American Indian and Alaska Native Mental Health Research

Volume 22, Issue 1, 2015

American Indian and Alaska Native Mental Health Research

Volume 22, Number 1, 2015

USING PHOTOVOICE WITH YOUTH TO DEVELOP A DRUG PREVENTION PROGRAM IN A RURAL HAWAIIAN COMMUNITY

Susana Helm, Wayde Lee, Vanda Hanakahi, Krissy Gleason, Kayne McCarthy, and Haumana*

* The word haumana translates to apprentice. The youth who participate in this project are referred to as haumana. Their names are not being used; however, they have made significant contributions to the project and are listed as co-authors in scholarly dissemination.

Abstract: Introduction: *Substance use represents a significant and persistent health disparity among Native Hawaiian youth and communities. A community-university participatory action research project was conducted to develop a Native Hawaiian model of drug prevention.* Methods: *Ten youth participated in eight Photovoice focus groups. Focus group transcripts and the youths' SHOWED (see, happening, our, why, empower, do) worksheets were analyzed.* Results: *Emergent analyses are described regarding focus group theme identification and the meaning of each theme. Youth-selected exemplary photographs and researcher-selected exemplary quotations are provided.* Implications: *Native Hawaiian drug prevention will be place-based in culturally significant community locations, experiential, and guided by multigenerational teaching and learning.*

INTRODUCTION

Prior to colonization, Hawai`i was a globally recognized independent nation.  The overthrow of the Hawaiian monarchy in 1893 marked the official beginning of an ongoing process of colonization in Hawai`i, which is recognized to have begun in 1778 when English Captain James Cook arrived there. Since this time, the U.S. and other international interests have dominated the social, economic, legal, and health and wellness systems in the islands. The Indigenous people of Hawai`i, also referred to as Kānaka Maoli or Native Hawaiians, initially suffered greatly as the population was decimated by foreign disease, then disenfranchised through religious, geopolitical, and socioeconomic colonization (e.g., Liu, Blaisdell, & Aitaoto, 2008; McCubbin & Marsella,

2009). Currently, Kānaka Maoli account for approximately 20% of the (now) U.S. state of Hawai`i population, though there are rural communities in which the Kānaka Maoli population exceeds 60%.  A history of colonization followed by rapid and enduring health disparities is not unique to the Indigenous people of Hawai`i, as demonstrated across First Nations populations in each of the continents.

Indigeneity and Substance Use

Among the various health disparities that may be attributable to the colonization of Indigenous populations is substance use (e.g., Bassett, Tsosie, & Nannauck, 2012; Brave Heart, Chase, Elkins, & Altschul, 2011; Liu et al., 2008; Walters, Simoni, & Evans-Campbell, 2002). These and other examples are based in the experiences of Alaska Natives, American Indians, First Nations peoples in Canada, Maori in Aotearoa, Aboriginals in Australia, Indigenous peoples from Mexico through Central and South America, and Kanaka Maoli (e.g. Allen et al*.,* 2006; Hazel & Mohatt, 2001; Kaholokula, Nacapoy, & Dang, 2009; Kulis, Dustman, Brown, & Martinez, 2013; Smith, 1999). As with other Indigenous populations worldwide, Kānaka Maoli adults and youth suffer disproportionately from substance use-related problems. To focus this paper: Hawaiian youth initiate drug use earlier, report more frequent offers, and report higher use rates than their non-Hawaiian peers (Lai & Saka, 2005; Okamoto, Helm, Giroux, Edwards, & Kulis, 2010; Ramisetty-Mikler, Caetano, Goebert, & Nishimura, 2004; Wong, Klingle, & Price, 2004).

Rurality and Substance Use

Further complicating this heavy burden, the majority of Native Hawaiian youth reside in rural communities throughout the state of Hawai`i (Accountability Resource Center Hawai`i, 2011) where health resources, including high-quality drug prevention programs tend to be limited. Although rural prevention is becoming a national priority through emerging federal legislation (the Affordable Care Act), researchers on youth drug prevention historically have underrepresented rural populations in their samples, thereby creating a dearth of knowledge specific to these populations. On a national level, higher prevalence rates of alcohol and other drug use have been indicated among rural youth (Gilvarry, 2000; Pruitt, 2009; Substance Abuse and Mental Health Administration [SAMHSA], 2004). Differences in health risks among adolescents have indicated a consistent pattern, with rural students at most risk (Atav & Spencer, 2002; Colby et al., 2013).

This issue is complicated even further for rural Hawaiian youth, as there is a documented lack of evidence-based substance abuse prevention programs developed for them (Edwards, Giroux, & Okamoto, 2010; Rehuher, Hiramatsu, & Helm, 2008). Together, these studies point to the need for

substance use prevention and research that account for deep structure cultural designs (Resnicow, Baranowski, Ahluwalia, & Braithwaite, 1999) for rural, Indigenous, and medically underserved communities. Deep structure cultural designs in prevention often engage the community or population in identifying the core culturally grounded components around which the intervention is built (see also Okamoto, Kulis, Marsiglia, Holleran Steiker, Dustman, 2014). In contrast, surface structure cultural designs are characterized by prevention programs that retain the core epistemology of the program, and are modified only to change things such as language (house to hale or casa) or symbols (such as an apple tree to a palm tree).

Hawaiian Culture and Positive Youth Development

Despite the persistent problem among Indigenous youth and rural Native Hawaiian youth in particular, nationally recognized evidence-based practices that are culturally grounded in Hawaiian epistemology do not exist in youth substance use prevention (Edwards et al., 2010; Rehuher et al., 2008). On the other hand, empirical evidence indicates that Hawaiian cultural interventions are preferred among Hawaiian adults and youth, and an Indigenous approach is effective for substance use and related problems among Hawaiian youth, as well as for promoting positive youth development (PYD; Irwin & Adler, 2008; Tibbetts, Medeiros, & Ng-Osorio, 2009; Trinidad, 2009; Withy, Lee, & Renger, 2007). PYD addresses the science-practice gap in drug-related problems experienced by Indigenous Hawaiian communities. As a strengths-based approach (Damon, 2004), the PYD paradigm has the potential to support Indigenous communities that advocate for repositioning culture as an asset around which prevention and promotion may occur. In addition to promoting bonding, resilience, and competence, PYD fosters aspects of adolescent development (Catalano, Berglund, Ryan, Lonczak, & Hawkins, 2004) that align well with the ecology of Native Hawaiian well-being (McGregor et al., 2003). In particular, PYD fosters spiritual well-being, which Hawaiians often refer to as `uhane, and which encompasses aumakua (family deities), akua (gods), and kupuna (ancestors).

Community-based Participatory Action Research

Furthermore, participatory action research (PAR) is an approach that recognizes the sociopolitical origins of health, and the disproportionate impact of substance use and related problems on disenfranchised groups such as rural Indigenous populations, including Hawaiians (Freire, 1998a; Freire, 1998b; Said, 1978; Trask, 1987). Historically, PAR evolved from consciousness-raising activities among disenfranchised rural agricultural and other laborers to move people to act on their own behalf for social justice (Freire, 1998b). While community-engaged research varies in the balance of power among community and academic entities, community-based participatory

research (CBPR) most closely resembles the historical intents of PAR while adhering to traditional conceptualizations of scientific rigor (Israel, Eng, Schulz, & Parker, 2005; Minkler & Wallerstein, 2003; Viswanathan et al., 2004).

Photovoice is a CBPR technique gaining in popularity since the 1990s among adolescent and prevention researchers. The idea is to place "cameras in the hands of community people so that they may visually represent and communicate to others their lived experiences" in order "to elicit emotions, feelings, and insights about topics that may be shrouded in silence" (Lopez, Eng, Robinson, & Wang, 2005, page 326). While some CBPR projects with youth are more community-located than participatory (Jacquez, Vaughn, & Wagner, 2013), Photovoice inherently enhances the participatory process in that community members who have identified a concern use photography to represent and define the issue from their own perspective, including the social action that stems from their work. Photovoice may be considered a decolonizing method because control of knowledge construction is, at least in part, in the hands of the participants. In addition, Photovoice is well suited for exploratory research in health disparities (Lopez et al., 2005), such as the intersection of indigeneity, rurality, PYD, and substance use because the knowledge gained is based in the community's view, which often has not been documented previously, has been marginalized, or, in some cases, has been banned from public use. In fact, the community endorsed Photovoice as a valid research technique because they already had been using video and photography to protect and perpetuate the Hawaiian culture. Photovoice was viewed as part of this process.

Present Study

The purpose of the research was to use theory and concepts from the PYD paradigm and PAR approaches to guide the development of a Native Hawaiian model of drug prevention. By repositioning Hawaiian epistemology as the core component for intervention design, this study strives to decolonize prevention science (Bruner, 1990; Cochran et al., 2008; Meyer, 2008; Mohatt & Thomas, 2006; Smith, 1999). Hawaiian epistemology will be incorporated into future implementation and evaluation work in several areas: development and examination of the intervention itself (what the intervention is and what is delivered), process (how it is delivered), and outcome (intended levels of change).

Exploratory in nature, this study identified critical factors needed to develop the foundation of an efficacious prevention program from the perspective of rural Hawaiian youth. This phase of the project represents pre-prevention research designed to identify key concepts and elements in youth substance use prevention by answering this question: What are the Hawaiian cultural values,

beliefs, and practices that may guide program design, implementation, and evaluation of youth substance use prevention; and how do Indigenous ways of knowing, or Hawaiian epistemology, guide the inquiry process?

METHODS

Ethics

This research was approved by the Institutional Review Board of the University of Hawai`i. In addition, as is becoming customary among Indigenous communities, an elders' meeting was held in which ethical standards expected of the university were detailed for the university researchers. For example, community members were concerned about ownership of knowledge. All parties agreed that knowledge gained from the study would not be owned by the researchers, though we would be permitted to co-author peer-reviewed and other publications which may involve copyright of disseminated knowledge products. These standards are revisited in regular meetings among the university-based principal investigator (PI; Helm—science and research lead), the community-based co-PI (Lee—community director/coordinator), and the culture mentor (Hanakahi—language, kaona, and cultural practices specialist; liaison with other elders) for this project.

Sampling Frame and Participants

The community-based co-PI served as the onsite Program Director and recruited youth who had demonstrated leadership in drug prevention among their peers and in their school and community (based on his direct and indirect involvement in these activities). These haumana (pupil, apprentice) were encouraged to invite their friends to join the project. The goal was to recruit 8-12 haumana to participate in the Photovoice project. Ultimately, 10 youth were recruited: 6 girls and 4 boys, ranging from 12 to 18 years of age. We held an orientation meeting for the haumana and their families to explain the overall purpose and approach, and to ensure that families were fully informed and supported their children. At the conclusion of the `ohana night (family night), all 10 of the youth joined the project, at which time consent and assent forms were completed.

Throughout the project duration, we learned that several haumana were fluent or nearly fluent, whereas others had a basic knowledge and use of the Hawaiian language. Similarly, some haumana were deeply engaged in living and practicing the Hawaiian culture on a daily basis, whereas others practiced only with extended family on a regular, but not daily, basis.

Procedures

The Photovoice project involved three basic aspects: training, Photovoice focus group discussions, and social action. First, haumana were loaned high-quality point-and-shoot digital cameras for the duration of the Photovoice project and were trained in basic photography, image ethics (Wang & Redwood-Jones, 2001), and storytelling, including using the SHOWED technique (described below) for group discussion of photos (Wallerstein, 2004). For the image ethics session, we reviewed (1) privacy issues as they related to the photographer and the photographed; the concept of privacy in terms of private space, protection of disclosure, and protection from false light; and (2) ethical process, such as asking to take a photo and using consent/assent forms. Haumana also were allowed to take personal photos and post them on Facebook, Instagram, etc.; we did not ask about whether they did so. Photos became a part of the research project only if the youth chose to share them in the group and if they met image ethics standards.

According to the SHOWED technique (see, happening, our, why, empower, and do; refer to Appendix A), participants not only describe what they see in their photos in a literal sense, but also articulate what was happening when the photo was taken, how it affects them, and why an issue has arisen, as well as discuss issues of empowerment and ultimately move towards social action. Training included discussion of substance use and drug prevention, as well as Hawaiian culture and wellness, as these were the broad themes for the Photovoice project. We also introduced the concept of epistemology.

Second, haumana participated in Photovoice focus group discussions based on their photos. Discussions were co-facilitated by the university-based PI and the community-based co-PI, both of whom have extensive experience conducting youth group interviews for research and clinical purposes. A total of eight sessions were held for this project. Haumana were compensated with snacks and beverages and provided a $10 money order at each session. Each session included time for signing in, snacks, and uploading one or two photos. Each haumana selected which of her/his own photos to share with the group, and the session facilitators verified with the youth that image ethics were followed. (In cases where image ethics were not followed, the photos were not used.). Then haumana completed a SHOWED worksheet, typically writing two to three sentences for each aspect. Next, each haumana orally described his/her photo(s). Finally, the haumana selected one or two photos from among their group to discuss in greater detail. Based on this deeper conversation, additional themes arose which led to the photography assignment for the next week. In this way, issue selection emerged from the haumanas' discussions. The themes and photos, with selected quotations from the focus group discussions, are described in the results.

During these discussions, youth did not always agree with one another (although disagreements did not occur often, as the facilitation focused on sharing personal views and building upon these viewpoints, as opposed to agreeing or disagreeing with one another's views). Managing the flow of conversation and keeping youth Photovoice participants on track can be challenging; therefore, we used basic focus group ground rules, established with the youth during orientation and revisited during each session as needed (e.g., taking turns speaking, respect, confidentiality, honesty).

The third aspect of the Photovoice project was our community celebration, which served as our social action event for this phase of the project. Approximately 75 family, friends, and dignitaries from local and statewide public and private organizations were invited. Dignitaries were invited based on their position or role as a decision-maker with the power to promote the use of Indigenous epistemology as a core aspect of PYD, adolescent and community health, and substance use prevention. Photos presented in this article were shared by the haumana at this public event.

Data Management and Analyses

Focus group discussions were digitally audio recorded and were facilitated mainly in English and Hawai`i Creole English (usually referred to as Pidgin, also referred to as Pidgin English or Hawaiian Pidgin), though Hawaiian language also was used. Discussions were transcribed verbatim, retaining English, Pidgin, and Hawaiian (with English translations or paraphrases in brackets as necessary). The SHOWED worksheets also were digitally archived. The emergent analyses from the focus group discussions are presented here. Thus, the lead theme for each of the eight sessions is listed, described briefly, depicted visually in the photo, and elucidated through selected quotations from discussions and SHOWED worksheets.

RESULTS

Themes presented here are emergent, with the exception of the first theme which was provided by the PIs. Emergent analyses were identified in vivo at the conclusion of each session. This process was necessary because haumana needed to know what the next photo assignment was, so part of each session was devoted to discussing and agreeing on the next theme. Table 1 outlines the sequence of focus groups, with respective themes and youth-selected exemplary photographs.

Table 1
Sequence of Focus Group Interviews for In Vivo Themes and Photographs

Focus Group Sequence	In Vivo Themes	Photographs
1	Theme 1: What are the Hawaiian values, beliefs, practices, ways of knowing that we know and use, and that would be important to include in a model of Native Hawaiian drug prevention?	(No photograph for session 1)
2	Theme 2: What do we see that's not working or not supportive of Hawaiian culture, and what do we see that is?	Pono Hihia
3	Theme 3: Talk to your Kupuna (elders) to find inspiration about Native Hawaiian values	Kupuna

Table 1, Continued
Sequence of Focus Group Interviews for In Vivo Themes and Photographs

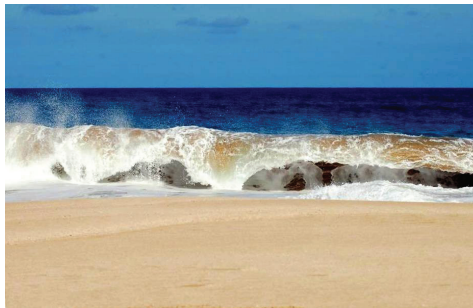| Focus Group Sequence	In Vivo Themes	Photographs
4 & 5	Theme 4: What are the strengths and resources in (our community) from the past, currently here in the present, and that we want to carry forward for the future?	Language and Kalo
6	Theme 5: How do you and/or your 'ohana (family) resolve conflict, looking to Hawaiian epistemology?	Ukulele Kukui Leaves
7	Theme 6: Thinking about the Native Hawaiian model of drug prevention that we are building, what are the Hawaiian sources of strength to help kids when they are vulnerable?	Banana

Table 1, Continued
Sequence of Focus Group Interviews for In Vivo Themes and Photographs

Focus Group Sequence	In Vivo Themes	Photographs
8	Theme 7: Again, thinking about the Native Hawaiian Model of drug prevention that we are building, what does mana (spiritual power) feel like and where in yourself do you feel it?	Mana

Theme 1: What are the Hawaiian values, beliefs, practices, ways of knowing that we know and use, and that would be important to include in a model of Native Hawaiian drug prevention?

