.

CONCLUSION

This study builds upon prior research to confirm that both single race and multi-race AI/AN students experience risk factors at higher rates than NHW students. Although both groups experience similar protective factors, the institutional racism at play within our education system inequitably undermines the effect of these factors in facilitating graduation expectations. The data shows that exposure to positive factors was associated with lower odds of expecting to graduate for AI/AN students when compared to fellow NHW students. The study also highlights the need for researchers to investigate protective factors outside of Western paradigms, such as those related to the cultures and values of Indigenous people. Continued research on protective factors and successful interventions is needed to close the educational attainment gap and support the health and well-being of urban AI/AN youth.

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INTERVIEWS WITH AMERICAN INDIAN AND ALASKA NATIVE PEOPLE WHO INJECT DRUGS

Jessica Leston, MPH, Carolyn Crisp, MPH, Murilynn Crystal Lee, PhD, and Elizabeth Rink, PhD

Abstract: This project gathered opinions, attitudes, and beliefs from American Indian and Alaska Native (AI/AN) people who inject drugs (PWID). The primary objective of this study was to build formative knowledge around AI/AN PWID to help define and develop health care services and strategies by better understanding existing services, barriers, and challenges to seeking care. A total of 32 semi-structured in-depth interviews were conducted. AI/AN PWID reported a number of structural, social, and geographical barriers when trying to access health care. PWID communities critically need integrative health care service strategies and improved education about injection drug use (IDU), outreach, and prevention programs and resources. More low-barrier and streamlined access to needles should be coupled with other health care services for PWID. PWID are a key resource to help health care providers and community members correct misconceptions and better understand IDU.

INTRODUCTION

American Indians and Alaska Natives (AI/AN)[1] experience disparities in access to health care and recovery services for substance use disorder, especially for persons who inject drugs (PWID).[2] Although there is vast variability with substance use patterns across tribes and between urban and rural context, overall AI/AN people have experienced the largest increases in drug and opioid-involved overdose mortality rates compared with other racial and ethnic groups. Misclassification of AI/AN race also oftentimes contributes to significant underestimates of AI/AN mortality rates. (Joshi, Weiser, & Warren-Mears, 2018). The rise in injection drug use (IDU) has

[1] American Indian and Alaska Native (AI/AN) identity is used in this paper as a general term of identity for those participating in the project and does not capture the complex individual tribal histories and sociopolitical processes that have led to the multiple terms and levels of AI/AN identify, including Tribal, Pueblos and Nations affiliations.
[2] A list of frequently used acronyms can be found at the end of this article.

increased, placing AI/AN PWID at increased risk for HIV, hepatitis c virus (HCV), and other blood-borne infections (Centers for Disease Control and Prevention, 2014). In addition, IDU is associated with adverse health outcomes such as drug overdoses, drug-related suicidal behaviors, comorbid psychiatric disorders, and trauma (Roy, Arruda, Bruneau, & Jutras-Aswad, 2016). Morbidity and mortality rates due to substance use disorder (SUD), combined with barriers to access treatment and harm reduction services, are major public health issues in Indian Country (National Congress of American Indians, 2018; Fisher, Cahill, Broyles, Rorke, & Robinson, 2017). Particularly in the context of the current opioid epidemic, health care systems must do more to ensure stigma-free access to opioid and IDU treatment services, syringe services, and overdose prevention.

Acknowledging the interactions between individual and external factors that impede access to IDU treatment and harm reduction services is crucial in achieving health equity for AI/AN PWID. Further understanding these circumstances allows us to begin to address unmet health needs, such as delays in receiving appropriate care, inability to access harm reduction services, financial burdens, and associated preventable hospitalizations among AI/AN PWID. This project gathered knowledge, opinions, attitudes, and beliefs from AI/AN PWID, including persons who have injected drugs in the past. The primary objective of this study was to build formative knowledge around AI/AN PWID, which can be used to define and develop health care services and strategies for IDU. Barriers discussed included access to treatment for AI/AN PWID, lack of harm reduction services, barriers in accessing unused needles, and policy-level barriers. Moreover, this paper discusses PWID risk-taking behavior as a consequence of these barriers.

METHODOLOGY

Theoretical Framework

This project used the Community Involvement to Renew Commitment, Leadership, and Effectiveness (CIRCLE) framework for program design and community development. The model was based on three indigenous researchers' experience as Gathering of Native Americans (GONA) facilitators and developed during their time working at a tribal consortium in the Southwest. The CIRCLE framework is a four-step model (building relationships, building skills, working together, promoting commitment) that incorporates Western concepts of community capacity building (building the capacity to respond to health issues) and parallels the values of community-based participatory research (building mutual trust between researchers and communities without the

potential for exploitation or abuse of power). CIRCLE is uniquely indigenous in comparison to community capacity building and community-based participatory research in that it puts relationships – both professional and personal – at the center of program building. The creators of CIRCLE understood that relationship-building is an essential process in tribal communities and "one that is deeply embedded in history and context" (Chino & DeBruyn, 2006, pp. 598).

Target Population: American Indian/Alaska Native Tribes

AI/AN communities were solicited to participate via the Nation-wide network of Tribal EpiCenters. The Northwest Tribal Epidemiology Center, as the project lead, sent emails to other Tribal EpiCenters to solicit Tribal communities in their region to participate in the project.

AI/AN communities that chose to join the project were located on or near reservations in the West, Northwest, and Midwest United States. The communities were selected based on the tribe's and/or tribal organization's expressed interest, their willingness to participate in planning meetings, and their diverse geographic location. Communities were located in areas designated rural to small urban (3,000 – 74,000 persons). Selected communities reflected the diverse barriers and opportunities for PWID who have attempted to access prevention, harm-reduction, clinical, or treatment services on or near tribal reservations.

Each tribe or tribal organization obtained agreements from the Tribal Health Director and/or Tribal Council to participate in this project. Letters of approval in the form of a memorandum of understanding, or other document as desired by the participating tribe, were submitted to the Portland Area Indian Health Service Institutional Review Board (IRB) upon receipt. All confidentiality requirements set by participating tribes were honored by the Northwest Tribal Epidemiology Center. Each tribe had the ability to decide how they would like to proceed with review and approval. Options included:

(1) Accepting the Portland Area IRB review (letter stating such will be submitted to Portland Area IRB)
(2) Proceeding with local IRB review (letter of approval will be submitted to Portland Area IRB)
(3) Proceeding with local Tribal review (letter of approval will be submitted to Portland Area IRB)

Northwest Tribal Epidemiology Center project staff identified and collaborated with at least one local coordinator at each site during the development and design process to tailor the protocol to community needs. This co-ownership of research strategies and implementation

continued in each phase of the project. Monthly meetings were held with project staff across organizations and areas to discuss the project.

Participant Recruitment and Selection

To be eligible, participants had to have previous or current engagement with IDU, live on or near one of the identified communities, and be between 18 and 40 years old. Due to the difficulty of reaching PWID with traditional sampling methods, a non-probability sampling, chain-referral sampling method was used. This method involved identification and recruitment of a small number of "seed" participants via word of mouth, who then provide contact information for other potential participants (Johnston, Whitehead, Simic-Lawson, & Kendall, 2010; Salvalaggio, McKim, Taylor, & Wild, 2013). Ideal seed participants had large social networks, were respected by members of the target population, are able to convince others to participate in the study, and had some interest in the study goals (Erickson, 1979). Each seed participant had up to three coded coupons to recruit peers from their social network. Positive experiences during the survey process promote further recruitment.

Additional recruitment strategies varied by community, since different communities required and/or permitted different outreach strategies. Some local coordinators recruited via signs and posters placed in local health clinics, behavioral health clinics, drug treatment facilities, prevention program venues, tribal buildings, or other areas deemed appropriate by local site coordinator(s). At other sites, local health and behavioral health clinic staff verbally told their patients of recruitment. Outreach was also conducted at local venues frequented by PWID for recruitment.

Data Collection

The Northwest Tribal Epidemiology Center staff trained the local site coordinators to conduct interviews with participants. Local site coordinators who did not have experience conducting interviews for research received training via webinar and were coached from one of the project leads. Semi-structured in-depth interviews were conducted with participants in a private room. In-depth review of the methods and process of the project including details regarding staff training and interview guides has been previously published (Leston, Crisp, Lee, & Rink, 2019). Interview guide questions were written in collaboration between all project staff (including those working in the communities) and incorporated implementation science theory in order to

encourage the integration of research findings and evidence into policy and change. By mapping questions to the causal factors that influence implementation (innovation, personal, provider, organizational, and structural), study personnel were able to better conceptualize constructs affecting implementation of programs and services for PWID (Chaudoir, Dugan, & Barr, 2013).

Interviews lasted approximately 45-90 minutes. Participants received an information sheet and a verbal description of the study, along with residual points requiring clarification. Participants then signed an informed consent form to agree to participate in this study. Participants received a $25 gift card as an incentive. Thirty-two (n = 32) interviews were conducted with AI/AN and non-AI/AN PWID. Surveys were distributed to gather basic demographic information.

Data Analysis

All interviews conducted during the study were audio recorded. Transcription occurred at an outside venue. Transcribed data were analyzed systematically using ATLAS.ti software. Content analyses were used to identify the presence, intensity, and frequency of topics and themes generated by groups and individuals. A data-driven approach was utilized, allowing themes to emerge from the data (Creswell, 2006). The codes created were used to identify and assign meaning to information gleaned from the study.

Interrater reliability was calculated during the coding process to establish consistency between reviewers. Initial interrater reliability was 77%, calculated by dividing the number of total agreements by the total number of agreements and disagreements. After the iterative process of building the codes, a final interrater reliably score of over 90% was achieved. Validation of the codes arose through the process of triangulation—in that the literature supported multiple findings of the study, multiple participants in different geographic regions reported similar findings garnered during the interviews, and multiple members of the research team analyzed the same data to establish validity and confirmed study findings.

RESULTS

Participant Demographics

Thirty-two (n = 32) PWID were recruited. Seventeen participants (53%) identified as male and 15 (47%) identified as female. The average participant age was 32 years old. Many participants (69%) had finished high school and had some college or had completed a college degree. The

majority of participants (94%) identified as AI/AN. Over half of participants reported that they received their health care from IHS or the nearby tribal health services.

Themes

Seven themes emerged from the interviews with PWID. These themes describe current structural, social, and geographical barriers to accessing services and treatment for PWID, as well as risk-taking behaviors that are a consequence of these barriers.

Theme 1: Stigma

Social barriers, like stigma, feeling shame, guilt, and concerns about being judged, kept participants from accessing SUD resources, treatment services, and prevention programs. Health care providers (physicians, nurses, pharmacists, and pharmacist technicians) and community members were most frequently mentioned by participants as the main sources of judgment and stigma that PWID experienced in their everyday lives.

> *You know you feel that guilt you think people know when you're going to buy those needles that they know you're a junkie…I think people are either very arrogant healthcare providers…or ignorant. They're either super anti-drug usage and have no compassion for it, or, you know. So it's like people reach out, and they don't really help, you know, like my own partner. (Participant A)*

> *Like you're still being shamed, you know, people are still telling you that you're a shitty person because you did the things you did. (Participant D)*

> *Once you get labelled an IV drug user, your name's just nothing. So I mean it… Because I remember whenever I wasn't one, you know. I remember whenever I didn't have that stigma. Doctors treated me so well, greeted me so nicely, you know. And now doctors look at me like, what's wrong with you? Nothing's wrong with you. (Participant W)*

Theme 2: Lack of access to Medication Assisted Treatment (MAT)

Participant knowledge of medication assisted treatment (MAT) varied depending on where the participant was located geographically and if they had any prior experience with any of these

services. Most participants had no MAT in their area (including those living in small urban communities of up to 74,000 people) but had previously accessed them in large urban centers.

Participants that had experience using MAT advocated for its implementation in their area. One participant described having to travel to another neighboring state in order to obtain his medication:

> *And a lot of doctors weren't even (prescribing MAT)…Most of them that I called weren't taking any new patients. And then I just kept calling and calling until I found one that would take me, you know? It's a four-hour drive once a month…I go to Cheyenne, Wyoming, once a month to do it, to get my prescription filled…I probably called at least 40 places within a five, within a four-hour radius from here. Most of them, you either had to be on pain management, they weren't taking street drug users, or you had to go through a lot of…You know, take in-patient treatment and do all these things before they would prescribe it to you. (Participant B)*

Another participant was located in an area that did not have many treatment options for PWID/Persons who have injected drugs and suggested that there should be more strides taken to alert members of the community that there are affordable treatment options available.

> *Just if there could be a way to let the people of the community know, the people that use drugs, that there's treatment out there and that it's cheap. (Participant I)*

Participant D corroborates the statement made previously by another participant in that the availability of MAT services in their local area was nonexistent, and they knew of treatment options located in other areas that were not nearby geographically.

> *My friend gets their Suboxone in Aberdeen. I know it's available, I've heard of it being available in Aberdeen and Sioux Falls and in Wyoming too, not sure where. And also I've heard of a lot of people going to Fort Collins, Colorado. But, I mean, as far as Suboxone in South Dakota, there's not a ton of options. And, I mean, Suboxone doctors can only take on so many patients. And so that's also pretty limiting, I think they put too much restrictions on it, you know. (Participant D)*

Another participant emphasized the benefits of MAT services in that it helped them in becoming sober previously.

> *But the Suboxone and methadone clinic…Yeah, that's definitely the best things…Or that's the things that have helped me in the past. So. (Participant AC)*

Theme 3: Lack of overall knowledge of and access to Harm Reduction Services

Syringe service programs (SSPs) were often the only harm reduction services participants knew about. While most participants had positive attitudes and perceptions of SSP, a number of participants described scarcity of services and lack of health provider knowledge about local SSP as central barriers to access. Scarce services in this context refers to the lack of available SSP in participant areas. Many participants noted that the health providers they encountered did not know of any available SSP in their area and were unable to refer them to such services.

> *Well first of all, they don't support them because they're not, like, offering clean needles…(Participant C)*

Most participants supported future harm reduction services, such as MAT and SSP, being established in their area to assist PWID and believed health care providers would be supportive of harm reduction services. However, there were some participants that weren't sure if health care providers would be supportive.

> *Because like I said, me, myself, had lot of pride and it's tough to go in to get new needles. So here I am sitting around with the same old needle, sharing needles. When if there's opportunities like that [SSP], because I know in Colorado there are places like that where you could go and get a new needle every day. So if there's places like that here, that'd be fantastic. (Participant I)*

Participants also specifically described a variety of barriers which deter PWID from accessing unused needles, including prescription requirements, judgment by pharmacy staff, collection of personal information, and pharmacy store hours.

Giving out personal information made PWID uncomfortable. Most were afraid they would be reported to law enforcement. A number of participants stated that some pharmacies in their area required prescriptions for diabetic needles, which deterred many from attempting to purchase

unused needles. Diabetic needles were the most common type of needles used by PWID because they were available in most stores and pharmacies and could be bought in large quantities.

> *Well, I guess pharmacies, they apparently have some regulations. I know I have bought syringes where they have actually made me write down my name, address and stuff, personal information. Most people that are using are not very open to that. Nobody wants to write their personal information down just to get these…It's on record or something. (Participant B)*

Theme 4: Lack of access to SUD treatment and recovery resources (non-MAT)

Participants discussed the available SUD resources, which were limited or non-existent. "Resources" were described by participants as any non-MAT behavioral or clinical-based treatment options for PWID. For the participants who were able to identify current facilities that were available to help PWID, many had negative interactions with health care providers and staff at these facilities, which discouraged them from accessing such resources. Participant examples of negative interactions included: feeling judged for their IDU, feeling stigmatized, experiencing health provider assumptions about their IV drug use, health providers being rude, and not taking them (PWID) seriously because of their addiction.

> *They look at you like a bum, a junky, like with disgust. Like I don't know it's kind of like prejudice in a way, compared to how they look at somebody else that's, I don't know, but I see that, it's like it's ugly. That's why I don't even want to go to a hospital, I don't need nothing. (Participant H)*

> *I think they feel like, I don't know, like they don't like us. Like we're not human, we're going to give them a disease if we touch them. I just think they just don't know how it is; they think it so easy. Why don't you just quit? You know, just…They just don't like us, I don't know. They treat us differently. (Participant Q)*

Further, many participants responded that they felt providers weren't compassionate enough towards individuals with addiction issues.

> *I guess, for them (health care providers) to be educated, I guess, on drug addicts and what it really is about. You know, that they're just people and they're not trying*

to hurt anybody, that they're just sick and stuck and don't know what they're doing. They're just desperate people really. (Participant B)

Many stated that the SUD treatment they received was inadequate due to negative perceptions and attitudes about IDU and PWID from health care providers servicing PWID. Participants felt as though providers couldn't communicate effectively with them. They reported that providers needed to learn how to speak to them as people and not treat them as medical cases.

I think they should be more, it seems like they're more of just there, mainly the counselors that do work at treatment, whatever treatment they're working at, is just work for them, another job, you know. Kind of lost their enthusiasm about what they're really, why they really wanted to be a counselor. (Participant G)

Some participants felt that the resources (services and programs) for PWID were adequate, but this varied depending on geographic location. Most felt more resources should be allocated towards helping PWID. Participants had many ideas for future resources, including increasing the number of services, type of services, and duration of services.

Just probably like some [inaudible] based treatment centers. And probably back to the equine therapy, because I know a lot of people that... Like one of my buddies was in equine therapy before and he liked it a lot. But I just think there needs to be more treatment centers in general (Participant C)

I would like to see more treatment centers. I'd like to see more outpatient treatment centers (Participant G)

The experience of participants with treatment services varied depending on whether the respondent sought treatment voluntarily or because of a court order (involuntary treatment).

Participants flagged multiple issues with current treatment programs including: scarcity, limited services, and other barriers. It was very difficult for many participants to identify a voluntary program in their area they felt comfortable attending. Some participants described going through multiple treatment programs before "getting clean" (achieving sobriety). Many commented on the available programs being inefficient, limited, or staffed by people who were not interested in helping patients. Many participants commented that more compassion from

community members towards PWID would motivate them in accessing SUD treatment. Overall, participants did not believe that the treatment programs were effective in helping people with SUD.

> *Well, they obviously get locked up and then they don't have access to that, so they get cleaned up. And then, you know, hopefully they're in there long enough and then they get their mind right and they realize they're better off without it. And then when they get out, that's when they have to make their choice, whether they're going to keep staying clean or whether they're going to go back to what they were doing and repeat that cycle. (Participant I)*

Theme 5: Risk-taking and protective behaviors

Many participants described protective behaviors they undertook while using drugs, such as not sharing needles in order to avoid getting transmittable diseases such as HIV or HCV. One participant who had injected drugs in the past mentioned giving needles away to others.