There is no photo for the first theme, as the discussion served to inspire the haumana to take photos of values, beliefs, practices, and ways of knowing that would be important to include in the Native Hawaiian model of drug prevention. Haumana converged on several points during the first session: aloha (love, compassion, charity; also a greeting—see quotations below), malama (caring) and malama ka `āina (caring for land and earth, stewardship), hō`ihi (respect, especially toward kupuna [elders]), and kuleana (responsibility), as well as reciprocity in relationships across these values:

Aloha is, we share aloha a lot on this island. But we don't just share it; we also instantly learn that the second we are born. When we're kids we just learn aloha. And before you can even say the word, you are pretty much showing the action. Action speaks louder than words.

Helping out others without even asking for anything in return. 'Cause a lot of people do that, especially, like you saw today [university PI had been injured in an accident so the haumana carried her things, helped her sit comfortably, etc]. Knowing that when we need help, we know that someone else is going to help us without asking for any, anything in return. Like we help them, they help you, back and forth, back and forth. That's how it always is around [here].

The haumana also discussed substance use and drugs in the community. Although the facilitator initially used the term "disgrace," the youth agreed and said it was shameful. When asked about what was disgraceful, the haumana indicated that people lose their values, especially aloha. They explained that people lose self-respect and respect for others, that family problems result, and that people even lose their families because of drug use. This exchange led to a brief discussion on right and wrong, which was picked up as the next Photovoice focus group theme.

> It's a disgrace to the Hawaiian culture because, like nowadays, like how at every party there is alcohol. It kind of becomes like people see it as becoming, it became a part of our culture 'cause everyone, a lot of people do it, and, and. Like Hawaiians back in the day they never, they didn't do that. They didn't have alcohol to drink. They didn't need it.

Theme 2: What do we see that's not working or not supportive of Hawaiian culture, and what do we see that is?

Based on the first session, it was evident that we needed to return to the basics of what is considered right and wrong (pono and hihia; see Table 1), then move to more abstract and deeper issues. The word pono and its derivatives (e.g., ho`oponopono, the practice of making right) are commonly used in the Hawaiian language and in Pidgin.  They are heard in everyday parlance in Hawai`i, including among standard English speakers, as pono is a pervasive value. Hihia is a less commonly used term, but the meaning is quite universal. Hihia refers to entanglements that occur when wrongdoing is not corrected. The discussion of pono included nature, natural beauty, medicinal plants, caring for nature, health and wellness, and being a role model for health and wellness. Hihia centered on when people don't malama ka `āina (take care of land), cigarette smoking, which may lead to cancers and other health problems, and loss of cultural traditions and related health problems. The overall conversation highlighted the tie between the natural environment, individual and community well-being, and the importance of role models who pass cultural traditions across and within generations.

> We're the next generation, right? So we're going to be the ones passing down the values next. Like, our parents passed on values to us. And if it's good then it's our, it's our job to pass it on to our kids, so. And the more, and if we all, like if all the kids in our generation had good values, we would be passing down good values

for the next generation. ...Be the example, and like, like plant it like, if you be the example then other people are going to follow you. Like, if, if, they're um, if they realize that what your doing is good and they might want to do it too.

[referring to photograph with a pile of cigarette butts] *People were smoking and just throwing them [butts] to the floor when they're done, without throwing them away. [It's important] because it's not taking care of our `āina.*
(Refer to Table 1, Theme 2 for photographs)

Theme 3: Talk to your kupuna to find inspiration about Native Hawaiian values.

At the end of the second session, the haumana seemed to be struggling with the depth of the discussion the facilitators desired and their individual knowledge and ability to discuss the full breadth of the related issues. While part of this struggle may have been developmental, in that younger haumana were emerging socially, emotionally, and cognitively into this type of reflective discussion, the facilitators believed that all haumana would benefit from listening to their kupuna speak of Native Hawaiian cultural practices, beliefs, and ways of knowing. (Kupuna are one's grandparents, though the term encompasses elders across a variety of familial and social relationships, including one's ancestors.) In addition, during the first two sessions, haumana had indicated that hō`ihi toward kupuna (respect toward elders and ancestors) is a core value.   This idea yielded rich discussion, ranging from family traditions of growing kalo (taro, a staple of the Hawaiian diet) and the importance of kalo in Hawaiian ontology, to showing respect to kupuna by caring for their land. Exemplary quotations point to the importance of the past informing the present. The particular value, action, and way of knowing that epitomized intergenerationality were pono, malama, and ho`ihi. These values also are passed between humans and the earth, sky, and waters.

That was in an old placement where Kings and Queens used to come and stay [by the bayfront]. And nobody's been watching it or watering it so it's just died out and people are just throwing their rubbish down. So our class is cleaning it up. ...Because there's kupunas there [referring to spiritual presence]. And everybody goes there to look at it and it's all dried up and dead…. Like, when people come over and they see it, they cannot feel the kupuna there. But we would clean it up and you would feel it.
(Refer to Table 1, Theme 3 for photograph of youth cleaning the old placement, which appears to be a barren oceanfront park)

Theme 4: What are the strengths and resources (in our community) from the past, currently here in the present, and that we want to carry forward for the future?

The concept of past, present, and future was a dominant cross-cutting theme in the first three sessions, as exemplified in the last quotation above. As a result, it became the Photovoice topic for the next session. The depth of discussion was more profound by this time, so the topic was continued for two sessions. Initially, the haumana acknowledged their region of Hawai`i as something culturally unique, traditional, and thus revered for its authenticity toward Hawaiian culture. Their rural cultural strength also was connected to what one youth explained as "…*there's probably a higher percentage of people who are still like, or who are Native Hawaiian like living here.*" This sentiment set the tone for the rest of the conversation, which also picked up on themes presented in prior sessions.

[referring to his photograph of a kalo plant] *That is someone that has been passed down, that has been part of the family gene. First to have one taro, you have to have the one before it. … Like the last time I said [kalo] represents the human race, like, and if that one dies, like…We should take care of the plants as we take care of ourselves because without the plants we won't be able to live.*

The haumana discussed the connection among language, cultural and genealogical continuity, knowing and ways of knowing, sovereignty, and colonization while thinking about the past, the present, and the future. In this and other sessions, the haumana believed that colonization, loss of language, and the decimation of the Kanaka Maoli had been started by Captain Cook and sustained by missionaries. Revitalizing the language was highly valued among the youth, both currently and moving into the future, as it is linked with the natural environment. This feeling was contrasted with the time when Hawaiians were punished for speaking their language.

I chose this, this picture because there's two, two traditions in it. The language and the kalo. [There is] a boy and a kalo plant. … He's pulling weeds. Taking care of the plant. Both are important but, the tradition that I chose was the language and for me, to me language is important because it was banned before. And now we have the opportunity to learn it and carry on the language. And this kid is in preschool, so I think it's cool that they're starting young. And on the shirt says, "E ola mau ka `olelo Hawai`i" which means, "long live the Hawaiian language."
(Refer to Table 1, Theme 4, for photograph of kalo plant)

Theme 5: How do you and/or your `ohana (family) resolve conflict, looking to Hawaiian epistemology?

This theme arose from the prior session during which the haumana had emphasized malama ka `āina (taking care of the land).  They had explained that problems were weeds that need to be removed from one's life, similar to the way the farmer tends lo`i kalo (taro patch), so the weeds will not choke the plant. We wanted to explore the concept of problem solving more deeply, and anchored it to how youth problem solve in their families. This conversation uncovered the challenges that youth have in dealing with personal, familial, and social conflicts, and the feelings of vulnerability that result. A photograph of one participant's ukulele was used to highlight the practice of ho`opono, to clear himself of conflict as a way to prepare to handle conflicts with others through ho`oponopono (to make right through a social process of guided problem solving).

> *Like how I was saying before, instead of talking with my mom about problems and stuff, I sit down and play my ukulele and sing and write new songs. Get my mind off the problems that's going on. That's what I do. And when I no more really, anybody for talk to, just sit down and play. Makes you feel better after that. But then again, you're not really getting anywhere because you're not talking with your family. But I think through music I can get out my feelings. And express myself little bit. That's why I took this picture.*
> (Refer to Table 1, Focus Group 6, Theme 5, for photograph of ukulele)

While the haumana agreed ho`opono was an important part of being well and staying well, they expressed that youth often feel isolated and may have difficulty finding their way through all the "weeds." The haumana selected a second photograph to represent this aspect of theme 5, in which two kukui leaves (a tree which symbolizes guiding light and leadership) surrounded by other leaves signify the struggle youth have in being and becoming pono, and the potential for vulnerability when youth feel isolated.

> *There's that one different person. I guess there's two. ...And all around here, the [other leaves] are facing their stem at them, because they are so different. And you have to let go of something because you want them to come back to you. Because you are doing something wrong, they don't want to come by you because you could*

be turning everything negative, from a positive. Yeah. Like in math, a negative plus a positive can be negative. Yeah, you have to be positive…and you can plus them together.

(Refer to Table 1, Focus Group 6, Theme 5 for photograph of kukui leaves)

Theme 6: Thinking about the Native Hawaiian model of drug prevention that we are building, what are the Hawaiian sources of strength to help kids when they are vulnerable?

The final two sessions were facilitated as a way to bring the haumana back to the overarching aim of the Photovoice project; that is, to create a Native Hawaiian model of drug prevention. The "sources of strength" theme stemmed directly from the prior group discussion when haumana explained that, in moments of vulnerability, youth turn to drugs as a way of coping with problems, and because of peer pressure and community norms endorsing drugs.

Two haumana discussed the banana plant (Refer to Table 1, Focus Group 7, Theme 6 for photograph). Unlike other life forms that can grow from seeds or propagated from cuttings independent of the parent plant, banana must grow as shoots directly from the original plant until it is somewhat mature and can nourish itself. In this way, the banana plant and its progeny are like humans. The boy is referring to himself as a child trying to grow up, in the safety of his family but also moving out into the world where it is difficult to be pono and a challenge to carry one's kuleana (responsibility). In addition to one's family in the present world, the youth relied on their kupuna (ancestors) to fulfill their kuleana.

Boy explains: *I took a picture of [banana plant] because every time when I do something bad, it dies. And by keeping on doing bad, it dies again. When I do good, it helps out like when you water [the banana plant], it grows good, back good again. ...I am going to have to change to make the plant change, grow back better. I think good things are saying sorry [when I am not pono]. And making it better.*

Girl responds: *Yeah, kind of like he said, like in order to make the plant grow. Or like, he's the plant, so in order to make yourself grow better then you have to do good things. But then, if you do bad things then you don't necessarily die, but like, like he said that if you don't water it or you don't weed it then it gets overgrown and then the plant dies. So, yeah you just have to do the right thing in order for it to grow.*

Theme 7: Again, thinking about the Native Hawaiian model of drug prevention that we are building, what does mana (spiritual power) feel like and where in yourself do you feel it?

At the conclusion of the prior discussion, haumana indicated that mana (spiritual power) is what makes them feel strong, and that it is felt in the na`au (gut, as opposed to only in one's mind). The haumana elaborated on this theme during the final session. Some haumana noted that mana feels like light glowing at various levels of luminosity. They also provided contrasting examples of what it is like when one does not feel mana.

It's just a strength to make you get up and do stuff [but] if you're mana is down you're like, you feel sick or something, or you just depressed… It comes from inside of you I guess. Yeah.

You confused, like you don't know where you are. You stand on cliff, you walk off the cliff. …Just like when you're in the night time you cannot see nothing, nothing guiding you. Just like when you by the cliff, if it's night time it's easier for you to fall off the cliff because you can't see nothing.

The power of mana was embodied in the photograph of a shore break ocean wave (Refer to Table 1, Focus Group 8, Theme 7). The quotation is from a SHOWED worksheet, and solidifies the intersection of nature, knowledge, and culturally grounded well-being.

Happening. *The wave is barreling in. It's heaving and strong.*

Our. *This picture shows what mana might feel or look like. It's strong and can push you in the right direction.*

Why. *This might have become an issue… new technology … causes us to be less out in the natural environment doing the things that are part of our Hawaiian culture.*

Empowerment. *Bringing this knowledge to a person by placing in an environment and work on their observant skills and then oli [chant], feeling something from within.*

Do. *Since I know how some people don't know what mana feels like I think that they should know what it feels like and how they can use this positive energy and use it well.*

DISCUSSION

Summary

A Photovoice project among Hawaiian youth residing in a largely Hawaiian community was conducted as an initial step in building a Native Hawaiian model of drug prevention. Working with a single group of haumana repeatedly over 6 months through eight focus group discussions allowed for a depth and breadth of discussion not often achieved among adolescents. Allowing future themes to emerge from each discussion modeled concepts of PYD, in that haumana directed the flow and content of the conversation. Through the focus group discussion themes, haumana highlighted values, beliefs, practices, and ways of knowing that they believed belong in the prevention model.

Limitations

Analyses presented here are emergent themes developed in vivo at the conclusion of each session. Future analyses will be needed to explore the data more systematically and in greater depth. Although there were eight focus group discussions, these data represent the experiences and viewpoints of a single group of ten haumana. Cultural auditing with the larger community will be important for validating results prior to developing the prevention model (Trimble & Fisher, 2006).

The extent to which the results of this study are replicable among other Native Hawaiian youth and communities may be limited. The community involved in the study is somewhat unique in that Hawaiian values and practices are dominant (though they are no longer dominant across the state). As a result, the participating haumana may have greater access to Hawaiian culture as it is currently lived and as it has been practiced historically. In fact, this is one of the reasons the community supported the project, because it is considered a leader in living the Hawaiian culture and language. On the other hand, the results may be generalizable to other Native Hawaiian youth and communities who wish to use decolonizing approaches to substance use prevention.

Implications for Indigenous Hawaiian Practices and Ways of Knowing

Preliminary emergent analyses indicate that haumana participated in the project to make a contribution as leaders and role models in their community. Haumana want their voices heard and want to make a difference in their community; they believe that Hawaiian values, practices,

beliefs, protocols, and disciplines are necessary in activities that occur in their community; and that their generation must lead by example by joining other communities' leaders to end substance use problems. Their understanding of wellness and prevention is derived from their experiences with the natural environment, spirituality, and family from the past, to the present, and carried to future generations. All of these elements are tied to becoming familiar with and/or fluent in the Hawaiian language in order to understand mo`olelo (historical knowledge) embedded in mele (songs), oli (chant), and hō`ailona (reading signs in nature).

A framework for the Native Hawaiian model of drug prevention is becoming evident. First, we will continue to use a strengths-based model as suggested in PYD. Furthermore, the framework will be community-based and experiential, and will include a didactic component to encourage critical thinking, dialog, and writing. Experiential activities will be place-based and facilitated by a cadre of cultural experts, referred to as hulu kupuna. In this way, intergenerational teaching and learning will occur from hulu kupuna to `opio (expert elders to adolescents).

In debriefing sessions, haumana also indicated that the photography component should be retained because it was fun and useful in facilitating critical thinking, dialog, and writing. These findings are consistent with recent research in Hawai`i among Native Hawaiian students, in which youth enrolled in culture-based programs reported higher levels of cultural connectedness and other positive developmental assets (e.g., Hawaiian language, connections to the `āina [land, earth; includes waters and skies] and `ohana, connections to Hawaiian cultural values and practices; Tibbetts et al., 2009). Similar findings have been reported in studies of American Indian youth participating in drug prevention programs in the U.S. Southwest in which spirituality, storytelling, respect, generational roles, language, and a place-based concept referred to as home were valued (Dustman & Kulis, 2013).

In our original university-community meetings to discuss ethical standards, we had considered data ownership and data protection. Given the constraints of both the university and the community, we identified cultural auditing as a technique that balanced the two interests. Cultural auditing refers to the idea that the people who contributed the data should have an opportunity to examine the data and guide the process by which they are analyzed and used (Trimble & Fisher, 2006). In preparation for community-based cultural auditing, the university-based research team conducted a systematic content analysis. Opio (youth), makua (adults), and kupuna (elders) have participated in a series of cultural auditing activities in 2013-2014.

CONCLUSION

Local, state, and federally funded grants and contracts often require the use of evidence-based practices for youth drug prevention (see the national Registry of Evidence Programs and Practices [NREPP]; SAMHSA, 2013). Prevention science has made great strides in the past several decades to demonstrate that prevention works (Perl, 2013). The criteria by which programs are deemed effective have been articulated clearly (Flay et al., 2005). As a result, national repositories of evidence-based practices such as NREPP represent an important scientific and technologic advancement in the field of health and wellness. However, these practices often have been viewed as another form of colonialism among Indigenous practitioners. Indigenous and minority communities are left behind because the vast majority of nationally endorsed evidence-based practices have not included them in efficacy and effectiveness trials (Rehuher et al., 2008). Using national rather than local practices silences Indigenous knowledge and ways of knowing (see Cochran et al., 2008). There has been a paradigm shift in prevention science over the past decade toward conducting cultural adaptation studies and, more recently, deep structure cultural adaptations (e.g., Kulis & Dustman, 2013). However, adapted programs retain the core components of the original program based on the cultural group that participated in the initial intervention development and effectiveness trials, and these core components become the foundation for the new program used with the new cultural group. In other words, the core values, beliefs, and practices around which a culturally adapted program was built may not represent the new culture in which the adaptation is used (see also Okamoto et al., 2014).

Given the role of colonialism as historical and current cultural traumas that contribute to present-day substance use problems in Indigenous communities, we have opted to develop our own program on our own terms. Instead of marginalizing Hawaiian knowledge and ways of knowing, we have privileged them. In challenging the current prevention science and practice paradigm, we have selected decolonizing methodologies to reposition Hawaiian epistemology as the core around which drug prevention is built and the process through which drug prevention in a Hawaiian community is researched (Smith, 1999). In doing so, we have used principles of PYD because it is a strengths-based paradigm, and Photovoice as a community-based PAR strategy because it acknowledges sociopolitical inequities and embraces social justice aims.

REFERENCES

Accountability Resource Center Hawai`i. (2011). *School accountability. School status and improvement report, school year 2010-2011.* Honolulu: State of Hawai`i Department of Education. Retrieved from http://arch.k12.hi.us/school/ssir/ssir.html#

Allen, J., Mohatt, G.V., Rasmus, S.M., Hazel, K.L., Thomas, L., Lindley, S., & The PA Team. (2006). The tools to understand. Community as co-researcher on culture-specific protective factors for Alaska Natives. *Journal of Community Psychology¸ 3*(1/2), 41-59. doi: 10.1300/J005v32n01_04

Atav, S., & Spencer, G.A. (2002). Health risk behaviors among adolescents attending rural, suburban, urban schools. A comparative study. *Family & Community Health, 25*(2), 53-64. Retrieved from http://journals.lww.com/familyandcommunityhealth/Pages/default.aspx

Bassett, D., Tsosie, U., & Nannauck S. (2012). "Our culture is medicine": Perspectives of native healers on posttrauma recovery among American Indian and Alaska Native patients. *The Permanente Journal*, *16*(1), 19-27. Retrieved from http://www.thepermanentejournal.org/

Brave Heart, M.Y.H., Chase, J., Elkins, J., & Altschul, D.B. (2011). Historical trauma among Indigenous peoples of the Americas. Concepts, research, and clinical considerations. *Journal of Psychoactive Drugs, 43*(4), 282-290. doi: 10.1080/02791072.2011.628913

Bruner, J.S. (1990). *Acts of meaning.* Cambridge, MA: Harvard University Press.

Catalano, R.F., Berglund, M.L., Ryan, J.A.M., Lonczak, H.S., & Hawkins, J.D. (2004). Positive youth development in the United States. Research findings on evaluations of positive youth development programs. *The ANNALS of the American Academy of Political and Social Science*, *591*(1), 98-124. doi 10.1177/0002716203260102

Cochran, P.A.L., Marshall, C.A., Garcia-Downing, C., Kendall, E., Cook, D., McCubbin, L., & Gover, R.M.S. (2008). Indigenous ways of knowing. Implications for participatory research and community. *American Journal of Public Health*, *98*(1), 22-27. doi: 10.2105/AJPH.2006.093641

Colby, M., Hecht, M.L., Miller-Day, M., Krieger, J.L., Syvertsen, A.K., Graham, J.W., & Pettigrew, J. (2013). Adapting school-based substance use prevention curriculum through cultural grounding. A review and exemplar of adaptation processes for rural schools. *American Journal of Community Psychology, 51*(1), 190-205. doi: 10.1007/s10464-012-9524-8

Damon, W. (2004). What is positive youth development? *The ANNALS of the American Academy of Political and Social Science, 591*(1), 13-24. doi 10.1177/0002716203260092

Dustman, P.A. & Kulis, S. (2013, May). *Reaching an invisible Native population. Implementing a culturally adapted curriculum in urban schools.* In S. K. Okamoto (Chair), *Innovations in Prevention Interventions with Indigenous Youth and Families*. Organized Paper Symposium conducted at the annual meeting of the Society for Prevention Research, San Francisco.

Edwards, C., Giroux, D., & Okamoto, S.K. (2010). *A review of the literature on Native Hawaiian youth and drug use. Implications for research and practice. The Journal of Ethnicity in Substance Abuse, 9(3), 153-172. doi:* 10.1080/15332640.2010.500580

Flay, B.R., Biglan, A., Boruch, R.F., Castro, F.G., Gottfredson, D., Kellam, S., … Ji, P. (2005). Standards of evidence. Criteria for efficacy, effectiveness and dissemination. *Prevention Science*, *6*(3), 151-175. doi:10.1007/s11121-005-5553-y

Freire, P. (1998a). *Pedagogy of freedom: Ethics, democracy, and civic courage.* Lanham, MD: Rowman & Littlefield Publishers, Inc.

Freire, P. (1998b). *Pedagogy of the oppressed* (20th anniversary ed.). New York: The Continuum Publishing Company.

Gilvarry, E. (2000). Substance abuse in young people. *The Journal of Child Psychology and Psychiatry, 41*(1), 55-80. doi: 10.1111/1469-7610.00549

Hazel, K.L., & Mohatt, G.V. (2001). Cultural and spiritual coping in sobriety. Informing substance abuse prevention for Alaska Native communities. *Journal of Community Psychology*, *29*(5)*, 541-562. doi: 10.1002/jcop.1035

Irwin, K., & Adler, C. (2008). *A naturalistic study of interpersonal youth violence.* Honolulu: Presentation for the Asian/Pacific Islander Youth Violence Prevention Center.

Israel, B.A., Eng, E., Schulz, A.J., & Parker, E.A. (2005). *Methods in community-based participatory research for health*. San Francisco, CA: Josey-Bass.

Jacquez, F., Vaughn, L.M., & Wagner, L. (2013). Youth as partners, participants or passive recipients. A review of children and adolescents in community-based participatory research (CBPR). *American Journal of Community Psychology, 51*(1), 176-189. doi: 10.1007/s10464-012-9533-7

Kaholokula, J.K., Nacapoy, A.H., & Dang, K. (2009). Social justice as public health imperative for Kānaka Maoli. *AlterNative: An International Journal of Indigenous Peoples*, *5*(2)*, 116-137. Retrieved from http://www.alternative.ac.nz

Kulis, S. & Dustman, P.A. (2013, May). *The Parenting in 2 Worlds project. CBPR with urban American Indian families.* In S. K. Okamoto (Chair), *Innovations in Prevention Interventions with Indigenous Youth and Families*. Organized Paper Symposium conducted at the annual meeting of the Society for Prevention Research, San Francisco.

Kulis, S., Dustman, P.A., Brown, E.F., & Martinez, M. (2013). Expanding urban American Indian youths' repertoire of drug resistance skills. Pilot results from a culturally adapted prevention program. *American Indian and Alaska Native Mental Health Research, 20*(1), 35-54. Retrieved from http://www.ucdenver.edu/academics/colleges/PublicHealth/research/centers/CAIANH/journal/Pages/journal.aspx

Lai, M. & Saka, S. (2005). *Hawaiian students compared with non-Hawaiian students on the 2003 Hawaii Youth Risk Behavior Survey*. Retrieved from www.ksbe.edu/spi/PDFS/Reports/Demography_Well-being/yrbs/

Liu, D.M.K.I., Blaisdell, R.K., & Aitaoto, N. (2008). Health disparities in Hawai`i.  Part 1.  *Hawai`i Journal of Public Health, 1*(1), 5-13. Retrieved from http://hjmph.org

Lopez, E.D.S., Eng, E., Robinson, N., & Wang, C.C. (2005). Photovoice as a community-based participatory research methods. In B.A. Israel, E. Eng, A.J. Schulz, E.A. Parker (Eds.), *Methods in community-based participatory research for health* (pp. 326-348). San Francisco, CA: Jossey-Bass.

McCubbin, L.D., & Marsella, A. (2009). Native Hawaiians and psychology. The cultural and historical context of Indigenous ways of knowing. *Cultural Diversity and Ethnic Minority Psychology, 15*(4), 374-387. doi: 10.1037/a0016774

McGregor, D.P., Morelli, P.T., Matsuoka, J.K., Rodenhurst, R., Kong, N., & Spencer, M.S. (2003). An ecological model of Native Hawaiian well-being. *Pacific Health Dialog, 10*(2), 106-128. Retrieved from http://www.pacifichealthdialog.org.fj/

Meyer, M.A. (2008). Indigenous and authentic. Hawaiian epistemology and the triangulation of meaning. In N.K. Denzin, Y.S. Lincoln, and L.T. Smith (Eds.), *Handbook of critical and Indigenous methodologies* (pp. 217-232). Thousand Oaks, CA: Sage Publications, Inc.

Minkler, M. & Wallerstein, N. (2003). *Community-based participatory research for health*. San Francisco, CA: Jossey-Bass.

Mohatt, G.V. & Thomas, L.R. (2006). "I wonder why you would do it that way?" Ethical dilemmas in doing participatory research with Alaska Native communities. In J.E. Trimble & C.E. Fisher (Eds.), *The handbook of ethical research with ethnocultural populations & communities* (pp 93-115). Thousand Oaks, CA: Sage Publications.

Okamoto, S.K., Helm, S., Giroux, D., Edwards, C., & Kulis, S. (2010). The development and initial validation of the Hawaiian Youth Drug Offers Survey (HYDOS). *Ethnicity & Health*, *15*(1), 73-92. doi: 10.1080/13557850903418828

Okamoto, S.K., Kulis, S., Marsiglia, F.F., Holleran Steiker, L.K., & Dustman, P. (2014). A continuum of approaches toward developing culturally focused prevention interventions: From adaptation to grounding. *Journal of Primary Prevention, 35*(2), 103-112. doi: 10.1007/s10935-013-0334-z

Perl, H. (2013, May). *Planning the way forward for NIDA prevention science. Let's ask the most important research questions so we get the most useful answers*. Paper presented at Roundtable, annual meeting of Society for Prevention Research, San Francisco.

Pruitt, L.R. (2009). The forgotten fifth. Rural youth and substance abuse. *Stanford Law & Policy Review*, *20*, 259. Retrieved from http://journals.law.stanford.edu/stanford-law-policy-review

Ramisetty-Mikler, S., Caetano, R., Goebert, D., & Nishimura, S. (2004). Ethnic variation in drinking, drug use, and sexual behavior among adolescents in Hawai`i. *Journal of School Health, 74*(1), 16-22. doi: 10.1111/j.1746-1561.2004.tb06596.x

Rehuher, D., Hiramatsu, T., & Helm, S. (2008). Evidence-based youth drug prevention. A critique with implications for practice-based contextually relevant prevention in Hawai`i. *Hawai`i Journal of Public Health*, *1*(1), 52-61. Retrieved from http://hjmph.org

Resnicow, K., Baranowski, T., Ahluwalia, J.S., & Braithwaite, R.L. (1999). Cultural sensitivity in public health. Defined and demystified. *Ethnicity & Disease,* 9(1), 10-21. Retrieved from http://www.ishib.org/ED/

Said, E.W. (1978). *Orientalism*. New York: Vintage Books.

Smith, L.T. (1999). *Decolonizing methodologies. Research and Indigenous people.* New York: St. Martin's Press.

Substance Abuse and Mental Health Administration (SAMHSA). (2013). *National registry of evidence-based programs and practices*. Rockville, MD: Author. Retrieved from www.nrepp. samhsa.gov

SAMHSA. (2004). *Results from the 2003 National Survey on Drug Use and Health. National findings*. (Office of Applied Studies, NSDUH Series H-25, DHHS Publication No. SMA 04-3964). Rockville, MD: Author.

Tibbetts, K.A., Medeiros, S., & Ng-Osorio, J. (2009). *Ho`omau i nā `Ōpio. Field- test findings of the nā `Ōpio. Youth development and asset survey*. Honolulu: Kamehameha Schools Research and Evaluation Division.

Trask, H. (1987). From a Native daughter. In C. Martin (Ed.), *The American Indian and the problem of history*. New York: Oxford University Press.

Trimble, J.E. & Fisher, C.E. (2006). *The handbook of ethical research with ethnocultural populations and communities*. Thousand Oaks, CA: Sage Publications, Inc.

Trinidad, A.M.O. (2009). Toward kuleana (responsibility). A case study of a contextually grounded intervention for Native Hawaiian youth and young adults. *Aggression and Violent Behavior*, *14*(6), 488-498. doi: 10.1016/j.avb.2009.07.008

Viswanathan, M., Ammerman, A., Eng, E., Gartlehner, G., Lohr, K.N., Griffith, D.,...Whitener, L. (2004). *Community-based participatory research. Assessing the evidence.* Evidence report/ technology assessment No. 99 (AHRQ Publication 04-E022-2). Rockville, MD: Agency for Healthcare Research Quality.

Wallerstein, N. (2004). Empowerment education applied to youth. In A. C. Matiella (Ed.), *The multicultural challenge in health education* (pp.161-162). Santa Cruz, CA: ETR Associates. [Handout provided at 2008 Photovoice training by E. Eng]

Walters, K.L., Simoni, J.M., & Evans-Campbell, T. (2002). Substance use among American Indians and Alaskan Natives. Incorporating culture in an ''indigenist'' stress-coping paradigm. *Public Health Reports*, *117*(Supp. 1), S104-S117. Retrieved from http://www.publichealthreports.org/

Wang, C.C. & Redwood-Jones, Y.A. (2001). Photovoice ethics. Perspectives from Flint Photovoice. *Health Education & Behavior*, *28*(5), 560-572. doi: 10.1177/109019810102800504

Withy, K.M., Lee, W., & Renger, R.F. (2007). A practical framework for evaluating a culturally tailored adolescent substance abuse treatment programme in Molokai, Hawaii. *Ethnicity & Health*, *12*(5), 483-496. doi: 10.1080/13557850701616920

Wong, M.M., Klingle, R.S., & Price, R.K. (2004). Alcohol, tobacco, and other drug use among Asian American and Pacific Islander adolescents in California and Hawaii. *Addictive Behavior, 29*(1), 127-141. doi: 10.1016/S0306-4603(03)00079-0

FUNDING INFORMATION AND ACKNOWLEDGEMENTS

AUTHOR INFORMATION

Dr. Helm is an Associate Professor in the Department of Psychiatry, Research Division at the John A. Burns School of Medicine, University of Hawai`i at Mānoa, 677 Ala Moana Boulevard, Suite 301, Honolulu, HI, 96813. She is the corresponding author and can also be reached at helms@dop.hawaii.edu.

Mr. Lee serves as the the Puni Ke Ola community-based Principal Investigator.

Ms. Hanakahi (BEd) serves as the culture mentor, or hulu kupuna, for Puni Ke Ola.