> *I know that there were several times that I would buy, just so it wasn't an issue and I wouldn't have to worry about it. I'd buy a whole box of a 100, which is ten packs of ten and that was $13 and then it just wasn't an issue for me. And then I would freely give them out to my friends too, just so they wouldn't have to worry about it either. (Participant B)*

Participants also described risk-taking behaviors, including needle sharing, reusing needles, and unhygienic needle cleaning and injecting practices. Needle-sharing and reusing needles were most frequently mentioned.

The inability to access unused needles (Theme 3) contributed to risk-taking behaviors. Participant who lacked access to safe, unused syringes stated that they were more likely to reuse needles. A handful of participants discussed needle sharing among intimate partners, which is termed "fluid bonded." Engaging in such behavior was viewed by some participants as being less risky, because they shared needles with only their partner.

> *Like my girlfriend and I, we share. We're what's called fluid bonded, we share needles all the time, but just us. We don't share outside of us, like I mean one time we accidentally used somebody else, but as far as reusing them yes, people are reusing them. (Participant F)*

Reusing and sharing needles contributed to participants engaging in unsafe and unhygienic injection practices, such as injecting repeatedly in the same area. A few participants used materials such as their own bodily fluids, water, beverages, bleach, and alcohol to clean and then subsequently reuse needles. Many participants knew that you could get an infection from a lack of injecting hygiene. Despite this knowledge, many had used unsafe or unhygienic injection methods while engaging in IDU.

> *God knows what's on them. And it's a wonder that I don't have HIV or some other crazy disease. I mean, I got really lucky. And I know a lot of people that haven't got lucky, you know, and that are all messed up. And got nasty, funky diseases or, you know…Or abscesses, you know…Really bad abscesses. (Participant A)*

A few participants reported having been sold tainted drugs, which were laced with other drugs or other toxic chemicals that had extremely adverse impacts on their physical health. According to participants, this was done by drug dealers in order to get rid of products and make a profit or, at times, to harm certain individuals.

> *I see people give people hot shots and stuff, they did it on purpose to give the person, to make them get sick just to do that harm, because they're bad one way or another or they don't like them, give it to them they're called hot shots. (Participant F)*

Although this concept didn't emerge as a major theme in the analysis, a few PWID commented that they knew of or heard about women trading or selling sexual favors for drugs or money to buy drugs.

> *Oh, trade in, like, sex. I mean, they'll trade that for the fix or whatever. (Participant C)*

Theme 6. Motivation for treatment and recovery

Many participants attested unless an individual was mentally ready to get treatment then they would not be successful in achieving recovery. Motivations for recovery included nearly overdosing, encouragement from people they knew, and self-realization that engaging in IDU was not contributing to their lives in a positive way. There were few to no successful cases of recovery from any behavioral or clinical treatments available in their area. Most participants believed most

PWID who entered into involuntary treatment were not mentally ready to recover and as a result would either leave treatment early, fail the program, or continue to use drugs while in treatment.

> *It only works if you want it to work. And if you're just doing it because the court wants you to, more than likely, you're going to fall back to using again after treatment. (Respondent Y)*

Participants who had injected drugs in the past shared key physical, mental, and spiritual elements which contributed to a recovery. Physical constraints (i.e., being incarcerated, becoming exhausted or ill from the lifestyle of engaging in IDU) motivated some to seek recovery.

> *Just crisis's in their life, where they realize that's not what they want anymore and they want to make a better life and something higher than themselves is giving them the strength to move forward and put that past them, become a better person and grow in all aspects of their life. (Participant I)*

Participants, particularly those who had injected drugs in the past, described emotional trials (i.e., having extreme feelings of low self-worth) and challenges (i.e., having children who required different emotional priorities) as motivators of recovery. Improved self-worth and recognition of personal potential was another driver towards recovery mentioned by a number of participants.

A handful of participants described spiritual awakenings and engaging in religious or Native American spiritual practices (e.g., praying or participating in sweat lodges) as motivators and maintainers of their recovery.

> *Or they say, oh go pray, go pray this and that, but like we're from reservation, we have a strong medicine, a strong culture, but at the same time it's like most of us have no idea where to go sweat. They don't know that, I mean, so for us guys that do have that knowledge, we're the lucky ones. And I feel bad because it's like… (Participant H)*

Participants emphasized the importance of having strong social support networks (for example, family and friends) and engaging in treatment and behavioral health programs specifically tailored to their needs. This highlights the importance of SUD treatment programs which go beyond the "one size fits all" approach to treatment.

Theme 7. Tribal Council policies and perceptions of PWID

The level of support the tribal council provided for PWID varied with geographic location. Some participants felt that the tribes were providing adequate behavioral and clinical health services for PWID. Others perceived tribal policies which affect PWID as aggressive and strict because they resembled zero tolerance drug policies. Some participants believed that PWID were invisible to tribal councils and unacknowledged in the community, which made them feel isolated.

A number of participants wanted to see more tribal council support for PWID, including more collaborations across agencies and governments, more funding allocated towards SUD treatment and programs, and more awareness in tribal communities about the social issues that specifically impact PWID.

> *I think the Tribal Council is trying to help people. I just think they're in the beginning process of it and I think like any process it takes time. (Participant A)*

DISCUSSION

The primary objective of this study was to build formative knowledge around the culture of AI/AN PWID and to help define and develop tribal health care services and strategies for PWID. AI/AN communities participating in this project have clearly identified barriers and opportunities for change in services and treatment programs for PWID. Yet, many of these same barriers are not much different from identified barriers and opportunities for non-AI/AN communities, and include lack of access to health services, lack of provider education, and social stigma (Wang et al., 2016; Lang et al., 2013). This would suggest that, regardless of specific AI/AN-cultural needs for intervention and competency, there are lessons all health care services should learn and implement to better reach PWID. This new knowledge should be used to improve health care systems for IDU, HCV, HIV, and other associated adverse health issues to eliminate disparities and access to health care and recovery services for persons who inject drugs (PWID).

Limited access to local MAT health care services contributes to disparities in nonfatal and fatal opioid overdose among AI/ANs and was a reoccurring theme from participants in this project. Opioid Use Disorder (OUD) is a chronic brain disease caused by reoccurring use of opioids (American Psychiatric Association, 2019). Like other chronic diseases, such as hypertension and diabetes, OUD can be treated with medication (MAT) and counseling or other behavioral therapy. Tribal reservations are often located far from urban centers where specialized health services for

OUD treatment are available. In 2014, there were only eight documented tribal health facilities in the United States with MAT services and six tribal programs with MAT policies and procedures (Joseph, 2018). This treatment gap does not exist only in Indian Country. Only 23% of publicly funded treatment programs report offering any FDA-approved medications to treat SUD, and less than half of private-sector treatment programs reported that their physicians prescribed FDA-approved medication (Knudsen, Abraham, & Roman,2011; Knudsen, Roman, & Oser, 2010). In some places, this lack of access is due to physicians not having or not using their DEA Waiver to use buprenorphine, one of the medications used for OUD treatment. Leadership, at all levels, need to continue to work together to ensure MAT treatment is available to all people with OUD.

Similarly, access to recovery services for people with SUD was an important theme repeated by participants. Recovery for PWID and with SUD should be broad and diverse, including but not limited to: MAT, culture-based prevention and recovery, evidence-based prevention and recovery, housing programs that do not discriminate against PWID (including those with felonies) and promote keeping families together during recovery, and training and professional development programs for PWID. From the Surgeon General's Report on Alcohol, Drugs, and Health, "Recovery from substance use disorders has had several definitions. Although specific elements of these definitions differ, all agree that recovery goes beyond the remission of symptoms to include a positive change in the whole person. In this regard, 'abstinence,' though often necessary, is not always sufficient to define recovery" (U.S. Department of Health and Human Services, n.d.).

Health systems should embrace varied recovery programs that meet the needs of individual PWID and should develop organizational approaches that lead to PWID achieving degrees of health and wellness, leading productive lives, and making valuable contributions to society (Substance Abuse and Mental Health Services Administration [SAMHSA], 2016). Most participants did not know what "harm reduction services" were and had not accessed these services. Education needs to be implemented among PWID as well as health care providers around harm reduction services. Harm reduction services integrates a large range of strategies from managed abstinence, to safer use of drugs, to meeting PWID at the space they are currently in, verses forcing them to be in a desired, prescribed state (Harm Reduction Coalition, 2010). Another important concept of harm reduction services, which was reflected in this project, is that there is no universal solution, definition, or formula that will work for all communities. Harm reduction services intervention and policies must be designed to fit individual and community needs by listening, respecting, and meeting PWID where they are at, instead of leaving them where they are

at. Though harm reduction is an old concept, implementation of harm reduction services is key to help PWID and includes traditional health promotion concepts, such as health fairs and education, decimalization of drug use, lifting the ban on purchasing syringes with federal dollars, and removing punitive sanctions for people who use drugs while in treatment.

The complete absence of SSP in some tribal health facilities and limited access in other regions was one of the primary contributors to participants reusing and sharing needles. Engaging in protective behaviors such as buying non-prescription needles in bulk and distributing them to friends, being present when a friend was injecting, and sharing drugs was fairly common among PWID in this study. Studies have shown that SSP does not promote IDU (Sebelius, 2011). One study has demonstrated that PWID who accessed SSP had a higher likelihood of seeking treatment compared to those who never had accessed an SSP (Hagan et al., 2000). Therefore, increasing access to SSP will reduce blood borne disease transmission and other infections caused by risk-taking behaviors such as sharing and re-using needles (Sweeney et al., 2019).