Ms. Gleason (MEd in Counseling Psychology and MA in Community and Cultural Psychology) served as a research associate for Puni Ke Ola and is a doctoral candidate in Community and Cultural Psychology at the University of Hawai`i at Mānoa.

Mr. McCarthy (BS) served as a research associate for Puni Ke Ola and is a candidate for the degree of Masters in Public Health, at the University of Hawai`i at Mānoa.

Appendix A
Sample SHOWED Worksheet used in Focus Group Sessions

PHOTOGRAPHER: _____   THEME _____   DATE: __ / __ / __

Insert photo #1 here,

Insert photo #2 here,

S
H
O
W
E
D

S
H
O
W
E
D

CAPTION FOR PHOTO #: ___

HELM/Finance: SHOWED_123115
Page 1

Appendix A, Continued
Sample SHOWED Worksheet used in Focus Group Sessions

Puni Ke Ola
Photo Caption & Discussion Guide

S	See	Naming the issue. Literally, what do you SEE in the video/photo? State with concrete.
H	Happening	What is HAPPENING in the video/photo? Identify different elements of the story.
O	Our	How do these issues relate to OUR lives, and how do we feel about them? Expand to personal and emotional level.
W	Why	WHY have issues arisen- individual, family, organizational-program, community, societal? Expand to analytic; root causes.
E	Empower / Evaluate	Explore how we can become EMPOWERED with our new social understanding. Bring understanding back to individual and Examine individual-social connection
D	Do	What can we DO about these issues in our lives. Action at multiple levels.

Reference:
Wallerstein N. Empowerment education applied to youth. In *The multicultural challenge in health education.* Santa Cruz, CA: ETR Associates. [handout provided at 2008 Photovoice training by E. Eng].

THE INFLUENCE OF AN ALASKA NATIVE ACCENT AND REPUTATION ON PERCEIVED THERAPIST CREDIBILITY

Joshua K. Swift, PhD, Jenna Mayra, MS, Chantel Justice, MS, and
Brittany Freitas-Murrell, MS

Abstract: In this study, we examined the influence of an Alaska Native (AN) accent and reputation on perceived therapist credibility after controlling for universal-diverse orientation. Participants listened to and rated therapist audio recordings that differed in AN accent (strong, minimal) and reputational cues (expert, recent graduate, student). While credibility ratings of the accent conditions did not differ in the expert and recent graduate scenarios, the graduate student therapist was seen as less attractive and useful when she spoke with a strong accent.

In recent years there has been an increased interest in studying the role of the therapist in producing client change (Baldwin & Imel, 2011; Miller, Hubble, Chow, & Seidel, 2013; Okiishi, Lambert, Nielsen, & Ogles, 2003). A number of studies have documented that client outcomes frequently differ from one therapist to the next, even when the therapists use identical treatments (Crits-Christoph & Mintz, 1991; Laska, Smith, Wislocki, Minami, & Wampold, 2013; Wampold & Brown, 2005). Although therapist effects have been well documented in the research, less is known about the exact therapist characteristics that are thought to play a role in client change. One therapist variable hypothesized to play an important role in psychotherapy outcomes is client perception of therapist credibility, which can be defined as the client's opinion about the therapist's expertise, trustworthiness, and attractiveness (friendliness, approachability, and likeability; Hoyt, 1996). In 1968, Strong argued that a therapist's ability to influence change in a client is dependent, at least in part, on how credible the client perceives him or her to be. According to Strong (1968), if a therapist is seen as credible, then he or she will have greater power to persuade the client to become involved in psychotherapy, and any efforts or techniques to implement changes in the client's cognitive framework and/or behavior will be maximized.

Over the past half century, a body of research has found support for Strong's (1968) claim of therapist credibility being associated with treatment outcomes. For example, in one meta-analysis, Hoyt (1996) found that perceived therapist credibility was significantly related to client satisfaction with therapy ($d = 1.33$), and to both attitude ($d = 0.69$) and behavior change ($d = 0.41$). In a more recent study, Goates-Jones and Hill (2008) found that perceptions of therapist credibility explained 58% of the variance in client-rated outcomes, 25% of the variance in therapist-rated outcomes, and 22% of the variance in target problem change after a single session of therapy. In another recent study conducted across 18 different psychotherapy centers, Yuar and Chen (2011) found that client perceptions of therapist credibility significantly predicted the development of a working alliance after two sessions of psychotherapy.

 Given the important role that perceptions of therapist credibility play in the development of the therapeutic alliance and overall treatment outcomes, it is important to gain a better understanding of the variables that have been found to predict and influence this type of perception. In one review of the topic, Hoyt (1996) identified five types of cues that predict perceptions of therapist credibility: reputational cues (e.g., prestigious title, introduction as an expert), therapist characteristics (e.g., age, physical attractiveness, attire), verbal cues (e.g., use of psychological terminology, type of interventions used), nonverbal cues (e.g., eye contact, attentiveness), and therapist-client match (e.g., same ethnicity, same gender). Based on data from 136 studies, Hoyt found evidence linking each of these types of cues to perceived therapist credibility, with effect sizes ranging from $d = .24$ for therapist characteristics to $d = 1.59$ for combinations of verbal and nonverbal cues.

For the purpose of this study, we were interested in the role of one particular therapist characteristic (accent), reputational cues, and their interaction on perceptions of therapist credibility.

Therapist Culture, Accent, and Perceived Credibility

In addition to the cues that are thought to influence perceptions of therapist credibility, race/ethnicity and culturally relevant therapist variables can also influence client preferences. Research indicates that there is no universally preferred therapist race/ethnicity or culture; rather, clients prefer a racial/ethnic match (Cabral & Smith, 2011). That is, Hispanic/Latino(a) American clients tend to want a Hispanic/Latino(a) therapist, White/European American clients tend to prefer a White/European American therapist, and so on. However, research has also indicated that the strength of this preference is less than the strength of preferences for other important culturally relevant therapist variables (Swift, Callahan, Tompkins, Connor, & Dunn, 2014). Further research is needed to examine the relationship of various culturally relevant therapist variables to client opinions of the therapist.

A therapist's accent is one cultural variable that may influence client perceptions of therapist credibility. Broadly speaking, the influence of accent on perceptions and evaluations of an individual's credibility/competence has been studied in a number of contexts. In most of these studies, participants listened to an audio recording or observed a video in which the individual being evaluated either speaks with a standard (that which is heard in the speech of the majority of individuals in the area) or a nonstandard (that which is heard in the speech of the minority of individuals in the region) accent. (It should be noted that the definition of standard and nonstandard accent depends on the context—although an individual may be considered as having a standard accent in one region of the country or world, that individual may be considered as speaking with a nonstandard accent in another area of the country or world.) A recent meta-analysis (Fuertes, Gottdiener, Martin, Gilbert, & Giles, 2012) that included data from 20 studies found that, across contexts, speakers with standard accents were rated overall more positively than speakers with nonstandard accents ($d = 0.82$). Specifically, standard accent speakers were rated higher in terms of status ($d = 0.99$), including perceptions of the speaker's intelligence, competence, and education; solidarity ($d = 0.52$), including evaluations of the speaker's similarity to the listener, attractiveness, and trustworthiness; and dynamism ($d = 0.86$), including perceptions of the speaker's energy, activity level, and liveliness.

The results of this meta-analysis suggest that a therapist with a nonstandard accent would be rated as less credible when compared with a therapist with a standard accent. However, to our knowledge, only one empirical study has been published testing whether accent actually does influence perceptions of therapist credibility. Fuertes and Gelso (2000) had 212 university students from the Northeast U.S. watch a 2-minute non-audio video recording of a therapist-client interaction while listening to an audio recording of the therapist describing himself and his approach to treatment. Half of the participants heard the message from a therapist with a strong Spanish accent while the other half heard the same message, but with a standard accent. They then asked the participants to rate the therapist's credibility and their willingness to seek treatment from the therapist. Although credibility ratings did not differ depending on accent, participants did indicate a stronger willingness to seek therapy from the therapist with the standard accent. But these results represent only one setting and one type of accent (Spanish). Additionally, other variables, such as reputational cues, may interact with the influence accent has on perceived therapist credibility.

Therapist Reputation and Perceived Credibility

In contrast to the little research that has been conducted examining therapist accent, the influence of reputational cues on perceived therapist credibility has been studied extensively in the literature. Reputational cues refer to indications of a therapist's status, such as awards, degrees, or being introduced as an authority/expert. Studies examining reputational cues are often similar

to studies of accent—typically, participants are asked to read, listen to, or watch two identical therapists who differ only in the level of reputation with which they are described. For example, in one of the earliest studies of the topic, Greenberg (1969) randomized 112 undergraduate students to listen to an audio recording of a therapist who was described as being either very experienced or a student. Greenberg found that the experienced therapist was seen as significantly more attractive and receptive than the inexperienced one. Although not all of the more recent studies have found an association between reputational cues and perceived therapist credibility, the majority have found significant results indicating that experienced therapists are perceived as being more credible than less experienced ones (Conoley & Bonner, 1991; Littrell, Caffrey, & Hopper, 1987; Miller, 1993). Pooling together both the positive and negative results from this body of research, in the previously mentioned meta-analysis, Hoyt (1996) found a significant relationship between these two variables with a medium-sized effect in favor of experienced therapists ($d = 0.51$).

Role of Universal-Diverse Orientation

Universal-diverse orientation refers to an individual's ability to both recognize and accept similarities and differences in people who are different from oneself (Miville et al., 1999). An individual with a higher level of universal-diverse orientation is interested in other cultures and seeks opportunities to engage in culturally diverse activities. Applied to the current study, it could be hypothesized that, regardless of reputational cues, individuals who are high in universal-diverse orientation would be more accepting of therapists who belong to a different cultural group or who speak with a nonstandard accent. In fact, Fuertes and Gelso (2000) did find that, while participants with low universal-diverse orientation rated therapists with a nonstandard accent as less credible than therapists with a standard accent, individuals with high universal-diverse orientation rated therapists with a nonstandard accent as slightly more credible than those with a standard accent.

Aims of the Current Study

In summary, the small amount of existing research suggests that therapists who speak with a nonstandard accent may be viewed as being less credible than therapists who speak with a standard accent. However, research has yet to be conducted examining the interaction of accent and reputational cues on perception of therapist credibility. It is possible that accent plays a significant role in perception of credibility when a therapist has little to no reputation, but when a therapist is an expert or has a prestigious degree, accent is less important. Also, in testing for a possible interaction between accent and reputational cues and its effect on perception of therapist credibility, it is important to recognize the potential role of the rater's universal-diverse orientation.

In this study, we were interested in examining whether participants, after controlling for their level of universal-diverse orientation, would rate an Alaska Native (AN) therapist's credibility differently depending on whether she spoke with a strong AN accent. AN is a term that is used to describe the indigenous peoples that have lived and thrived in present state of Alaska (Roderick, 2009). Within this region, there are many distinct AN cultures (e.g., Athabascan, Haida, Tsimshian) with unique languages, arts, and spirituality (Roderick, 2009). According to the U.S. Census Bureau (Norris, Vines, & Hoeffel, 2014), American Indians and ANs make up 1.2% of the national population, but 14.7% of the population of Alaska. Although many in the Alaska region today hold an attitude of respect for AN cultures, ANs historically have experienced oppression in the region, and some subtle and not-so-subtle forms of marginalization and discrimination can still be seen today (Alaska Advisory Committee to the U.S. Commission on Civil Rights, 2002; Deacon, 2011).

For this study we hypothesized that participants would rate the therapist and her treatment approach lower in credibility when a strong AN accent was used. This hypothesis matches research indicating that individuals who speak with a non-standard accent are frequently viewed less favorably than speakers with standard accents (Fuertes et al., 2012) ANs sometimes still experience marginalization and discrimination in our current society (Alaska Advisory Committee to the U.S. Commission on Civil Rights, 2002; Deacon, 2011). However, we hypothesized that the influence of accent, after controlling for universal-diverse orientation, would be moderated by reputational cues, such that credibility ratings would not differ between strong- and minimal-accent conditions when the therapist was described as being very experienced and well known, but would be significantly different when the therapist was described as having little experience. The results of this study could have important clinical implications, particularly for therapists who speak with a nonstandard accent.

METHOD

Participants

Participants in this study were 120 students currently enrolled in a large Northwestern university. Participants were on average 23.86 years old, $SD = 7.20$, ranging from 18 to 56 years. They were primarily female (78.3%), single (78.3%), and Caucasian (70.8%). Other ethnicities/cultural groups included in this sample were Asian or Asian American (8.33%), American Indian or AN (5.8%), African American (5%), Hispanic (5%), and bi-/multiracial (5%). Participants were primarily undergraduate students (30% first-year undergraduates, 22.5% sophomores, 20% juniors, 22.5% seniors), with an additional 5% being graduate students. While only 12.5% of the sample was receiving psychotherapy services at the time of study participation, 39.2% had previous therapy experience.

Procedures

This study was advertised on the psychology department's online subject portal. From the subject portal, participants could click on the study link, and go directly to the online study, which they could complete on their own time from their personal computers. The informed consent page explained that participants would be asked to listen to an audio recording of a therapist and then provide their opinions of that therapist. Those who agreed to participate were first asked to complete a set of demographic questions. Participants were asked to imagine that they were experiencing a significant amount of psychological distress and were considering seeking help from a mental/ behavioral health professional. Then they were instructed to listen to an audio recording of a therapist describing herself and her approach to therapy. After listening to the audio recording, participants were asked to complete measures assessing opinions of the credibility of the therapist. Last, to avoid social desirability bias related to questions about multicultural beliefs, participants completed a measure of their personal universal-diverse orientation. In total, the survey took about 30 minutes to complete. As compensation, participants could receive credit in participating psychology department courses; the amount of credit was determined by individual course instructors. This study was approved by and conducted in compliance with the University of Alaska Anchorage Institutional Review Board.

Audio Recordings/Experimental Conditions

In this factorial design, each participant was randomly assigned to one of six conditions. Each condition was presented with a brief text describing the therapist as a 35-year-old AN and a 5-minute audio recording of the therapist describing herself and her approach to therapy. All aspects of the conditions were held constant (therapist demographics and treatment approach) except for the description of the therapist's reputation (low, medium, and high) and the level of AN accent (strong or minimal) that she used in the audio recording. In the low-reputation condition, the therapist was described as a first-year student in a doctoral program. In the medium-reputation condition, the therapist was described as a recent graduate from a doctoral program who is excited to get her private practice up and running. In the high-reputation condition, the therapist was described as a practitioner in the field for the past 7 years since graduating from a doctoral program. She also was described as being well known in the community for her clinical work, having a very successful private practice, and having recently received a national award. A Tanaina Athabascan and Aleut woman raised in a rural village in Southwest Alaska and currently living in an urban area was the voice for all of the audio recordings, reading the script with minimal to no AN accent three times (one for each reputation scenario) and with a strong AN accent three times. As a manipulation check, two independent coders listened to each audio recording and rated the level of accent as either "no

to minimal accent" or "strong accent." There was complete agreement between the coders ($\kappa = 1.00$, $p < .05$), matching the respective conditions. Rather than describe AN accents and risk perpetuating stereotypes, we have made available general audio recordings of speakers with AN accents, which can be found in the International Dialects of English Archive (www.dialectsarchive.com). Examples of the specific audio recordings used in this study can be found at www.psychotherapyresearchlab.com.

Measures

Counselor Effectiveness Rating Scale (CERS)

The CERS was developed by Atkinson and Carskaddon (1975) as a measure of perceived therapist credibility. It includes three subscales (expertness, trustworthiness, and attractiveness) and one item measuring utility ("This therapist is someone I would see for psychotherapy"). Each subscale includes three items rated on a 7-point scale ranging from 1 (*bad*) to 7 (*good*); thus, total scores on each subscale range from 3 to 21. Items from the expertness subscale include ratings of the therapist's perceived expertness, competence, and skill. Items from the trustworthiness subscale include ratings of the therapist's perceived sincerity, reliability, and trustworthiness. Last, items from the attractiveness subscale include ratings of the therapist's friendliness, approachability, and likeability. The utility item is also rated on a 7-point scale ranging from 1 (*no*) to 7 (*yes*). Adequate psychometric properties for the CERS have been reported. According to Atkinson and Wampold (1982), internal consistencies for the subscales range from .76 (trustworthiness) to .88 (expertness). With our sample of participants, we found an internal consistency of .95 for the expertness subscale, .87 for the trustworthiness subscale, and .95 for the attractiveness subscale. Although the CERS was developed almost four decades ago, it is still commonly used to measure perceptions of therapist credibility.

Miville-Guzman Universality-Diversity Scale Short Form (M-GUDS-S)

The M-GUDS-S was developed by Fuertes, Miville, Mohr, Sedlacek, and Gretchen (2000) as a brief self-report measure of an individual's universal-diverse orientation. Based on results from an exploratory factor analysis of the full-length Miville-Guzman Universality-Diversity Scale (Miville et al., 1999), Fuertes et al. (2000) created the M-GUDS-S by selecting five items from each of three domains (Diversity of Contact, Relativistic Appreciation, and Comfort with Differences) that had the highest structure coefficients. Diversity of Contact represents interest and participation in activities from multiple cultures. Relativistic Appreciation represents a recognition of the learning and growth that can come from engaging with persons who are different from oneself. Comfort with Differences represents the ease at which an individual finds himself or herself when spending time with someone from a different cultural background. Each of the items on the M-GUDS-S are

rated on a 6-point Likert-type scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), and the summed total score ranges from 15 to 90, with higher scores representing a higher level of universal-diverse orientation. Adequate psychometric properties for the M-GUDS-S also have been reported. For example, Fuertes et al. (2000) found an internal consistency of .82 for Diversity of Contact, .59 for Relativistic Appreciation, .92 for Comfort with Differences, and .77 for the total score. With our sample, we found internal consistencies of .75 for Diversity of Contact, .72 for Relativistic Appreciation, .81 for Comfort with Differences, and .74 for the total score.

RESULTS

In this study, we sought to test the influence of therapist' accent (strong vs. slight), reputation (high, medium, low), and their interaction on participants' perceptions of a therapist's credibility after controlling for participants' level of universal-diverse orientation. Adjusted (based on M-GUDS-S as a covariate) group means and standard errors of the expertness, trustworthiness, attractiveness, and utility subscales of the CERS can be found in Table 1. The adjusted group means were compared through four 2 x 3 ANCOVAs—one for each of the CERS subscales. First, we had hypothesized that, when the therapist spoke with a strong accent, she would be rated as less credible across reputational conditions. Contrary to this hypothesis, the accent main effect was not significant for any of the CERS subscales: expertness, $F(1, 112) = 0.01$, $p > .05$, $\eta^2_{partial} = .00$, trustworthiness, $F(1, 112) = 0.42$, $p > .05$, $\eta^2_{partial} = .00$, attractiveness, $F(1, 112) = 0.07$, $p > .05$, $\eta^2_{partial} = .00$, nor utility, $F(1, 112) = 1.90$, $p > .05$, $\eta^2_{partial} = .02$. These results indicate that, across scenarios, our participants found the AN therapist to be similarly credible regardless of whether she spoke with a strong or minimal accent.

Table 1
Adjusted Group Means, Standard Errors[a], and Sample Sizes for the Four Subscales of the Counselor Effectiveness Rating Scale (CERS) for the Reputation and Accent Conditions

	Graduate Student	Recent Graduate	Expert	Total
Expertness				
Strong accent	14.48 (0.89); *n* = 18	15.36 (0.86); *n* = 19	16.58 (0.92); *n* = 17	15.47 (0.51); *n* = 54
Minimal accent	15.70 (0.89); *n* = 18	14.25 (0.82); *n* = 21	16.64 (0.74); *n* = 26	15.53 (0.47); *n* = 65
Total	15.09 (0.63); *n* = 36	14.81 (0.60); *n* = 40	16.61 (0.59); *n* = 43	
Trustworthiness				
Strong accent	15.81 (0.85); *n* = 18	17.05 (0.88); *n* = 19	17.14 (0.88); *n* = 17	16.67 (0.49); *n* = 54
Minimal accent	17.38 (0.85); *n* = 18	14.97 (0.79); *n* = 21	16.34 (0.71); *n* = 26	16.23 (0.45); *n* = 65
Total	16.59 (0.60); *n* = 36	16.01 (0.57); *n* = 40	16.74 (0.56); *n* = 43	

Table 1, Continued
Adjusted Group Means, Standard Errors*, and Sample Sizes for the Four Subscales of the Counselor Effectiveness Rating Scale (CERS) for the Reputation and Accent Conditions

	Graduate Student	Recent Graduate	Expert	Total
Attractiveness				
Strong accent	14.51 (0.96); $n = 18$	16.51 (0.93); $n = 19$	16.73 (0.99); $n = 17$	15.92 (0.51); $n = 54$
Minimal accent	17.58 (0.96); $n = 18$	14.17 (0.89); $n = 21$	15.40 (0.80); $n = 26$	15.72 (0.51); $n = 65$
Total	16.05 (0.68); $n = 36$	15.34 (0.64); $n = 40$	16.07 (0.64); $n = 43$	
Utility				
Strong accent	3.97 (0.40); $n = 18$	4.53 (0.39); $n = 19$	4.14 (0.41); $n = 17$	4.21 (0.23); $n = 54$
Minimal accent	5.43 (0.40); $n = 18$	3.98 (0.37); $n = 21$	4.53 (0.33); $n = 26$	4.65 (0.21); $n = 65$
Total	4.70 (0.28); $n = 36$	4.25 (0.27); $n = 40$	4.34 (0.27); $n = 43$	

[a] Standard errors are in parentheses

Second, we had hypothesized that a significant accent by reputation interaction would exist, such that accent would influence credibility ratings to a greater degree when the therapist was a graduate student compared to a recent graduate or an expert in the field. Partial support for this hypothesis was found. Although the interaction between accent and reputation was not significant for ratings of expertness, $F(1, 112) = 0.91$, $p > .05$, $\eta^2_{partial} = .02$, or trustworthiness, $F(1, 112) = 2.48$, $p > .05$, $\eta^2_{partial} = .04$, it was significant for ratings of attractiveness, $F(1, 112) = 4.69$, $p < .05$, $\eta^2_{partial} = .08$, and utility, $F(1, 112) = 3.35$, $p < .05$, $\eta^2_{partial} = .06$. As hypothesized, simple effects for attractiveness indicated that, while the level of accent did not result in significant differences when the therapist was described as an expert, $t(41) = 0.56$, $p = .58$, or as a recent graduate, $t(38) = 1.73$, $p = .09$, it did when the therapist was described as a graduate student, $t(34) = 2.70$, $p = .01$, $d = 0.90$. Specifically, when the therapist was a graduate student she was rated as being less attractive when she had a strong accent. Similarly, simple effects for utility also indicated that, while the level of accent did not result in significant differences when the therapist was described as an expert, $t(41) = 1.10$, $p = .28$, or as a recent graduate, $t(38) = 0.92$, $p = .36$, it did when the therapist was described as a graduate student, $t(34) = 3.00$, $p < .01$, $d = 1.00$. Again, when the therapist was a graduate student, participants reported that they would be less likely to seek services from her when she had a strong accent.

To control for differences in universal-diverse orientation, scores on the M-GUDS-S were entered as a covariate for all tests. This covariate was not significantly associated with ratings of expertness, $F(1, 112) = 3.16$, $p > .05$, $\eta^2_{partial} = .03$, or trustworthiness, $F(1, 112) = 2.73$, $p > .05$, $\eta^2_{partial} = .02$; however, it was significantly related to ratings of attractiveness, $F(1, 112) = 10.14$, $p < .01$, $\eta^2_{partial} = .08$, and utility, $F(1, 112) = 12.07$, $p < .01$, $\eta^2_{partial} = .10$. Specifically, higher levels of universal-diverse orientation were associated with greater perceived therapist attractiveness ($r = .28$, $p < .01$) and utility ($r = .32$, $p < .001$).

It is possible that racial/ethnic groups vary in their perception of a therapist who speaks with an AN accent. Given the small sample size for each of the racial/ethnic minority groups (i.e., the means for some groups were based on scores from one or two participants), we could not conduct analyses for individual minority groups. However, we collapsed scores across the minority groups in order to examine whether differences in response to the AN accent exist, depending on whether the participant belonged to the majority or to a minority racial/ethnic group. Four 2 x 2 ANOVAs were conducted testing for an interaction between racial/ethnic minority status (majority, minority) and accent (strong, minimal). There were no significant interactions for ratings of expertness, $F(1, 115) = 0.68$, $p > .05$, $\eta^2_{partial} = .01$, trustworthiness, $F(1, 115) = 2.45$, $p > .05$, $\eta^2_{partial} = .02$, or attractiveness, $F(1, 115) = 2.48$, $p > .05$, $\eta^2_{partial} = .02$. These results indicate that the racial/ethnic majority and minority participants did not differ in their evaluation of therapist expertness, trustworthiness, and attractiveness based on whether the therapist spoke with a strong or minimal AN accent. However, a small but significant interaction for therapist utility was found, $F(1, 115) = 4.05$, $p = .05$, $\eta^2_{partial} = .03$. Specifically, while Caucasian participants indicated that they were equally likely to meet with an AN therapist with a slight ($M = 4.47$, $SD = 1.80$) or thick ($M = 4.37$, $SD = 1.83$) accent, racial/ethnic minority participants indicated that they were more willing to meet with an AN therapist with a minimal accent ($M = 5.05$, $SD = 1.59$) than an AN therapist with a strong accent ($M = 3.46$, $SD = 1.94$).

DISCUSSION

The purpose of this study was to examine the influence of AN accent, reputation, and their interaction on perceptions of therapist credibility after controlling for differences in universal-diverse orientation. After listening to an audio recording of an AN woman describing her therapeutic approach, participants rated her credibility as a therapist. We found that ratings of therapist credibility, as measured by the four subscales of the CERS (expertness, trustworthiness, attractiveness, and utility), were not influenced by either accent or reputation when examined alone. However, significant interactions between accent and reputation were found, indicating that the influence of accent on perceived therapist attractiveness and utility depends on the therapist's level of expertise. Specifically, for the graduate student scenario, the therapist was rated as more attractive when she spoke with a minimal AN accent. Additionally, participants indicated a greater willingness to seek treatment from the graduate student therapist when she spoke with a minimal accent. In contrast, there were no statistical differences in credibility ratings between the strong and minimal AN accent conditions when the therapist was described as a recent graduate or as an experienced and well-known professional in the field. In fact, although not statistically significant, an examination of the

means (Table 1) indicates that, for the recent graduate and well-known therapists, a strong accent generally was seen as preferable to a minimal one. It may be that participants found a graduate student therapist with a strong accent less attractive and potentially less useful because they worried about their ability to communicate and connect with the therapist. In contrast, participants may have felt that a therapist who has completed graduate school or who is well known in the community already has established his or her ability to communicate and connect with clients. In such situations, a thick accent may actually signify to clients the potential for a diverse perspective or nontraditional approach to solving problems, both of which could be seen as beneficial.

In this study, we controlled for participants' level of universal-diverse orientation by including it as a covariate in our analyses. Whether an individual perceives a strong accent in a therapist to be positive or negative depends not only on therapist reputation, but also on the individual's interest in diverse cultures and in engaging with people who are different from him- or herself (Fuertes & Gelso, 2000). While some clients may specifically seek out therapists who differ from themselves, other clients may refuse to work with a therapist from a differing racial/ethnic background, regardless of the strength of the accent with which he or she speaks. Fuertes and Gelso (2000) did find that, while low universal-diverse orientation participants rated therapists with a nonstandard accent as less credible than therapists with a standard accent, high universal-diverse orientation participants rated therapists with a nonstandard accent as slightly more credible than therapists with a standard accent. It is thus important to consider not only the characteristics of the therapist (accent and reputation), but also the characteristics of potential clients (universal-diverse orientation) when thinking about client perceptions of therapist credibility. As a covariate, universal-diverse orientation was found to predict ratings of the AN therapist's attractiveness and utility significantly.

Limitations

Several limitations are present in this study. First and foremost are limitations with generalizability. This study was an analogue study conducted with college students. Thus, the perceptions of therapist credibility expressed by these students may not generalize to actual clinical settings. However, the study does provide a test of how accent and reputation may influence perceptions of therapist credibility for a general college student population. This information is important, given that a growing percentage of college students are reported to experience severe psychological problems and would benefit from psychotherapy services on campus (Gallagher, 2012). Perceptions of therapist credibility may be one variable in determining whether these college students seek out and stay in services. Along these same lines, participants were primarily Caucasian, female, and single. Perceptions of a therapist with an AN accent may differ among various demographic groups. In addition, we only examined the influence of one accent (AN) on perceptions

of credibility—a minority accent that is commonly encountered in the location in which the study was conducted. Further research is needed to test whether the findings would replicate with other nonstandard accents and in other areas of the country. Additionally, participants' perceptions of the therapist may have been influenced by characteristics of the therapist other than accent (e.g., age, gender, race/ethnicity); however, since these other variables were held constant across all scenarios, this limitation is an issue with the external rather than the internal validity of the study.

Second, in both accent conditions in our study, the therapist was described as AN. We designed the study in this manner to control for credibility differences that may be due to ethnic group membership rather than accent. However, in real-life situations, potential clients not only have the option of choosing from AN therapists with heavy to no AN accents, they often can choose to work with Caucasian therapists with standard accents, Caucasian therapists with nonstandard accents, therapists from other ethnic minority groups with standard accents, and therapists from other ethnic minority groups with nonstandard accents. Given the many possible accent and ethnicity scenarios that exist, more research is needed to examine the influence of these variables on ratings of therapist credibility.

Along these same lines, in this study we did not examine the interaction of accent with ethnic match on perceptions of therapist credibility specifically for ANs. Research has found that clients prefer a therapist whose ethnicity matches their own (Cabral & Smith, 2011), and that ethnic similarity results in higher ratings of therapist credibility (Hoyt, 1996). It is possible that ANs would prefer an AN therapist to speak with a strong AN accent, while Caucasians would prefer an AN therapist to speak with a standard accent. Given the small number of AN participants ($n = 7$), we could not test these hypotheses due to a lack of power to find significant interactions if they were present. However, comparisons between the racial/ethnic majority and minority participants indicated that, for the most part, the two groups did not evaluate the AN accent differently. Future research, specifically with a larger AN sample, would be useful.

Clinical Implications and Conclusions

Based on the results of this study, a number of implications exist. The results indicate that, at the graduate student level, even when therapists are equally qualified, those who speak with an AN accent may be viewed less favorably by clients (particularly those with low in universal-diverse orientation). Although therapists should never have to excuse aspects of their culture (such as their accent), the results of this study do indicate that speaking with a nonstandard accent may not be seen by clients as a barrier when the provider has more experience, greater credentials, or an established reputation. Prior research has indicated that therapists may increase client perceptions

of their credibility by using reputational cues (Hoyt, 1996). These efforts would be particularly important for graduate student-level providers --both those who speak with a standard accent and those who speak with a nonstandard one.

Unfortunately, the bias against graduate student-level providers who speak with an AN accent is one of many that clients may hold when working with therapists who are different from them. Thus, it is important that helping professionals seek to assist clients, potential clients, and the general public in gaining insight into and challenging their implicit biases and assumptions. Although we only studied an AN accent, across the U. S. many providers may be described as speaking with a nonstandard accent (e.g., AN, Southern, East Coast, or non-U.S.). Advocacy and awareness efforts to address biases against providers based on characteristics such as accent, race/ethnicity and gender may aid in increasing mental health service utilization and decreasing stigma associated with mental health help-seeking behaviors.

REFERENCES

Alaska Advisory Committee to the U.S. Commission on Civil Rights. (2002). *Racism's frontier: The untold story of discrimination and division in Alaska*. Anchorage, AK. Retrieved from http://www.usccr.gov/pubs/sac/ak0402/ak02.pdf

Atkinson, D. R., & Carskaddon, G. (1975). A prestigious introduction, psychological jargon, and perceived therapist credibility. *Journal of Psychotherapy Psychology, 22*, 180-186. doi:10.1037/h0076711

Atkinson, D. R., & Wampold, B. E. (1982). A comparison of the Therapist Rating Form and the Therapist Effectiveness Rating Scale. *Therapist Education and Supervision, 22*, 25-36. doi:10.1002/j.1556-6978.1982.tb00927.x

Baldwin, S. A., & Imel, Z. E. (2011). Therapist effects: Findings and methods. In M. J. Lambert (Ed.), *Bergin and Garfield's handbook of psychotherapy and behavior change* (6th ed., pp. 258-297). Hoboken, NJ: John Wiley & Sons, Inc.