Stigma surrounding SUD and PWID continues to adversely affect PWID. PWID often do not seek SUD treatment or harm reduction services because of fear of judgment, feeling shame, or guilt. Moreover, participants agreed that health care providers needed additional training about SUD and treating people with SUD. The stigma felt by every participant in this study, driven by general perceptions that SUD is a moral failing rather than a chronic disease, only exacerbates barriers to treatment and recovery. Whether real or perceived, negative perceptions and attitudes towards PWID from health care providers contribute to this stigma. Educational programs for health care professionals should emphasize communicating effectively with PWID and improving provider knowledge of local recovery services, MAT options, harm reduction services, and SSPs.

Recovery is possible for PWID, as demonstrated by interviews conducted with people who had injected drugs in the past. As noted by the participants of this study, people who had injected drugs in the past who were successful in recovery were mentally ready, had strong social support networks, and sought programs or treatment that worked best for them. Programming implemented in communities to reduce stigma towards PWID is likely to decrease feelings of social ostracization, increase the use of available SUD treatment centers among PWID, and increase the likelihood that PWID will access services to help them in recovery. Given their knowledge of the culture surrounding IDU and their lived experiences, PWID should be included in SUD program development.

Study Limitations

As with any research, our study had limitations. It is important to consider that these results are not generalizable to all PWID in all of Indian Country given that the study was conducted with a small sample size and in only three geographic regions throughout the United States. Participants in the study were located in areas designated rural to small urban (3,000 – 74,000 persons), making their experiences different from one another and also very different from urban AI/ANs. These experiences are shaped by the context in which each person experiences their SUD, including distance to drive to access services (including those living in small urban areas but do not have access to treatment services where they live). Future studies should focus on the urban AI/AN experience as it relates to IDU and health services.

The recruitment to participate in the study was nonrandom at two levels. One, the Northwest Epidemiology Center recruited sites via other EpiCenters and Tribal Health Directors. There were pre-existing relationships between some EpiCenters and Tribal Health Directors, which biased recruitment of sites. Also, recruitment of participants largely relied on word-of-mouth and existing relationships, which may have limited the themes that emerged.

Another limitation recognized by the researchers was the lack of information gathered on cultural and uniquely indigenous contextual factors related to IDU. Although not discussed in great depth by the participants in this study, there are numerous pieces of literature that point towards healing of historical trauma, colonization, and growing interventions based in AI/AN culture (Walters et al., 2020; Croff, Rieckmann, & Spence, 2014; SAMHSA, 2018). Though questions were open-ended and left room for participants to discuss any and all factors related to health services, community, strengths, and needs for PWID, rarely did this come up. We believe that this had to do with the fact that we were particularly focused on improving health care services which operate almost exclusively in Western constructs. However, the lack of overlap could similarly be due to the disassociation and forced isolation of PWID from their traditional ancestral ways of knowing and community. Better understanding and future research should be challenged to understand PWID through an indigenous lens.

Study Strengths

It is important to acknowledge the strengths of this study. This study was unique in that it obtained accounts of the lived experiences of AI/AN PWID, of which few studies in the United

States have done (Anastario et al., 2017). Additionally, the study was able to capture the behavioral patterns that PWID exhibited from how they obtained needles, the drugs themselves, and their actions leading to engaging in IDU. Furthermore, this study illuminated the social networks and culture that developed around IDU and PWID. Moreover, the study provides further empirical evidence about critical barriers that AI/AN PWID experience in accessing health care, such as limited services, negative health care provider perceptions and attitudes towards PWID, and judgment towards PWID from the community.

CONCLUSION

Structural, social, and geographical factors influence access to SUD treatment and harm reduction services for AI/AN PWID. Greater access to MAT and other recovery and harm reduction services are needed for AI/AN communities. Changing social attitudes and beliefs about IDU, SUD, treatment and recovery services, and PWID will improve access to SUD treatment and harm reduction services for PWID. Education about SUD and local prevention and recovery programs and resources is critically needed in communities to 1) inform the community about SUD and behaviors, 2) decrease stigma and general misconceptions around PWID and SUD, and 3) increase access to comprehensive IDU services for AI/AN people.

List of Acronyms

American Indians and Alaska Natives (AI/AN)
Persons who inject drugs (PWID)
Injection drug use (IDU)
Human immunodeficiency virus (HIV)
Hepatitis c virus (HCV)
Indian Health Service (IHS)
Institutional Review Board (IRB)
Medication assisted treatments (MAT)
Syringe service programs (SSP)
Opioid Use Disorder (OUD)

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THE CULTURE IS PREVENTION PROJECT: MEASURING CULTURE AS A SOCIAL DETERMINANT OF MENTAL HEALTH FOR NATIVE/INDIGENOUS PEOPLES

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Abstract: This paper reports Phase 4 of the Culture is Prevention Project where we validated the Cultural Connectedness Scale – California (CCS-CA) with a sample of 344 Indigenous adults in the San Francisco Bay Area, California. In Phase 3 of this project, the CCS-CA was modified from the original Canadian Cultural Connectedness Scale (CCS) developed by Dr. Angela Snowshoe and colleagues to be a better fit for the more multi-tribal communities in urban California. Both the CCS-CA and CCS consist of 29 items that measure culture on 3 sub-scales: identity, traditions, and spirituality. The project demonstrated a positive link between cultural connectedness and mental health/well-being using the Herth Hope Index. We report results similar to the original CCS study by Snowshoe et al., where we found the CCS-CA to be a valid and reliable strength-based instrument and to support the conclusion that culture is a social determinant of mental health/well-being for Indigenous/Native peoples.

BACKGROUND

What tore the Indian world apart and how did it impact health?

Prior to colonization, Indigenous/Native[1] peoples across the North American continent maintained health and wellness for thousands of years through culturally-based practices. According to Indigenous worldviews, the environment, mind, body, and emotional health are inextricably linked to collective human behavior, practices, wholeness, and, hence, wellness (Brave Heart, Chase, Elkins, & Altschul, 2011; Walters, Beltran, Huh, & Evans-Campbell, 2011).

[1] In this paper we use 'Native/Indigenous' or 'American Indian/Alaska Native [AI/AN]' interchangeably to represent the original peoples of North America prior to colonization. The term 'cultural connectedness' refers to the degree to which an AI/AN (Indigenous person) is integrated within his or her Native/Indigenous culture.

For example, health in Indigenous communities was the result of living in the community; participating in traditional ceremonial practices, which involved foods, medicines, songs, dances; and revering the land and all her inhabitants as relatives (Menzies & Lavallee, 2014; Tucker, Wingate, & O'Keefe, 2016). For generations, Indigenous people have practiced what we now call "Population Health" where traditional practices promoted health for community members by increasing collective strengths and decreasing inequities. This approach is very different compared to the Western individualistic approach (e.g., deficit-based or disease-based) to promoting health by increasing strengths at multiple levels (King et al., 2019).

Colonization had a devastating impact on eroding Native culture through government policies that broke the Indian world apart (Stamm & Stamm, 1999; Brave Heart & DeBruyn, 1998). Decades of strategic colonization methods resulted in the subsequent down-stream impact on ill-health across Native/Indigenous communities. Examples where colonization negatively impacted these determinants of health include: 1) ethnic cleansing as operationalized by the Indian Removal Act of 1830; 2) removing children from homes for involuntary attendance at Boarding Schools where children were brutally punished for speaking their language or "behaving Native" (1879-1980's); and 3) government policies making it illegal to practice Native culture (Stamm & Stamm, 1999; Irwin, 1997). The long-term health and social consequences of colonization include: a) multi-generational trauma; b) loss of land and culture; c) unresolved grief; d) high prevalence rates for chronic disease, suicide, and substance abuse; and e) poor social outcomes such as homelessness, unemployment, family violence, and incarceration (Caster et al., 2006; Chartier & Caetano, 2010; Ehlers, Gizer, Gilder, & Yehuda, 2013; Kolahdooz, Nader, Kyoung, & Sharma, 2015; Kenny & Singh, 2016; Mitchell, 2012; Snowshoe, Crooks, Tremblay, Craig, & Hinson, 2015; Snowshoe, Crooks, Tremblay, & Hinson, 2017).

What will help bring the Native world back together and help to restore health?

Government and Western medical model responses to Indigenous/Native health and social disparities have not proven to be very effective and, in many circumstances, have been harmful (Tucker et al., 2015; Walters & Beltran et al., 2011). Factors attributed to this outcome include the historical disrespect and subsequent lack of understanding by the dominant culture about the important cultural determinants of health for Indigenous/Native peoples, such as the strong and interdependent relationships between health, cultural traditions, spirituality, and the connection to traditional land, diets, and community. This dismissal of Native knowledge has contributed to the

ineffectiveness of many Western modalities in reducing health and social disparities for Indigenous communities (Tucker et al., 2016; Walters & Mohammed et al., 2011; McCormick, 1995). Given this, restoration and reconnection to the strengthening of culture or Indigenous/Native identity, is an important part of the solution (Chandler & Lalonde, 1998; Chandler, 2014; Coser, Sittner, Walls, & Handeland, 2018; Gone, 2009; Snowshoe et al., 2017; Snowshoe et al., 2015). However, a paradigm shift in the dominant culture is also needed. This is best described by King:

> Government, academia, and Western medicine should be cognizant that Indigenous culture historically manufactured good health. Therefore, government, academia, and Western medicine should try to better understand and promote Indigenous epistemology and community-defined evidenced practices and not undermine it. (King et al., 2019, p. 120)

What is the *Culture is Prevention Project* and why was it initiated?