Cabral, R. R., & Smith, T. B. (2011). Racial/ethnic matching of clients and therapists in mental health services: A meta-analytic review of preferences, perceptions, and outcomes. *Journal of Psychotherapy Psychology, 58*, 537-554. doi:10.1037/a0025266

Conoley, J. C., & Bonner, M. (1991). The effects of therapist fee and title on perceptions of therapist behavior. *Journal of Psychotherapy & Development, 69*, 356-358. doi:10.1002/j.1556-6676.1991.tb01521.x

Crits-Christoph, P., & Mintz, J. (1991). Implications of therapist effects for the design and analysis of comparative studies of psychotherapies. *Journal of Consulting and Clinical Psychology, 59*, 20-26. doi:10.1037/0022-006X.59.1.20

Deacon, S. (2011, June 27). Speaking up to fight discrimination. *Alaska Dispatch News*. Retrieved from www.adn.com/article/speaking-fight-discrimination

Fuertes, J. N., & Gelso, C. J. (2000). Hispanic therapists' race and accent and Euro Americans' universal-diverse orientation: A study of initial perceptions. *Cultural Diversity and Ethnic Minority Psychology, 6*, 211-219. doi:10.1037/1099-9809.6.2.211

Fuertes, J. N., Gottdiener, W. H., Martin, H., Gilbert, T. C., & Giles, H. (2012). A meta-analysis of the effects of speakers' accents on interpersonal evaluations. *European Journal of Social Psychology, 42*, 120-133. doi:10.1002/ejsp.862

Fuertes, J. N., Miville, M. L., Mohr, J. J., Sedlacek, W. E., & Gretchen, D. (2000). Factor structure and short-form of the Miville-Guzman Universality-Diversity Scale. *Measurement and Evaluation in Psychotherapy and Development, 33*, 157-169.

Gallagher, R. P. (2012). Thirty years of the National Survey of Psychotherapy Center Directors: A personal account. *Journal of College Student Psychotherapy, 26*, 172-184. doi:10.1080/87568 225.2012.685852

Goates-Jones, M., & Hill, C. E. (2008). Treatment preference, treatment-preference match, and psychotherapist credibility: Influence on session outcome and preference shift. *Psychotherapy, 45*, 61-74. doi:10.1037/0033-3204.45.1.61

Greenberg, R. P. (1969). Effects of presession information on perception of the therapist and receptivity to influence in a psychotherapy analogue. *Journal of Consulting and Clinical Psychology, 33*, 425-429. doi:10.1037/h0027816

Hoyt, W. T. (1996). Antecedents and effects of perceived therapist credibility: A meta-analysis. *Journal of Psychotherapy Psychology, 43*, 430-447. doi:10.1037/0022-0167.43.4.430

Laska, K. M., Smith, T. L., Wislocki, A. P., Minami, T., & Wampold, B. E. (2013). Uniformity of evidence-based treatments in practice? Therapist effects in the delivery of cognitive processing therapy for PTSD. *Journal of Psychotherapy Psychology, 60*, 31-41. doi:10.1037/a0031294

Littrell, J. M., Caffrey, P., & Hopper, G. C. (1987). Therapist's reputation: An important prepsychotherapy variable for adolescents. *Journal of Psychotherapy Psychology, 34*, 228-231. doi:10.1037/0022-0167.34.2.228.b

Miller, M. J. (1993). Effects of therapist disability and reputation on client perceptions during a career psychotherapy session. *Journal of Employment Psychotherapy, 30*, 119-126.

Miller, S. D., Hubble, M. A., Chow, D. L., & Seidel, J. A. (2013). The outcome of psychotherapy: Yesterday, today, and tomorrow. *Psychotherapy, 50*, 88-97. doi:10.1037/a0031097

Miville, M. L., Gelso, C. J., Pannu, R., Liu, W., Touradji, P., Holloway, P., & Fuertes, J. (1999). Appreciating similarities and valuing differences: The Miville-Guzman Universality-Diversity Scale. *Journal of Psychotherapy Psychology, 46*, 291-307. doi:10.1037/0022-0167.46.3.291

Okiishi, J., Lambert, M. J., Nielsen, S. L., & Ogles, B. M. (2003). Waiting for supershrink: An empirical analysis of therapist effects. *Clinical Psychology and Psychotherapy, 10*, 361-373. doi:10.1002/cpp.383

Roderick, L. (Ed.) (2009). *Do Alaska Native people get free medical care? And other frequently asked questions about Alaska Native issues and cultures.* University of Alaska Anchorage and Alaska Pacific University: Anchorage, AK.

Strong, S. R. (1968). Psychotherapy: An interpersonal influence process. *Journal of Psychotherapy Psychology, 15*, 215-224. doi:10.1037/h0020229

Swift, J. K., & Callahan, J. L. (2013, August). *Preferences for therapist ethnicity, multi-cultural competence, and culturally-adapted treatments.* Paper presented at the 2013 APA Annual Convention, Honolulu, HI.

Norris, T., Vines, P. L., & Hoeffel, E. M. (2012). *The American Indian and Alaska Native population: 2010.* U.S. Department of Commerce. Retrieved online at www.census.gov/prod/cen2010/briefs/c2010br-10.pdf

Wampold, B. E., & Brown, G. S. (2005). Estimating variability in outcomes attributable to therapists: A naturalistic study of outcomes in managed care. *Journal of Consulting and Clinical Psychology, 73*, 914-923. doi:10.1037/0022-006X.73.5.914

Yuar, S., & Chen, C. (2011). Relationship among client's psychotherapy expectations, perceptions of the therapist credibility and the initial working alliance. *Chinese Journal of Guidance and Psychotherapy, 30*, 1-29. Retrieved from www.guidance.org.tw

AUTHOR INFORMATION

Dr. Swift is with the Department of Psychology, University of Alaska Anchorage. He is the corresponding author and can be reached at: Department of Psychology, University of Alaska Anchorage, 3211 Providence Drive SSB215, Anchorage, AK, 99508-4614. He can also be reached at joshua.keith.swift@gmail.com or (907) 786-1726.

Ms. Mayra was a graduate student in the University of Alaska Anchorage MS Program in Clinical Psychology at the time this article was written.

Ms. Justice is a doctoral student in the University of Alaska Anchorage/University of Alaska Fairbanks Joint PhD Programs in Clinical-Community Psychology.

Ms. Freitas-Murrell is with the Department of Psychology, University of Alaska Anchorage.

HEALING OF THE CANOE: PRELIMINARY RESULTS OF A CULTURALLY GROUNDED INTERVENTION TO PREVENT SUBSTANCE ABUSE AND PROMOTE TRIBAL IDENTITY FOR NATIVE YOUTH IN TWO PACIFIC NORTHWEST TRIBE

Dennis M. Donovan, PhD, Lisa Rey Thomas, PhD, Robin Little Wing Sigo, MSW, Laura Price, AAS, Heather Lonczak, PhD, Nigel Lawrence, BBA, Katie Ahvakana, BA, Lisette Austin, MA, Albie Lawrence, MSW, Joseph Price, Abby Purser, and Lenora Bagley

Abstract: Using Community-based and Tribal Participatory Research (CBPR/ TPR) approaches, an academic-tribal partnership between the University of Washington Alcohol and Drug Abuse Institute and the Suquamish and Port Gamble S'Klallam Tribes developed a culturally grounded social skills intervention to promote increased cultural belonging and prevent substance abuse among tribal youth. Participation in the intervention, which used the Canoe Journey as a metaphor for life, was associated with increased hope, optimism, and self-efficacy and with reduced substance use, as well as with higher levels of cultural identity and knowledge about alcohol and drugs among high school-age tribal youth. These results provide preliminary support for the intervention curricula in promoting positive youth development, an optimistic future orientation, and the reduction of substance use among Native youth.

INTRODUCTION

American Indian and Alaska Native (AI/AN) people demonstrate resilience, strength, and endurance despite centuries of postcolonial efforts to eradicate and assimilate them. Resulting health disparities and health inequality are critical issues for AI/AN tribes and communities. Comprising only 1.7% of the overall population, AI/ANs suffer alarming rates of health disparities, resulting in a life expectancy that is 4.2 years less than that of the U.S. all races population (Indian Health

Service, 2015; Norris, Vines, & Hoeffel, 2012). A recent report from the Institute of Medicine (2012) stated that AI/ANs, as a group, saw the fewest advances toward achieving Healthy People 2010 objectives.

Among the disparities experienced by many AI/ANs is substance abuse and its related negative health and social consequences (Substance Abuse and Mental Health Services Administration [SAMHSA], 2010; Whitesell, Beals, Big Crow, Mitchell, & Novins, 2012), which has led the Indian Health Service to call alcohol and substance abuse the number-one health problem among AIs. Of particular concern is substance use and abuse among AI/AN youth. Older data indicate that alcohol and substance abuse by AI/AN youth in some communities has reached alarming rates (Beauvais, 1992). AI/AN youth also were found to begin alcohol/drug use at an earlier age, to have a higher frequency and quantity of consumption, and to have disproportionately higher levels of associated negative consequences (Beauvais, 1996; Hawkins, Cummins, & Marlatt, 2004; Moran & Reaman, 2002). More recent data indicate that, while past month alcohol use was similar between AI/AN youth and the national average (17.5% vs. 16.0%, respectively), AI/AN youth past month marijuana use (13.8% vs. 6%, respectively) and nonmedical use of prescription drugs such as opiate pain medication (6.1% vs. 3.3%, respectively) were nearly twice the national average (Beauvais, Jumper-Thurman, Helm, Plested, & Burnside, 2004; SAMHSA, 2011).

Given its prevalence, the prevention of substance abuse among AI/AN youth is critical to avoid associated negative consequences such as suicide, comorbid mental health disorders, school dropout, delinquency, reduced academic performance, diabetes, injuries, fetal alcohol spectrum disorder, poverty, cancer, and heart disease (Gray & Nye, 2001; Whitbeck, Johnson, Hoyt, & Walls, 2006; Whitbeck, Walls, & Welch, 2012). As such, developing interventions for the prevention and treatment of substance abuse is a high priority for most AI/AN communities, in particular because of the relatively young age of many AI/ANs—their median age is 29 years, versus 37.2 years for the population as a whole (U.S. Census Bureau, 2011).

More recently, there has been increased focus on the role of historical trauma as a contributing factor to substance abuse and mental health challenges among AI/ANs. Removal of AI/AN children to boarding schools, theft of land, disruption of culture, loss of language and traditional practices, and the resulting grief has been associated with increased vulnerability to mental health and substance abuse issues for AI/ANs (Brave Heart & DeBruyn, 1998; Duran, Duran, Brave Heart, & Yellow Horse-Davis, 1998; Struthers & Lowe, 2003; Walters & Simoni, 2002). However, there is increasing evidence that cultural identity (i.e., one's sense o f belonging to an ethnic group, defined by cultural heritage; shared values, traditions, and practices; and often language; Phinney & Ong, 2007), cultural continuity (i.e., the transmission of core cultural beliefs, values, and traditions across generations), and feeling connected to one's tribe and community are important for preventing substance abuse,

suicide, and other significant behavioral health issues, and that community-based and culturally grounded programs may be the most effective prevention strategy (Gone & Calf Looking, 2011; Hawkins et al., 2004; Lane & Simmons, 2011; Lowe, Liang, Riggs, & Henson, 2012; Moran & Reaman, 2002; Thomas, Donovan, & Sigo, 2010).

Addressing substance-related health disparities and health inequality in Indian Country is even more pressing given the lack of adequate, let alone effective and culturally appropriate, services available to AI/ANs (Gone & Trimble, 2012). Current services and evidence-based practices (EBPs), most of which have been developed with and for the majority population, are often viewed with distrust by AI/AN communities (Cross, Friesen, & Maher, 2007; Gone & Alcantara, 2007; Lane & Simmons, 2011; Larios, Wright, Jernstrom, Lebron, & Sorensen, 2011; Lowe, Riggs, & Henson, 2011; Wexler, 2011), and there is little evidence that they are effective for AI/ANs (Gone, 2007; Lowe et al, 2011; 2012). Many AI/AN communities have also come to view research with suspicion and mistrust (Christopher, Watts, McCormick, & Young, 2008; Lowe et al., 2011).

Community-based and Tribal Participatory Research (CBPR/TPR) approaches have begun to address this research gap, with AI/AN communities participating as collaborators and co-researchers in the identification of issues of concern, strengths to address these issues, and desired outcomes; the analysis and interpretation of data; and the effective dissemination of findings (Ball & Janyst, 2008; Baydala et al., 2009; Burhansstipanov, Christopher, & Schumacher, 2005; Christopher et al., 2008; 2011; Cochran et al., 2008; Fisher & Ball, 2003; 2005; Holkup, Tripp-Reimer, Salois, & Weinert, 2004; LaVeaux & Christopher, 2009; Michell, 2009; Thomas, Rosa, Forcehimes, & Donovan, 2011). Community-driven, culturally grounded prevention interventions, derived from the beliefs and values of a given tibe or culture, appear to be more acceptable and potentially more effective for AI/AN youth than EBPs developed with non-Native populations (Gone & Calf Looking, 2011; Hawkins et al., 2004; Lane & Simons, 2011; Lowe et al., 2012; Moran & Reaman, 2002; Nebelkopf et al., 2011; Okamoto, Helm, Pel, McClain, Hill, & Hayashida, 2014).

Therefore, it is critical that efforts to reduce substance use and prevent substance abuse with AI/AN youth be implemented in partnership with AI/AN communities, incorporate local expertise and knowledge, build on strengths and resources within the communities, and integrate unique cultural practices (Brown, Baldwin, & Walsh, 2012). It is also important to recognize that the unique cultural characteristics and traditions of the more than 560 federally recognized tribes in the U.S. may limit the generalizability of interventions across tribes, requiring community-informed and tribal-specific adaptations (Gone & Trimble, 2012; Trimble & Beauvais, 2001; Whitesell, Kaufman, et al., 2012).

In this article, we describe the CBPR/TPR process involved in a university-tribal partnership that led to the development of a community-informed, culturally grounded intervention to promote a sense of cultural belonging and to prevent substance abuse among tribal youth. The transfer of the process to a second tribal community, to demonstrate replicability of the development and adaptation process and generalizability of the intervention, is also described. Finally, we present the results of an initial evaluation of the intervention's impact.

THE HEALING OF THE CANOE PROJECT

CBPR/TPR Process and Intervention Development

The Healing of the Canoe project (HOC; http://healingofthecanoe.org) is a collaboration among the Suquamish Tribe, the Port Gamble S'Klallam Tribe, and the University of Washington Alcohol and Drug Abuse Institute (ADAI). Both tribes have given their permission to be named in this article, and both are sovereign, reservation-based tribes in the Pacific Northwest with enrollments of approximately 1,100 and 1,200, respectively (although fewer than half of the enrolled members live on each reservation).

The collaborative partnership was initiated by the Suquamish Tribe, when the Director of its Wellness Program approached ADAI asking if it would be possible to work together to address the community's increasing concern about alcohol and drug use among its youth. Members of the ADAI research staff, one of whom is AN, began meeting regularly with the Wellness Program staff, tribal leaders and Elders, and the Suquamish Cultural Co-Operative (the body designated by the Tribal Council to ensure that all programs introduced into the community are consistent with tribal sovereignty, culture, and values).

Concurrent with this initial development work, the National Institute on Minority Health and Health Disparities (NIMHD) issued a call for applications focusing on the use of CBPR approaches to address health disparities. The Suquamish Tribe and ADAI researchers jointly decided to apply for a grant to support the development of a culturally grounded substance abuse prevention program. Consistent with principles of CBPR and TPR, tribal- and university-based personnel shared responsibility in a variety of areas, including the grant application process, the proposed project leadership, and the research team membership. We were fortunate to have been selected as one of 25 grantees funded as part of NIMHD's CBPR initiative. The HOC team worked with community members to develop an intervention that blends cognitive-behavioral life skills with culturally grounded, tribal-specific teachings, practices, and values that targeted both the prevention of substance use/abuse and the promotion of cultural identity and belonging among tribal youth.