The *Culture is Prevention Project* is a research/instrument development project (see Table 1) that derived from a Substance Abuse and Mental Health Services Administration (SAMHSA) funded project to address youth alcohol and prescription drug abuse. The project was initiated by the "Community Advisory Workgroup," comprised of staff and community members from six Urban Indian Health Organizations. The *Culture is Prevention Project* was designed as a 6-phase community-based participatory research (CBPR) project to address issues identified by the Community Advisory Workgroup, with a focus on: i) the lack of culturally informed methods to evaluate, from an Indigenous/Native perspective, the positive health outcomes of culture-based programs to improve health and well-being; and ii) interest in providing an approach that recognized the relationship between Indigenous/Native culture and health.

Each phase in the project was guided by the Community Advisory Workgroup. A main goal was to develop and implement a more culturally informed approach to demonstrating that the programs and interventions being delivered were achieving their objectives, which included both restoring/reconnecting to culture and improved strengths, resiliency, mental health, and well-being. Methods and results from Phases 1-3 are presented in a previous paper (King et al., 2019).

Table 1
Culture is Prevention Project

Phase 1	Consensus Generating Workshop
Phase 2	Literature Search & Knowledge Synthesis
Phase 3	Adapting the Snowshoe Cultural Connectedness Scale (CCS) for in Multi-Tribal Communities in California
Phase 4	Pilot Testing/Validation of the Cultural Connectedness Scale – California (CCS-CA) and Evaluation of the Relationship between Culture and Mental Health
Phase 5	Exploring the Predictive Properties of the CCS-CA
Phase 6	Cultural Connectivity, Integration, Health (Physical/Mental), & Health Services Utilization

What are the Cultural Connectedness Scale and the Cultural Connectedness Scale-California (CCS-CA)?

The Cultural Connectedness Scale-California (CCS-CA) is presented in Appendix A, ordered by the three subscales. It was adapted from the original Cultural Connectedness Scale (CCS) developed for First Nations/Indigenous youth in Canada by Dr. Angela Snowshoe, an Indigenous professor/scholar (Snowshoe et al., 2015). Snowshoe and colleagues developed the CCS to measure the degree of cultural connectedness with the objective of also demonstrating the link to mental health/well-being outcomes. This was based in the historical knowledge that "culture is prevention" and that a culturally specific protective factor within the epistemology of First Nations/Indigenous culture could be identified, measured, and verified (Walters & Anderson, 2013).

The CCS and the adapted CCS-CA are 29-item instruments with three sub-scales (Identity, Traditions, & Spirituality). We identified the CCS in Phase 2 (literature search) and adapted it in Phase 3 of the *Culture is Prevention Project* (see King et al., 2019).

Snowshoe and colleagues validated the CCS in a sample (N = 319) of First Nations/Indigenous youth (Snowshoe et al., 2015; King et al., 2019). The study also reported that culture (measured by the CCS) was positively and significantly associated with measures of mental health/well-being (Zimmerman, Ramirez-Valles, Washienko, Walter, & Dyer, 1996). Strengths associated with the original CCS were that: 1) it was developed by Indigenous persons for Indigenous persons using what Snowshoe describes as Indigenous Quantitative methods (Walters & Anderson, 2013), that used a "strengths-based approach within a First Nations epistemology that can be scientifically measured and verified" (Snowshoe et al., 2015, p. 1); 2) working with multiple First Nations/Indigenous communities to investigate what is culture such as asking

community members to identify: a) what does being First Nations/Native mean to you; b) what does culture look like/sound like/feel like; and c) the multi-phased approach to identifying and refining the items generated into the reliable and valid final 29-item instrument.

A problem associated with using the Snowshoe et al., (2015) CCS in an urban California population was that urban communities are much more heterogeneous (i.e., multi-Tribal and diasporic) compared to the communities in the original CCS validation study. For example, there are over 100 Tribes represented in the San Francisco Bay Area (California Consortium for Urban Indian Health, nd). Given these differences in populations and following consultations with Dr. Snowshoe, it was clear we needed to adapt the instrument to be valid and reliable for the diasporic and multi-Tribal characteristics of urban California. This was completed in Phase 3 of the *Culture is Prevention Project* and is described in a previous paper (King et al., 2019).

Phase 4 - Pilot Testing/Validation of the CCS-CA and Evaluation of the Relationship between Culture and Mental Health

Our main purpose in Phase 4 of the *Culture is Prevention Project* was to replicate (in part) the original innovative Snowshoe et al. (2015) study conducted in Canada using the adapted version of the CCS instrument. Our objectives were to 1) validate the CCS-CA and evaluate whether it demonstrates similar characteristics as the original CCS instrument in a multi-Tribal community in California, and 2) investigate the relationship between culture (measured by the CCS-CA) and mental health/well-being (measured by the modified Herth Hope Index [mHHI]) to evaluate if we could also conclude (as did Snowshoe and colleagues) that culture is a social determinant of mental health/well-being for this population of Indigenous/Native peoples.

METHODS

Sampling

We implemented a two-step approach to participant recruitment. Inclusion criteria were that participants self-identified as Native American/Indigenous and were 18 years or older. In step one, we recruited 300 adults at cultural events held throughout the San Francisco Bay Area. These included Pow Wows, Round Dances, other Native/Indigenous community events, and seminars held at Native/Indigenous cultural centers. The research team set up tables at these events where the study was mentioned by the announcers, and participants were invited (thus could self-select)

to complete the instrument package. In step two, we were interested in recruiting urban Indigenous adults who were not frequent participants at the cultural events utilized in step one. To recruit this group, we worked with the local Community Advisory Board (CAB). CAB members are well connected to the urban Indigenous community in the San Francisco Bay Area. CAB members went to the community with specific instructions to identify and invite community members who self-identified as Native/Indigenous and were not likely to frequently attend the cultural events in step one. CAB members were known and trusted in the community and, thus, were successful in recruiting an additional 100 participants. Participants in both steps were offered raffle tickets for $25.00 gift cards as incentives. Participants were informed of the purpose of the project and that it was approved by the Indian Health Service. When participants agreed to complete the instruments, informed consent was obtained verbally.

Participants

Participants sample was taken from a diasporic urban dwelling Native/Indigenous population in the San Francisco Bay Area and surrounding areas (N = 344). In total, 407 people agreed to participate in the study. Of these, 40 participants were excluded for not meeting the criteria, and an additional 23 participants were excluded for leaving five or more items blank on measures. The resulting sample size was 344. Of these participants, the mean age was 43.3 years (range = 18-79 years, SD = 14.9). In the sample, 61% (n = 211) identified as female, 36% (n = 124) identified as male, and 3% (n = 9) identified as two-spirit or other. Participants could self-identify multiple Tribal affiliations. There were 107 individual tribal affiliations represented in our sample in which 76.7% identified one Tribal affiliation, 19.2% with two Tribes, and 4.1% with three Tribes or more (see Table 2).

Measures

The instrument package consisted of three instruments: 1) demographic questionnaire; 2) CCS-CA; and 3) mHHI. Demographic questions included gender, age, and Tribal affiliation. Participants could identify multiple Tribes based upon their ancestry. Instrument packages were paper-based and administered to the participants by research staff after achieving informed consent. Participants frequently reacted positively when they were informed that the original CCS and CCS-CA were developed by Indigenous persons for Indigenous persons.

Table 2
Self-identified Tribal Affiliations (*N* = 107)

Tribe	*n*	Tribe	*n*	Tribe	*n*	Tribe	*n*
Acoma Pueblo	1	Dine	23	Navajo	56	Shawnee	1
Agua Caliente Band of Cahuilla	1	Gabrielino	12	Northern Cheyenne	3	Sherwood Valley Rancheria	1
Algonquian	3	Grindstone Rancheria	1	Ohlone	1	Shoshoni	4
Apache	17	Hoopa	12	Ojibwe	6	Sioux	7
Arikara	3	Hopi	3	Oneida	2	Siqua	1
Athabasken	2	Huichol	1	Osage	1	Taino	2
Azteca	3	Inupiaq	1	Otomí	1	Tepehuan	1
Blackfeet	6	Jemez Pueblo New Mexico	1	Pacheedaht	1	Tewa	1
BSR Mono	2	Kanik	1	Paiute	11	Tlingit	2
Caddo Delaware	1	Karuk	4	Pame	1	Tohono O'odham	8
Calaveras County Mountain Miwak	1	Kashia Pomo	2	Pascua	1	Tongra	2
Caynee	1	Kewa	4	Pawnee	1	Torres Martinez Desert Cahuilla	1
Cheraw	1	Kickapoo	1	Pima	1	Tribe of Huslia	1
Cherokee	30	Klamath	5	Piqute	1	Tsalagi	2
Cheyenne River Sioux	3	Lakota	16	Piru	1	Tulumne Mewuk	1
Chickahominy	1	Lumbee	2	Piscatawa Nation	1	Umatilla	1
Chickasaw	2	Maidu	4	Pit River	8	Umpqua	2
Chippewa	2	Maya	2	Pomo	27	Waho	1
Choctaw	15	Maya Xicana	1	Ponca	3	Washoe	3
Chukchansi	3	Maya Yucateco	5	Pueblo	3	Winnebago	1
Chumash	5	Metis	3	Purepecha	3	Yaqui	2
Cloverdale Rancheria	1	Minnesota Chippewa Tribe	1	Rajamuji	1	Yavapai	1
Comanche	1	Miwuk	5	Redwood Valley Rancheria	1	Yupik	3
Confederated Tribes of Grand Ronde	1	Mohawk	4	Round Valley Concow	2	Yuroh	1
Coyote Valley	1	Mono	5	Sac and Fox	1	Zapoteco	2
Cree	2	Moor	1	Salish	1	Zuni	2
Creek	3	Muscogee	7	Shasta	1		

Cultural Connectedness Scale-California (CCS-CA)

The CCS-CA is a 29-item instrument modified from the CCS developed in Canada (Snowshoe et al., 2015) that measures connection to Indigenous/Native culture and includes three sub-scales: i) Identity, ii) Traditions, and iii) Spirituality. The CCS-CA differs from the original CCS due to the inclusion of the "Examples Lists" page. These examples were developed as part of the adaptation of the CCS-CA in order to be more appropriate for the multi-tribal communities in the San Francisco Bay Area (King et al., 2019). The Examples Lists were developed to support the link in the original CCS questions, which often addressed culturally-specific knowledge, plans,

beliefs, or activities, that connects Tribal/Indigenous characteristics. Additionally, some terms were changed to be more inclusive of multi-Tribal communities. For example, the CCS question: "I use tobacco for guidance" was changed to "I use ceremonial/traditional medicines (See Example List 1) for guidance or prayer or other reasons (See Example List 2)" in the CCS-CA adaptation. These lists are illustrated in Appendix 1.

Modified Herth Hope Index (mHHI)

The HHI is a well-known 12-item validated instrument. For example, a simple Google Scholar search provided 3,040 results and indicated that it has been widely used, has good psychometric properties, and has been adapted for multiple populations (Van Gestel-Timmermans, Van Den Bogaard, Brouwers, Herth, & Van Nieuwenhuizen, 2010). Cronbach's alpha for the original HHI was 0.97 (Herth, 1989 & 1991) with a two-week test retest reliability of 0.91 (Herth, 1992). It measures the multidimensional aspects of hope on three subscales: 1) temporality and future, 2) positive readiness and expectancy, and 3) interconnectedness. Hope serves as a proxy measure for mental health and well-being. Hope is known to influence the onset, duration, prognosis, and recovery from mental and physical illnesses (Obayuwana et al., 1982; Herth, 1992). In our study, we used the modified Herth Hope Index where in item number 5, the word 'faith' was changed to 'spiritual' to be more culturally appropriate. The revised version is "I have a spiritual belief that gives me comfort" (Kraus, Bartgis, Lahiff, & Auerswald, 2017).

RESULTS

Analysis

We performed correlation and confirmatory factor analysis of the adapted CCS-CA to determine its efficacy for use in diasporic urban dwelling Native/Indigenous communities. Descriptive statistics are provided for total CCS-CA, subscales, and mHHI in Table 3. Results also show correlations between the CCS-CA, its subscales, and the theoretically linked measure, the HHI (e.g., proxy for mental health/well-being), were significant at the *ps < 0.001 (*using a Pearson Correlation on SPSS Version 21.0, see Table 4) and in the expected direction, providing evidence for criterion validity (see King et al., 2019). In addition, Standardized factor loadings for the 29 items grouped by sub-scales are illustrated in Table 5**.**

Chi-square goodness-of-fit test was conducted to determine whether an equal number of participants from each of the gender types were recruited to the study. The goodness of fit test

indicated that the number of females, males, two spirit, and other participants were equally represented by the participants recruited to the study, χ^2 (2) = 77.334, p = 1.[2]

Table 3
Cultural Connectedness Scale – California, CCS-CA Subscales, and Herth Hope Index

	n	Range	Mean	Median	*SD*
CCS-CA Total Score	344	37.0 - 145.0	124.26	129.00	18.51
Traditions	344	11.0 - 55.0	46.44	49.00	8.91
Identity	344	15.0 - 55.0	49.05	51.00	6.94
Spirituality	344	7.0 - 35.0	28.79	30.00	5.59
HHI	344	16.0 - 48.0	41.78	43.00	4.78

Table 4
Correlations between the Cultural Connectedness Scale – California and Herth Hope Index

	CCS-CA Total Score	Traditions	Identity	Spirituality
CCS-CA Total Score	-			
Traditions	. 856*	-		
Identity	. 836*	.482*	-	
Spirituality	. 884*	.625*	.733*	-
HHI	.326*	.260*	.282*	.282*

We did a visual check of the histogram, and there was no evidence that the CCS-CA scores were skewed. However, the CCS-CA is made up of 29 items consisting of three subscales. Prior to analysis of Confirmatory Factor Analysis (CFA), we checked multivariate normality (MVN) using the Mardia test. The multivariate and univariate normality were violated. Given that the data are not multivariate normal and that variables are not univariate normal, a maximum likelihood estimation with robust (MLR) standard errors was selected for the CFA. Research has shown that MLR best estimates the model with smaller sample sizes and violations of MVN, which is common in social science research (Boomsma, 1982; Green, 1984). Model fit as well as model comparison were conducted; as expected, and as found in Snowshoe et al. (2015 & 2017), the three-factor model (i.e., Tradition, Identity, & Spirituality) had the best fit (CCS, $\chi 2$ (3) = 64.138, $p < .001$; CMIN = 2.56; CFI = 0.913; AGFI = 0.988; and RMSEA of 0.077 90% C.I. (0.071, 0.084).

[2] p-value had to be simulated due to the small observed frequencies (i.e., with Two Spirit and Other). This simulation of p-values can be thought of being a version of Fisher's exact test, which does not rely on a chi-square approximation.

Table 5
Items and Standardized Factor Loading

Q#	Subscales	CCS-CA Standardized Loads
	Traditions - 11 Items CCS-CA	
4	I use ceremonial/traditional medicines (See List 1) for guidance or prayer or other reasons. (See List #2)	0.805
5	I have participated in a traditional/cultural ceremony or activity. (See List #3)	0.855
6	I have helped prepare for a traditional/cultural ceremony or activity in my family or community. (See List #3)	0.749
8	Someone in my family or someone I am close with attends traditional/cultural ceremonies or activities. (See List #3)	0.588
9	I plan on attending a traditional/cultural ceremony or activity in the future. (See List #3)	0.619
7	I have shared a meal with community, offered food or fed my ancestors for a traditional/cultural or spiritual reason.	0.752
27	How often do you offer a ceremonial/traditional medicine for cultural/traditional purposes? (See List #1)	0.648
28	How often do you use ceremonial/traditional medicines? (See List #1)	0.725
29	How often does someone in your family or someone you are close to use ceremonial/traditional medicines? (See List #1)	0.593
2	I can understand some of my Native American/Indigenous words or languages.	0.485
11	I have a traditional person, elder or other person who I can talk to. (See List #5)	0.431
	Identity - 11 Items CCS-CA	
10	I plan on trying to find out more about my Native American/Indigenous culture, such as its history, Tribal identity, traditions, customs, arts and language.	0.281
12	I have spent time trying to find out more about being Native American/Indigenous, such as its history, tribal identity, traditions, language and customs.	0.652
13	I have a strong sense of belonging to my Native American/Indigenous family, community, Tribe or Nation.	0.725
14	I have done things that will help me understand my Native American/Indigenous background better.	0.818
15	I have talked to community members or other people (See List #5) in order to learn more about being Native American/Indigenous.	0.77
16	When I learn something about my Native American/Indigenous culture, history or ceremonies, I will ask someone, research it, look it up, or find resources to learn more about it.	0.703
17	I feel a strong attachment towards my Native American community or Tribe.	0.742
18	If a traditional person, counsellor or Elder who is knowledgeable about my culture spoke to me about being Native American/Indigenous, I would listen to them carefully. (See List #5)	0.737
19	I feel a strong connection to my ancestors and those who came before me.	0.771
20	Being Native American means I sometimes have a different perception or way of looking at the world.	0.767
22	It is important to me that I know my Native American/Indigenous or Tribal language(s).	0.718
	Spirituality - 7 Items CCS-CA	
1	I know my cultural, spirit, Indian or Traditional Name.	0.174
3	I believe things like animals, rocks (and all nature) have a spirit like Native American/Indigenous People.	0.385
21	The eagle feather (or other feathers - See Example List #6) has a lot of traditional meaning for me.	0.711
23	When I am physically ill, I look to my Native American/Indigenous culture for help.	0.854
24	When I am overwhelmed with my emotions, I look to my Native American/ Indigenous culture for help	0.916
25	When I need to make a decision about something, I look to my Native American/ Indigenous culture for help.	0.889
26	When I am feeling spiritually disconnected, I look to my Native American /Indigenous culture for help.	0.881

There were two items that did not have significant factor loading. Item 10: "I plan on trying to find out more about my Native/Indigenous culture, such as history, Tribal identity, traditions, customs, art and language (.281)." and Item 1: "I know my cultural, spirit, Indian or Traditional Name (.174)," They were each below (.3), which is considered the standard threshold (Cronbach, 1951; DiStefano, Zhu, & Mindrila, 2009). These two items were left in as their removal served no practical purpose, and their inclusion did not affect the final analysis (Heene, Hilbert, Draxler, Ziegler, & Bühner, 2011). The lower factor loadings on these two items can be interpreted as an effect of colonization upon urban dwelling Native Americans. This diasporic population is dislocated from historical lands and cultural practices and therefore finding or accessing knowledge is difficult and sometimes not even possible (Walters, Beltran et al., 2011; Walters & Simoni, 2002; Whitbeck, Hoyt, Stubben, & LaFromboise, 2001). There were also significant positive correlations among all three latent factors (see Table 5). Lastly, overall reliability was evaluated with Cronbach Alpha $\alpha = .941$.