This article focuses on the first two phases of the project. Phase I involved partnership

development, needs and resources assessment, intervention development, and feasibility piloting with the Suquamish Tribe (Lonczak et al., 2013; Thomas et al., 2010; Thomas et al., 2009). Phase II extended the partnership to the Port Gamble S'Klallam Tribe to replicate the development process, and involved an evaluation of the intervention in the two communities.

Figure 1 provides a relational mapping of the different organizations, both tribal and university, and the research teams involved in the HOC project across its first two phases.

Figure 1
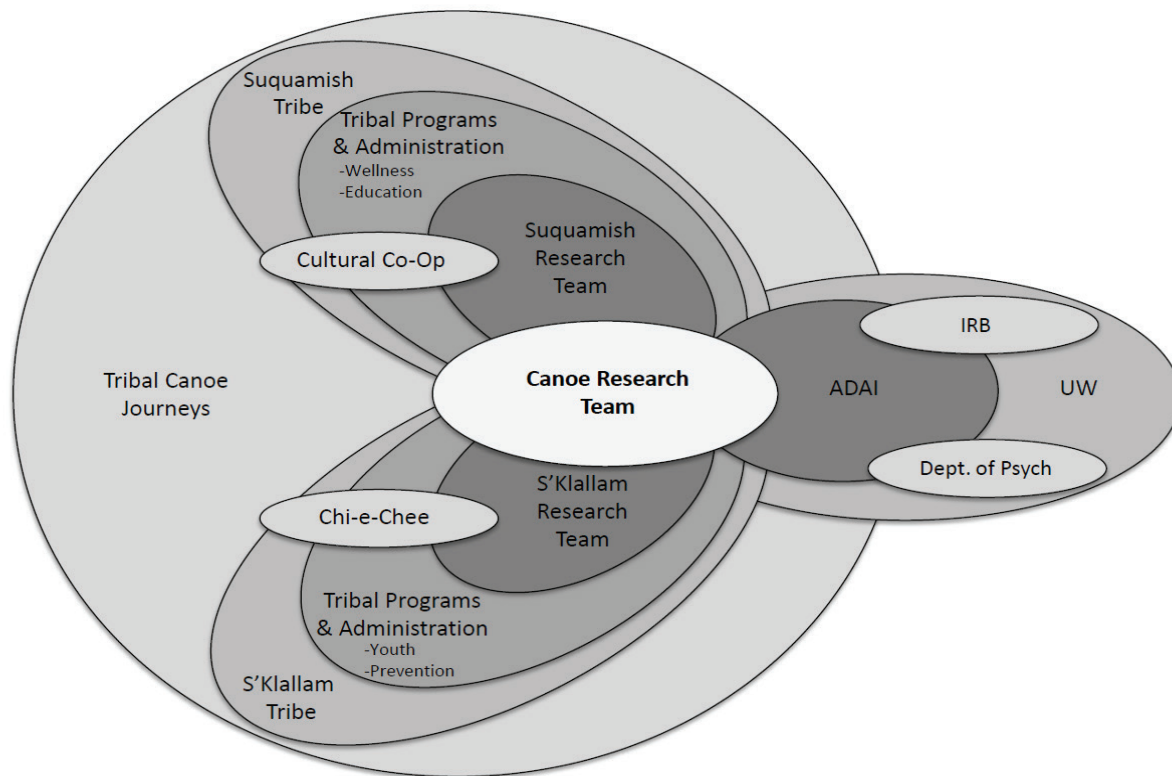
Developed by Qualitative Research Team, Research for Improved Health Study, Center for Participatory Research, University of New Mexico, 2013; used with permission

METHODS

Tribal and University Review

Procedures for all phases of the research were reviewed and approved by each tribe's Community Advisory Board (CAB) and Tribal Council.

Before Phase I project activities began, the Suquamish Tribal Council passed a resolution to permit the research to proceed, and both the Tribe and the University of Washington developed,

negotiated, and accepted a memorandum of understanding and a data ownership, sharing, and dissemination ageement. The University of Washington Human Subjects Division also reviewed and approved all activities for the ethical conduct of research. To partcipate in the research, youth provided assent and their parents/guardians provided consent.

HOC: Phase I

Phase I was a 3-year planning and development period (June 2005-June2008). The NIMHD grant guidelines specified that, during this phase, a CBPR approach would be used to (1) establish a university-community working partnership, with a focus on community engagement, (2) conduct a community needs and resources assessment, (3) identify and prioritize health disparities, (4) specify a disorder to address through CBPR development of appropriate intervention(s), and (5) develop and pilot community-based intervention(s).

Needs and Resources Assessment with the Suquamish Tribe

Consistent with these expectations, the ADAI and Suquamish research team used CBPR/TPR approaches to engage the community and conduct a community readiness, needs, and resources assessment. Guided by the Cultural Co-Operative, which serves as the project's CAB in Suquamish, tribal research team members conducted interviews with key stakeholders and focus groups with service providers, Elders, youth, and other community members (Thomas et al., 2009; Thomas et al., 2010). The team used a modification of the community readiness assessment developed by the Colorado State University Tri-Ethnic Research Center (Jumper-Thurman, Plested, Edwards, Foley, & Burnside, 2004).

Two primary concerns emerged from the community assessment: (1) prevention of youth substance abuse and (2) the importance of cultural identity, meaning, and tribal/community belonging among youth. The community viewed substance abuse as being directly related to the lack of cultural connectedness among the youth. The greatest resources in the community to deal with these issues were identified as tribal Elders; tribal youth; and Suquamish tribal traditions, values, beliefs, teachings, practices and stories. Given these findings and context, the key stakeholders, focus group members, and CAB members felt that the community concern about youth substance abuse should be addressed using a process that strengthened youths' connection to their tribe and community, especially to extended family; specific mentors; and cultural activities, traditions, and values, all of which are believed to promote cultural identity (Caldwell et al., 2005; Edwards, 2003; Schweigman, Soto, Wright, & Unger, 2011). In addition, it would be important to build community connections, increase community support systems, and promote culture. These are all key components and core competencies of positive youth development and have been incorporated into other culturally

grounded, community-informed approaches to minimize the risk of substance abuse and mental health problems and to promote wellness among AI/AN and other ethnic minority youth (Cross et al., 2011; Haegerich & Tolan, 2008; Hawkins et al., 2004; Kenyon & Hanson, 2012; Lam, Lau, Law, & Poon, 2011; Lowe et al., 2012; Smokowski, Evans, Cotter, & Webber, 2014).

Intervention Development and Piloting with the Suquamish Tribe

Both tribal- and university-based team members gathered information about EBPs and promising prevention interventions that could be adapted to meet the identified needs. The Canoe Journey/Life's Journey curriculum (Hawkins & La Marr, 2012; LaMarr & Marlatt, 2005; Marlatt et al., 2003), developed by University of Washington colleagues and the Seattle Indian Health Board for use with inter-tribal urban AI/AN youth, was selected as a model. It is an 8-session curriculum designed to help urban Native youth identify and utilize healthy and appropriate social, interpersonal, and intrapersonal life skills and lifestyle choices to prevent the initiation of substance use, promote abstinence, and reduce the risk of harm and the potential for developing an addiction. The curriculum, which was designed to be adaptable to other communities, is culturally grounded. It is based on the Canoe Journey, a major factor in cultural revitalization among Pacific Northwest coastal tribes (Hawkins & La Marr, 2012; Johnson, 2012; Lane & Simmons, 2011; Neel, 1995). The seagoing canoe represents the traditional means of transportation, commerce/trade, fishing, and social gathering among Pacific Northwest tribes. The modern-day Canoe Journey, which began in 1989 with the "Paddle to Seattle" from Suquamish, has become an annual event, often drawing over 100 canoes. The journey includes stops at tribal communities along the way to dance, drum, sing, and share stories until arriving at a final hosting community, where there is a weeklong potlatch or celebration. The journey honors ancestors, embraces Indigenous values and traditions, and "teaches the community traditional cultural ways of being" (Hawkins & La Marr, 2012, p. 238). As an alcohol- and drug-free event, the journey also offers participants an opportunity for "healing and recovery of culture, traditional knowledge, and spirituality" (Washington Indian Gaming Association, 2014).

A community-based curriculum review and development group, composed of Elders, CAB members, and other community members, and facilitated by Suquamish and ADAI research team members, used principles for cultural adaptation of prevention interventions (Castro, Barrera, & Martinez, 2004) and an iterative process (Chu, Huynh, & Area'n, 2012) to adapt the original Canoe Journey/Life's Journey curriculum to be specific to the Suquamish Tribe. The iterative process followed principles of cultural adaptation—namely, initial gathering of information about available and relevant evidence-based prevention interventions; preliminary adaptation through a back-and-forth review of information and recommended adaptations among the research teams, the Cultural Co-Operative, the curriculum development team, and the Tribal Council; preliminary adaptation pilot testing; and modification and refinement (Barrera & Castro, 2006; Chu, Huynh, & Area'n,

2012). The goal of this iterative adaptation process, depicted in Figure 2, was to preserve core evidence-based treatment components of the prevention intervention while adding cultural content to enhance tribal-specific cultural relevance (Castro, Barrera, & Martinez, 2004).

Figure 2
HOC Adaptation
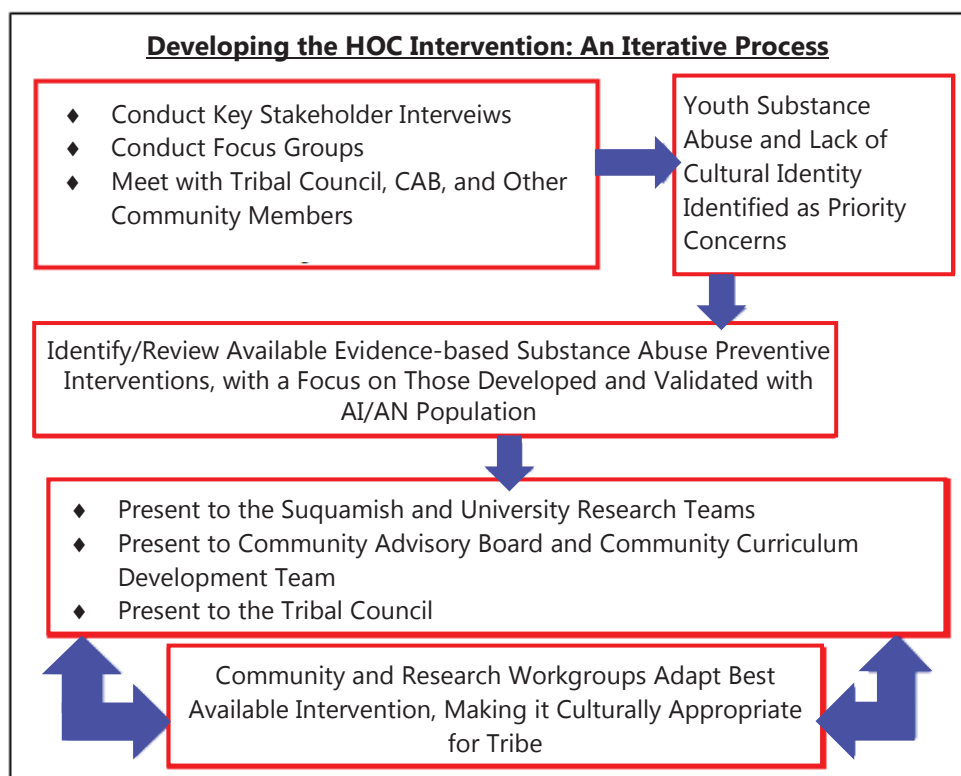
Holding Up Our Youth consists of an 11-session curriculum, attempting to prevent initiation of substance use among those not yet using and escalation among those who already have initiated use. The curriculum is culturally grounded and uses the Canoe Journey as a metaphor and teaching tool to provide Native youth the skills needed to navigate through life's journey without being pulled off course by alcohol or drugs. It blends tribal traditions, cultural values, and Indigenous knowledge with evidence-based practices and elements of positive youth development. It includes an Honoring Ceremony in which participants are honored for their unique strengths and accomplishments. The youth, in turn, honor their mentors and important role models in oral testimony and with traditional gifts that they have made during the program. The sessions are listed in Table 1 below, and more detailed descriptions can be found at http://healingofthecanoe.org/holding-up-our-youth/. Prior to the implementation described below, we pilot tested the curriculum with Suquamish middle school and junior high school students in a tribal summer session and as an after-school program; the results (unpublished) demonstrated that the program was feasible to conduct and acceptable to youth.

Table 1
Sessions Included in the Holding Up Our Youth Curriculum

Session Title	Session Goals/Focus*
1. The Four Winds/ Canoe Journey as a Metaphor	• Introduce and discuss the Four Winds, a traditional Suquamish spiritual concept that can be used to frame daily life and teach life skills; discuss the Northwest Native traditional Canoe Journey and how it can serve as a metaphor for life. Other traditional Suquamish beliefs are also discussed. • Information about alcohol is also included
2. How am I Perceived? Media Awareness and Literacy	• Focus on how American Indians/Alaska Natives are portrayed in the media; learn how to recognize when stereotypes are being used, how AI/AN culture has been exploited, how AI/AN history has been misrepresented, and how to stand up against stereotypes. • Information about prescription drugs is also included.
3. Who am I? Beginning at the Center	• Learn about Suquamish values, traditional ways to introduce oneself, self- awareness and integrity, and how to use the concept of the Four Winds as a part of self-definition. Participants are encouraged to explore the idea of a physical self, mental self, emotional self and spiritual self. • Information about marijuana is also included.
4. Community Help and Support: Help on the Journey	• Learn about the importance of community, how they are a part of many communities, and the importance of giving back to their community; learn how to identify where they can go for help in their own community; learn about what it means to be a mentor and how they can become mentors for those around them. • Information about club drugs and stimulants is also included.
5. Who Will I Become? Goal Setting	• Explore what kinds of goals are important and learn a step-by-step approach to setting goals; begin to understand the importance of goal setting and learn how to cope with obstacles that might hinder achieving set goals. • Information about hallucinogens is also included.
6. Overcoming Obstacles: Solving Problems	• Learn how to recognize when they are having a problem, learn ways to solve problems and make good decisions, and discuss where they can go when they do have a problem; learn how to define a problem, brainstorm solutions, pick the best solution, make and act on a plan, and review/revise the plan if needed. • Information about nicotine is also included.
7. Listening	• Teach listening skills - effective listening is discussed; the importance of listening is illustrated through storytelling and other traditional activities. Suquamish values stress respect and the belief that you must be an effective listener before you can become an effective communicator. • Information about methamphetamines is also included.
8. Effective Communication: Expressing Thoughts and Feelings	• Teach effective communications skills, how to disagree respectfully, refusal and assertiveness skills and how to deal with peer reactions to assertiveness; participants practice positive ways to resolve conflict and to express feelings. • Information about opiates is also included.
9. Moods and Coping with Negative Emotions	• Learn about different emotions and positive and negative self-talk. This session is facilitated by the use of the Suquamish "Ten Rules of the Canoe"; learn about depression and suicide, how to cope with negative emotions and difficult situations, and how to find a safe person or place to express emotions. • Information about inhalants is also included.

Table 1, Continued
Sessions Included in the Holding Up Our Youth Curriculum

Session Title	Session Goals/Focus*
10. Safe Journey without Alcohol/ Drugs	• Learn about addictions, how expectancies influence perception, and about the consequences of drug and alcohol use/abuse.
11. Strengthening our Community	• Focus on finding leaders within the Suquamish community to serve as role models; learning about the Boldt decision, about leadership, and how to make good choices within the Suquamish community. • Includes field trips into the community to volunteer with important community projects.
12. Honoring Ceremony	• This ceremony is a way to acknowledge youth for the completion of the program and honor their unique attributes. Mentors are invited by the youth to attend and have the opportunity to talk about the youth and their accomplishments. tribal Elders, leaders and families are also invited to witness the ceremony and share a meal.

* Traditional stories, cultural activities and speakers from the community are woven throughout the sessions.