Research Staff Observations of Participants' Experience

During pilot testing, participants were observed by the research team while completing the instrument. Research staff reported that participants commonly appeared interested and frequently wrote comments on the questions pages or the Examples Lists regarding cultural elements. Participants also 'checked off' items on the Examples Lists. Research staff, who were not trained clinicians, reported that there seemed to be a therapeutic effect while completing the CCS-CA and that participants appeared positive and appreciative when returning the package. After returning a completed CCS-CA, research staff asked what participants thought about their experience. Frequent responses reported by research staff included: a) indicating that they liked completing the instrument; b) participants asking for a copy of the instrument; c) indicating the instrument was aligned with being Native/Indigenous; d) expressed appreciation for the thoroughness/ inclusiveness of the medicines and ceremonial practices listed; e) indicated that they felt more connected to their culture after learning about cultural concepts and practices through completing the instrument; and f) adding options familiar to their own tribal practices to the various answer lists. (Note – The methods did not include preplanning of an implementation analysis that included a systematic approach to evaluating and documenting participants' perceptions about the CCS-CA. The participants' frequent responses described in the list above derived from consensus decisions from research staff at team meetings following data collection.)

DISCUSSION

The main aim of Phase 4 of the *Culture is Prevention Project* was to investigate the psychometric characteristics of the CCS-CA and to evaluate the associations among cultural connectedness and mental health/well-being. We wanted to find out if, after working with our communities to adapt the CCS to be more community-specific (i.e., appropriate for our multi-tribal communities), the new CCS-CA worked as well as the CCS demonstrated in the Snowshoe et al. (2015) study. The results indicate that the CCS-CA performed as intended and also confirmed Snowshoe et al.'s conclusion that Indigenous/Native culture (i.e., cultural connectedness) is a social determinant of mental health/well-being (Snowshoe et al., 2015). Our results indicated that the CCS-CA is a valid and reliable measure within diasporic, urban-dwelling, and multi-Tribal Indigenous/Native communities.

These results further demonstrate the high degree of value and importance of the previous and innovative work, conducted by Dr. Snowshoe and colleagues, in the development and testing of the original CCS. We can now report that two large sample studies conducted in two countries, among different populations demonstrated similar results. This was accomplished using similarly operationalized definitions of culture, but differently adapted instruments. For example, in the Snowshoe et al., (2015) study (N = 319, ages 12-29, mean age 15.3) from Saskatchewan and Southwestern Ontario, the participants were First Nations, Métis, and Inuit. In that study, 78% of participants identified as living on-reserve; whereas, in our northern California study, participants were urban-dwelling adults (N = 344, ages 18-79, mean age 43.3) and were much more multi-Tribal with representation from 107 Tribes. Given the above, one strength of the methods employed by Snowshoe et al. (2015) is the portability and adaptability to other Indigenous communities. In our previous paper (King et al., 2019), we present a relatively simple local adaptation approach that could be implemented by other interested Indigenous/Native communities.

Implications for Native/Indigenous Communities in Other Areas

Indigenous peoples around the world are taking similar courses of action in movement towards cultural revitalization and connectivity across Indigenous territories. Mending collective memory and addressing the harm of colonization and historical trauma to reclaim and nurture what remains and what has been lost provides a pathway that Indigenous peoples around the

world go to for the betterment and health of their people. Through language, dance, teachings, or reclaiming and reinvention of traditions for solutions to contemporary problems, Indigenous communities can rectify continuing disavowal of Indigenous identity and language loss, and introduce belonging to those constructing their identity within the diaspora. In the case of Snowshoe and colleague's (2015) original CCS and the adapted multi-Tribal CCS-CA (King et al., 2019), we believe that indigenizing screening and evaluation materials that measure positive overall health outcomes and that link culture and better mental health and/or well-being has the potential to expand into culturally relevant adaptations across Turtle Island/Abya Yala.[3]

Western interpretations of illness onto Indigenous peoples and research with Indigenous peoples has led to a historical disconnect that is seen throughout Indigenous territories in North America, Central/South America, Australia, and New Zealand (Collier, Farias-Campero, Perez, & White; 2000; Martín & Millares, 2013; da Silva, Gabert-Diaz, & da Silva, 2015; Waterworth, Pescud, Braham, Dimmock, & Rosenberg, 2015). Indigenizing evaluation and assessments by adapting the CCS with an accompanying assessment tool to understand traditional definitions of mental health symptoms can assess and sustain well-being through blending culture and processing through the distressing and traumatic nature of development in these regions.

When other Indigenous communities are interested in or motivated to adapt the CCS-CA to their local population, there are several things to be considered in that process. Most steps have been delineated in our previous work on the development of and adaptation of the measure (see King et al., 2019). We are including the following for consideration during that process as well. The first is how the local team is chosen and the process to implementation. The team needs to be an integrated part of the process and understand they are working collaboratively with their advisory board. Second, the advisory board should reflect on the process of colonization and the specific historical impact upon their community. To assist in this matter, a third consideration is that the advisory board should consist of members of the local community who understand that colonization has a strategy but so does Indigenous healing and resiliency. The team needs to be the right team, at the right place, during the right time, and guided by prayer. Lastly, the recognition of the importance of interdependence in the process between the community informing the process, the advisory members being liaison, and the chosen team (i.e., no one

[3] Turtle Island comes from multiple Indigenous groups (Anishinaabe/Lenape/Mohawk) and across what is known as Canada and northeast United States to describe the North American continent. Similarly, Abya Yala comes from the Kuna people in what is now known as Panama to mean "land in its full maturity," and is used to refer to the entirety of the South American continent.

part is more important than another). This is a community-based participatory research approach for adaptation.

Future Directions

In 1946, the World Health Organization stated that culture is a social determinate of health (WHO, 1946). Since that time, effort has been made to better understand culture and its influence upon health outcomes. This then led to a better appreciation that Native/Indigenous culture is an important factor in preventing the development of health disparities, maintaining healthy communities, and returning Native/Indigenous people to health. However, it remains important to recognize that Indigenous/Native communities are very diverse, and one size does not fit all.

Future research could support the use of the CCS to inform interventions and programs. Culturally informed programs within the local Indigenous population have the potential to improve outcomes through strength-based and resilience-based interventions. For example, with further research, the Cultural Connectivity Scale (e.g., CCS or CCS-CA) may have the potential to be used as a screening instrument, diagnostic tool, or a guide for treatment plans. As part of this, we ask the questions: a) Can the CCS-CA identify persons who are doing well or not doing well; b) Do persons who are doing well, or not doing well, have different CCS-CA total response profiles or sub-scale specific profiles (e.g., Identity, Traditions, and Spirituality); and c) What if (at least initially) we could use the CCS-CA and did not have to ask questions about risk? We have received funding to begin addressing these questions which are aligned with Phases 5 and 6 of the *Culture is Prevention Project* indicated in Table 1.

Limitations

Our interests in this study included replication (in part) of the Snowshoe et al. (2015) study with the objectives of validating the CCS-CA and evaluating the relationships between culture/cultural connectedness and a proxy for mental health/well-being as measured by the HHI. Our plan was to begin preliminary investigation into links between culture and health outcomes as well as implement a strength-based approach, developed by Native/Indigenous persons for Native/Indigenous persons, within our limited resources. (Note, this project did not have 'project-specific' funding and was leveraged from other funded programs.) Given this, we did not attempt

to measure or control for historical trauma or perceived discrimination which impact mental health and, thus, would have influenced responses on the HHI. We only performed preliminary correlations analysis, and future research can investigate the predictiveness of the CCS-CA upon multiple health outcome dependent variables (e.g., depression, substance use disorders).

The CCS was developed by Indigenous/Native persons for Indigenous/Native persons; however, the HHI is not an instrument developed by Indigenous/Native persons or for multi-Tribal communities. Although the HHI is well-known and widely used, a more culturally appropriate proxy measure for mental health and well-being could have been more helpful for the purpose of our study.

In addition, although there were over 100 Tribes represented in our urban California sample, the CCS-CA cannot be generalized to any one Tribe or other urban communities. We then recommend that communities interested in using the CCS-CA also adapt the CCS-CA or CCS to be community/culturally appropriate.

CONCLUSION

This study and the study by Snowshoe and colleagues (2015) provide support for and add to the evidence as well as historical knowledge that culture is an important determinant of health for Indigenous peoples. Both studies demonstrated the capacities of the original CCS and the modified CCS-CA to measure cultural connectedness. This study successfully demonstrated the relative ease with which the original CCS, or for that matter the CCS-CA, could be modified to be a valid and reliable community or Tribal-specific instrument.

It has been established that culture (i.e., cultural connectedness) can be measured and that it is a social determinant of health. Strengthening connections or re-connecting to culture can be a viable program objective (and outcome measure) in developing programs and interventions for Indigenous/Native peoples. Going forward, governments, academia, and Western medicine should be cognizant that Indigenous/Native cultures historically manufactured good health. They should try to better understand and promote Indigenous epistemology and community-defined evidence practices (CDEPs) that support health and do not undermine traditional approaches to health. There should be more support for interventions developed by Indigenous persons for Indigenous persons and less emphasis on Western models of ‘evidence-based practices’ that were not developed by Native/Indigenous persons for Native/Indigenous persons. Governments and researchers should

recognize and do better at comprehending and understanding the value of strength-based resiliency models and culturally appropriate approaches to program evaluations and measuring health outcomes. It is possible to show a person or community is doing better by measuring more of the good (e.g., strengths and well-being) versus less of the bad (e.g., risk behavior and illness).

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The Indian Health Service (IHS) National Institutional Review Board (NIRB) reviewed and approved this research [N17-N-02: Culture is Prevention]. The research and publication were also approved by the Community Advisory Board.

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APPENDIX

Appendix A – Cultural Connectedness Scale – California, Sub Scales

Traditions - 11 Items

- I use ceremonial/traditional medicines ***(See Examples List #1)*** for guidance or prayer or other reasons. ***(See Examples List #2)*** [a]
- I have participated in a traditional/cultural ceremony or activity. ***(See Examples List #3)*** [a]
- I have helped prepare for a traditional/cultural ceremony or activity in my family or community. ***(See Examples List #3)*** [a]
- Someone in my family or someone I am close with attends traditional/cultural ceremonies or activities. ***(See Examples List #3)*** [a]
- I plan on attending a traditional/cultural ceremony or activity in the future. ***(See Examples List #3)*** [a]
- I have shared a meal with community, offered food or fed my ancestors for a traditional/cultural or spiritual reason.[a]
- How often do you offer a ceremonial/traditional medicine for cultural/traditional purposes? ***(See Examples List #1)*** [c]
- How often do you use ceremonial/traditional medicines? ***(See Examples List #1)*** [c]
- How often does someone in your family or someone you are close to use ceremonial/traditional medicines? ***(See Examples List #1)*** [c]
- I can understand some of my Native American/Indigenous words or languages. [a]
- I have a traditional person, elder or other person who I can talk to. ***(See Examples List #5)*** [a]

Identity - 11 Items

- I plan on trying to find out more about my Native American/Indigenous culture, such as its history, Tribal Identity, traditions, customs, arts and language. [a]
- I have spent time trying to find out more about being Native American/Indigenous, such as its history, tribal identity, traditions, language and customs. [b]
- I have a strong sense of belonging to my Native American/Indigenous family, community, Tribe, or Nation. [b]
- I have done things that will help me understand my Native American/Indigenous background better. [b]
- I have talked to community members or other people ***(See Examples List #5)*** in order to learn more about being Native American/Indigenous. [b]
- When I learn something about my Native American/Indigenous culture, history or ceremonies, I will ask someone, research it, look it up, or find resources to learn more about it. [b]
- I feel a strong attachment towards my Native American community or Tribe. [b]
- If a traditional person, counsellor or Elder who is knowledgeable about my culture spoke to me about being Native American/Indigenous, I would listen to them carefully. ***(See Examples List #5)*** [b]
- I feel a strong connection to my ancestors and those who came before me. [b]
- Being Native American means I sometimes have a different perception or way of looking at the world. [b]
- It is important to me that I know my Native American/Indigenous or Tribal language(s). [b]

Spirituality - 7 Items

- I know my cultural, spirit, Indian or Traditional Name. [a]
- I believe things like animals, rocks (and all nature) have a spirit like Native American/Indigenous People. [b]
- The eagle feather (or other feathers - ***See Examples List #6***) has a lot of traditional meaning for me. [b]
- When I am physically ill, I look to my Native American/Indigenous culture for help. [b]
- When I am overwhelmed with my emotions, I look to my Native American/Indigenous culture for help. [b]
- When I need to make a decision about something, I look to my Native American/Indigenous culture for help. [b]
- When I am feeling spiritually disconnected, I look to my Native American/Indigenous culture for help. [b]

Response Format

[a] = Yes, No (or Not Applicable)
[b] = Strongly Disagree, Disagree, Do Not Agree or Disagree, Agree, Strongly agree
[c] = Never, once/twice past year, every month, every week, every day

Appendix B – Cultural Connectedness Scale – California

QUESTIONS 1 - 11, Circle the Most Accurate Answer

1. **I believe things like animals, rocks (and all nature) have a spirit like Native American/ Indigenous People.**
   Yes No
2. **I can understand some Native American/Indigenous words or language(s).**
   Yes No
3. **I know my Cultural, Spirit, Indian or Traditional Name.**
   Yes No Does Not Apply (We do not use these names)
4. **I use ceremonial/traditional medicines (See Examples List #1) for guidance or prayer or other reasons (See Examples List #2).**
   Yes No
5. **I have participated in a traditional/cultural ceremony or activity (See Examples List #3).**
   Yes No
6. **I have helped prepare for a traditional/cultural ceremony or activity in my family or community (See Examples List #3).**
   Yes No
7. **I have shared a meal with community, offered food or fed my ancestors for a traditional/cultural or spiritual reason (See Examples List #4).**
   Yes No
8. **Someone in my family or someone I am close with attends traditional/cultural ceremonies or activities (See Examples List #3).**
   Yes No
9. **I plan on attending a traditional/cultural ceremony or activity in the future (See Examples List #3).**
   Yes No
10. **I plan on trying to find out more about my Native American/Indigenous culture, such as its history, Tribal identity, traditions, customs, arts and language.**
    Yes No
11. **I have a traditional person, elder or other person who I can talk to (See Examples List #5).**
    Yes No

QUESTIONS 12 - 29, Circle the Most Accurate Answer

12. I have spent time trying to find out more about being Native American/Indigenous, such as history, tribal identity, traditions, language and customs.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

13. I have a strong sense of belonging to my Native American/Indigenous family, community, Tribe, or Nation.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

14. I have done things that will help me understand my Native American/Indigenous background better.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

15. I have talked to community members or other people (See Examples List #5) in order to learn more about being Native American/Indigenous
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

16. When I learn something about my Native American/Indigenous culture, history, or ceremonies, I will ask someone, research it, look it up, or find resources to learn more about it.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

17. I feel a strong connection/attachment towards my Native American community or Tribe.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

18. If a traditional person, counselor or Elder who is knowledgeable about my culture, spoke to me about being Native American/Indigenous, I would listen to them carefully (See Examples List #5).
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

19. I feel a strong connection to my ancestors and those that came before me.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

20. Being Native American/Indigenous means I sometimes have a different perception or way of looking at the world.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

21. The eagle feather (or other feathers) has a lot of traditional meaning for me (See Examples List #6).
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

22. It is important to me that I know my Native American/Indigenous or Tribal language(s).
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

23. When I am physically ill, I look to my Native American/Indigenous culture or community for help.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

24. When I am overwhelmed with my emotions, I look to my Native American/Indigenous culture or community for help.
Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

25. When I need to make a decision about something, I look to my Native American/Indigenous culture or community for help.

Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

26. When I am feeling spiritually ill or disconnected, I look to my Native American/Indigenous culture or community for help.

Strongly Disagree Disagree Do Not Agree or Disagree Agree Strongly Agree

Please answer how often you experience the following:

27. How often do you offer a ceremonial/ traditional medicine for cultural/traditional purposes? (See Examples List #1)

Never Once/Twice in the Past Year Every Month Every Week Every Day

28. How often do you use ceremonial/traditional medicines? (See Examples List #1)

Never Once/Twice in the Past Year Every Month Every Week Every Day

29. How often does someone in your family or someone you are close to use ceremonial or traditional medicines? (See Examples List #1)

Never Once/Twice in the Past Year Every Month Every Week Every Day

CCS-CA SCORING

Yes = 5 No = 1 NA = 3

Strongly Disagree = 1
Disagree = 2
Do Not Agree/Disagree = 3
Agree = 4
Strongly Agree = 5

Never = 1
Once/Twice Past Year = 2
Every Month = 3
Every Week = 4
Every Day = 5

CCS-CA Range: 29 – 145

Identity Subscale: 11 - 55
Traditions Subscale: 11 - 55
Spirituality Subscale: 7 - 35

Examples Lists: Cultural Connectedness Scale - California

List #1 Ceremonial & Traditional Medicines	List #2 Uses of Ceremonial & Traditional Medicines	List #3 Traditional, Tribal & Cultural Ceremonies or Activities	List #4 Cultural Uses of Food	List #5 Traditional Persons, Elders & Leaders
• Angelica Root • Bear Root • Cedar • Corn Pollen • Copal • Greasewood • Jimson • Milk Weed • Mountain Tea • Mugwort • Palo de Santo, • Peyote • Sage • Sweet grass • Tobacco • Women's Tea	• Asking for a blessing in a sacred manner • Calmness • Cultural connections • Gifting to show respect • Give thanks • Guidance • Help Sleeping • To honor • Personal Healing • Prayer • Smudge • Spiritual connections • Spiritual Offerings • Steady Mind • Talk to the creator • Keep bad spirits away	• Acorn Ceremony • Beading Class • Bear Dance, Sun Dance, Round Dance or other Cultural Dance • Big Time • Burning of Clothes • Coming of Age • Deer Gathering • Drumming • Feast Giveaway • Fiesta (South of Kern Valley) • GONA • Longhouse • Moon Ceremony • New Years • Pot Latch • Pow Wow • Puberty Ceremony • Repatriation • Running is my High • Spring Ceremony • Story Telling • Sunrise Ceremony • Sun Rise (Alcatraz) • Sweat Lodge • Traditional Tattoo • Washing of the Face • Wiping of Tears • Young Men's Ceremony • Yuwipi	• Spirit Plate • Thank You Ceremony • Special Feast • Community Feed • Other	• Ceremonial Leader • Cultural Teacher • Doctor • Elder • Father • Feather Man • Feather Woman • God Father • God Mother • Head Heir • Head Man • Head Woman • Medicine People • Mother • Mother Bear • Regalia Leader • Spiritual Person • Timiiwal • Top Doc

List #6 Feathers
• Eagle • Condor • Flicker • Hummingbird • Raven • Hawk • Turkey • Quail • Woodpecker