At the end of Phase I, we also asked a Native researcher with expertise in CBPR to conduct an external evaluation of the project (Randall, 2008). Qualitative data were derived from interviews with key stakeholders and focus groups with community members to assess the community engagement and curriculum development processes, as well as initial impressions of the curriculum as delivered in the pilot feasibility implementations.

HOC: Phase II

The primary aims of Phase II (July 2008-February 2013) were: (1) using CBPR methods, to work with the Suquamish Tribe to refine, implement, and evaluate the intervention developed in Phase I; and (2) to replicate the CBPR and curriculum development process with the Port Gamble S'Klallam Tribe (PGST) to tailor the curriculum to PGST's traditions and culture, and to implement and evaluate the intervention in both communities.

Intervention Implementation with the Suquamish Tribe

Working with tribal communities and using a CBPR/TPR approach are not always linear processes (Lowe et al., 2011), and researchers need to be responsive and adapt to changes in the community over the course of a study. Although the initial curriculum had been developed for and piloted with middle school students, at the beginning of Phase II the Suquamish CAB wanted to shift the focus of the intervention to high school students, to coincide with the opening of a tribal high school. They invited the HOC team to teach the Holding Up Our Youth curriculum in the

new high school. This shift required us to change the curriculum content slightly to be more age appropriate; in addition, it was expanded from the original 11 sessions to a year-long academic class, which met daily for 1.5 hours. The class included a mix of lectures, discussion, dialogue, multimedia, student presentations, and group activities. Guest speakers were invited as often as possible to increase the breadth and depth of exposure to Suquamish culture and traditional activities. The class was facilitated by one female and one male staff who were members of the Suquamish Tribe and research team, which was most effective with a mixed gender group. Students were able to receive class credit from both the high school and a local community college. However, after 1 year the high school closed to review and revise its overall focus and instructional approach and curriculum; thus, it was not possible to implement the intervention for a second year.

Intervention Extension to PGST

An important aspect of the Holding Up Our Youth curriculum is that, while it standardizes the core social, interpersonal, and intrapersonal skills to be delivered, it was designed to be adaptable: It has "placeholders" where other tribes/communities can insert their unique traditions, stories, values, and cultural practices. This format facilitates subsequent generalizability, dissemination, adaptation, and implementation by other tribes, and honors and protects tribal-specific cultural knowledge, which research suggests is important (Lane & Simmons, 2011; Moran & Reaman, 2002). As noted, a goal for Phase II was to replicate the CBPR community engagement and curriculum development processes with PGST. Therefore, concurrent with the implementation of the curriculum in the Suquamish high school, we began working with PGST. The transport of these processes to PGST was of particular interest because, despite their geographic proximity (10 miles by car, but 29 miles by canoe) and the fact that both are waterside communities actively involved in the Canoe Journey, Suquamish and PGST are quite different with respect to the nature of their reservations (e.g., their languages are different, and one reservation is "checker boarded," with much of the land having been sold to non-tribal members, while the other is consolidated, with almost all of the land owned by tribal members). These differences provided an opportunity to determine the portability and generalizability of the processes, and our ability to tailor the curriculum to another tribal culture.

The PGST Tribal Council approved involvement in the project through a tribal resolution; a memorandum of understanding; and a data ownership, sharing, and dissemination agreement. The PGST research team, composed of tribal members, was guided by its CAB, the Chi-e-chee Network, which is the tribe's Alcohol, Tobacco, and Other Drugs Prevention Committee. One of the Chi-e-chee Network's duties is to assure that all prevention projects performed by different tribal departments are culturally competent and respectful of the sovereignty and integrity of the PGST culture and traditions. Working in collaboration with the Suquamish and ADAI teams and the Chi-e-chee Network, the

PGST research team conducted community readiness, needs, and resources assessments using focus groups and key stakeholder interviews. The community identified the prevention of youth substance abuse and cultural revitalization as the issues it wished to address with the curriculum.

To further adapt the Holding Up Our Youth curriculum, members of the ADAI and PGST research teams met over a number of months with a tribal curriculum revision and adaptation committee, composed of PGST Elders, Chi-e-chee members, and other community members. During this process, the PGST research team engaged the community through newsletters, community meetings, and regular reports to Chi-e-chee and the Tribal Council. The result was an adaptation that incorporated Port Gamble S'Klallam culture, traditions, values, and stories into the placeholders throughout the curriculum template, while retaining the core social skills elements and evidence-based components. It is entitled Navigating Life the S'Klallam Way. Session content parallels that found in the Holding Up Our Youth, except for the tribal-specific material and a slight reordering of the sessions. The sessions are listed in Table 2 on the next page, and more detailed descriptions can be found at http://healingofthecanoe.org/navigating-life-the-sklallam-way/.

Table 2
Sessions Included in the Navigating Life the S'Klallam Way curriculum

Session Title	Session Goals/Focus*
1. The Four Seasons/Canoe Journey as a Metaphor	• Introduce and discuss the Four Seasons, a traditional S'Klallam concept used to frame daily life and teach life skills, a schedule set by nature that S'Klallam livelihood revolved around • Discuss the Northwest Native traditional Canoe Journey and how it can serve as a metaphor for life. Each session ends with a reflection back to this concept. Other traditional S'Klallam beliefs are also discussed. • Information about alcohol is also included.
2. Who am I? Beginning at the Center	• Learn about S'Klallam values, traditional ways to introduce oneself, self- awareness genealogy, family ties and integrity, and how to use the concept of the Four Seasons as a part of self-definition. Participants are encouraged to explore the idea of a physical self, mental self, emotional self and spiritual self. • Information about marijuana is also included.
3. How am I Perceived? Media Awareness and Literacy	• Focus on how American Indians/Alaska Natives, and specifically the S'Klallam people, are portrayed in the media; learn how to recognize when stereotypes are being used, how AI/AN culture has been exploited, how AI/AN history has been misrepresented, and how to stand up against stereotypes. • Information about prescription drugs is also included.
4. Community Help and Support: Help on the Journey	• Learn about the importance of community, how they are a part of many communities, and the importance of giving back to their community; learn how to identify where they can go for help in their own community; learn about what it means to be a mentor and how they can become mentors for those around them. • Information about club drugs and stimulants is also included.

Table 2, Continued
Sessions Included in the Navigating Life the S'Klallam Way curriculum

Session Title	Session Goals/Focus*
5. Moods and Coping with Negative Emotions	• Learn about different emotions and positive and negative self-talk; learn about depression and suicide, how to cope with negative emotions and difficult situations, and how to find a safe person or place to express emotions. • Information about inhalants is also included.
6. Who Will I Become? Goal Setting	• Explore what kinds of goals are important and learn a step-by-step approach to setting goals; begin to understand the importance of goal setting and learn how to cope with obstacles that might hinder achieving set goals. • Information about hallucinogens is also included.
7. Overcoming Obstacles: Solving Problems	• Learn how to recognize when they are having a problem, learn ways to solve problems and make good decisions, and discuss where they can go when they do have a problem; learn how to define a problem, brainstorm solutions, pick the best solution, make and act on a plan, and review/revise the plan if needed. • Information about nicotine is also included.
8. Listening	• Teach listening skills - effective listening is discussed; the importance of listening is illustrated through S'Klallam storytelling and other traditional activities. S'Klallam values stress respect and the belief that you must be an effective listener before you can become an effective communicator. • Information about methamphetamines is also included.
9. Effective Communication: Expressing Thoughts and Feelings	• Teach effective communications skills, how to disagree respectfully, refusal and assertiveness skills and how to deal with peer reactions to assertiveness; participants practice positive ways to resolve conflict and to express feelings. • Information about opiates is also included.
10. Safe Journey without Alcohol/ Drugs	• Learn about addictions, how expectancies influence perception, and about the consequences of drug and alcohol use/abuse. • Reflecting on the "Canoe Way of Life" as an example of "Life's Journey."
11. Strengthening our Community	• Focus on finding leaders within the S'Klallam community to serve as role models; learning about the Boldt decision, tribal sovereignty, leadership, and how to make good choices within the Port Gamble S'Klallam community. • Includes field trips into the community to volunteer with important community projects. • This session includes field trips into the community to volunteer with important community projects.
12. Honoring Ceremony	• This ceremony is a way to acknowledge youth for the completion of the program and honor their unique attributes. Mentors are invited by the youth to attend and have the opportunity to talk about the youth and their accomplishments. tribal Elders, leaders and families are also invited to witness the ceremony and share a meal. • Gifts are prepared and given formally, and digital stories are shared.

* Traditional stories, cultural activities and speakers from the community are woven throughout the sessions.

Workshop Implementation of Intervention with Suquamish and PGST

The Suquamish team needed to develop an alternative method of delivering the curriculum following the closing of the high school; the PGST team also needed a delivery method for its newly developed curriculum. The two tribal research teams worked together to determine a format that would meet each community's needs; a series of multiday intensive workshops to be held overnight in off-reservation retreat settings was chosen. Each team developed a series of three 2.5- to 3-day tribal-specific workshops spread over a 3-month period. Workshops for Suquamish youth used the Holding Up Our Youth curriculum, while those for PGST youth used the Navigating Life the S'Klallam Way curriculum. This new format and timeframe required yet another adaptation, but still incorporated the core elements from each of the lengthier curricula from which they were derived. The workshops were facilitated by research team staff who were members of the respective tribal communities; two of the facilitators (one from Suquamish and one from PGST) also were skippers of youth canoes involved in the annual Canoe Journey. In addition, mentors, Elders, and other community members participated as guest speakers or instructors in cultural practices. Students were given permission to miss their regular public school classes to attend the workshops.

Participants

Suquamish High School

All Suquamish high school students had the opportunity to participate in the Holding Up Our Youth intervention as part of their regular high school curriculum, and to receive high school or college credit for it, regardless of whether they opted to participate in the research component (e.g., completing assessments). While a larger number of students participated in the class across the academic year, only those for whom assent and parental consent were obtained are included here. The high school sample consisted of 8 students. There were 5 males and 3 females; 2 students were in the 10th grade and 6 were in the 12th grade. This cohort represented one-third of total student body, which fluctuated between 25-30 students during the school's first year of operation.

Suquamish/PGST Workshops

Participants were recruited through community announcements about the workshops in monthly tribal newsletters, social networks (e.g., Facebook), fliers in youth programs (e.g., Sports and Recreation Department, Youth Council, Youth Center, Cultural Activity Workshops, Song and Dance Group, Youth Canoe Club), and personal contact. A total of 23 youth (5 males, 8 females in Suquamish; 3 males, 7 females in PGST) in 9th through 12th grade participated in the workshops. No incentives were provided for participating in the workshops.

Measures

Four target outcomes were evaluated using the same instruments in both the high school and workshop samples: (1) cultural identification and participation in cultural activities, (2) hope/optimism/self-efficacy, (3) knowledge about substance abuse, and (4) substance use. These variables were chosen by the ADAI and both tribal research teams because they represented domains that were primary targets of the intervention.

Cultural Identification and Participation in Cultural Activities

The measure of cultural identification was adapted by the research teams from measures of AI/AN identity (e.g., Multigroup Ethnic Identity Measure; Phinney, 1992; Phinney & Ong, 2007), enculturation (e.g., American Indian Enculturation Scale; Winterowd, Montgomery, Stumblingbear, Harless, & Hicks, 2008; Zimmerman, Ramirez-Valles, Washienko, Walter, & Dyer, 1996, and cultural practices (e.g., Traditional Activities Scale; Stone, Whitbeck, Chen, Johnson, & Olson, 2006;). It consisted of nine items, each rated on a 4-point Likert sale from 1 (*Strongly disagree*) to 4 (*Strongly agree*). We also asked youth how often they participated in a number of traditional Native cultural activities (e.g., singing/drumming, dancing, canoe pulling, fishing) on a scale from 1 (*Never*) to 5 (*At least once per week*).

Hope/Optimism/Self-efficacy

The Children's Hope Scale (Snyder et al., 1997), known as the Questions about Your Goals Questionnaire when used with older youth, was used to assess hope, optimism, and positive expectations about the future. The six items, rated on a 6-point scale from 1 (*None of the time*) to 6 (*All of the time*), assess two components of hope/optimism: *agency* (e.g., the perception that one can initiate and sustain action toward a desired goal) and *pathways* (e.g., perceived capability to produce routes to those goals). The scale, which has demonstrated a high degree of internal consistency in use with AI/AN youth (Gowen, Bandurraga, Jivanjee, Cross, & Friesen, 2012), has been found to be related positively to self-esteem; self-efficacy; community, cultural, and individual resilience; community mindedness; conflict management; and coping, which are components of positive youth development (Cross et al., 2011; Gowen et al., 2012; Haegerich & Tolan, 2008; Snyder, 2000; Snyder et al., 1997; Sun & Shek, 2012).

Substance Use

Substance use was assessed with items from the Washington State Healthy Youth Survey (Washington State Department of Health, 2012), a measure of substance-related health risk behaviors that contribute to morbidity, mortality, and social problems among youth in Washington State. These behaviors include frequency of alcohol, tobacco, and other drug use; behaviors that result in

unintentional and intentional injuries (e.g., violence); and related risk and protective factors (e.g., community, school, peer and individual, family). This survey is typically administered every 2 years in 6th, 8th, 10th, and 12th grades in local school districts, and is used for local and state prevention program planning.

Substance Abuse Knowledge

The knowledge test consisted of 21 true/false items that assessed factual information about tobacco, alcohol, and other drugs of abuse (e.g., "Teenagers are too young to get addicted to alcohol or drugs," "It takes the same amount of beer and wine to get a person drunk," "Pain medications are safe to use even if you don't have a prescription since they are legal drugs"). The items, developed by the ADAI research team, were based on information derived from the NIDA for Teens Drug Facts (National Institute on Drug Abuse, 2011) and the National Institute on Alcohol Abuse and Alcoholism Fact Sheets (National Institute on Alcohol Abuse and Alcoholism, n.d.).

Assessment Administration Schedule

These measures were administered to the high school sample at baseline (beginning of the school year), at the end of the school year (approximately 9 months after baseline), and at a follow-up assessment 4 months after the end of school. The measures were administered to the tribal-specific workshop participants at baseline (prior to the first workshop), following the last workshop (about 3 months following baseline), and at a 4-month follow-up assessment.

In addition, as part of the post-intervention assessment (at the end of the school year or at the end of the third workshop) participants responded to open-ended questions to provide qualitative feedback and their impressions of the intervention (e.g., "How would you describe your overall experience with the HOC class?" "What was your favorite/least favorite part?" "What part[s] do you think had the most positive impact on you?" "How did participating in the HOC class affect you or your family?" "Would you recommend this class to a friend?"). Participants received $25 gift cards for the baseline, post assessment, and 4-month follow-up assessment (for a total of $75 if they completed all assessments).

ANALYSES

Suquamish High School

We evaluated the high school sample by comparing the baseline versus end-of-year and 4-month follow-up assessments. An overall analysis across time points was conducted using Friedman's Two-Way Analysis of Variance by Ranks, which is a nonparametric analog of the

parametric repeated measures analysis of variance. A Wilcoxon Signed Ranks Test, a nonparametric test of paired-sample repeated measures, was used to follow up significant differences on the Friedman's test.

Suquamish/PGST Workshops

We evaluated the intensive workshops using a quasi-experimental design, a variant of the non-equivalent group, switching replication design (Trochim, 2006). This design, while not involving random assignment to conditions, is thought to be very strong with respect to internal validity. It also allowed for two independent implementations of the intervention in each tribal community, potentially enhancing external validity or generalizability. In this design, there are typically two groups, both of which receive the intervention, but in a sequential process. In the first phase of the design, both groups are assessed at baseline, but only one receives the intervention; both are then reassessed at the post-intervention point. In the second phase, the original comparison group is now provided the intervention while the original cohort serves as the control. This design is similar to a wait-list control design and might be thought of as two parallel pre-/post-treatment control designs grafted together. That is, when the treatment is replicated, the two groups switch roles—the original control group becomes the treatment group in phase 2. By the end of the study, all participants have received the treatment. Because participants in all groups eventually receive the intervention, which was a condition stipulated by our tribal CABs, it is considered to be one of the most ethically feasible quasi-experimental designs.

The design and the comparisons are shown in Figure 3. In this variant of the design, Cohort A has a baseline assessment, receives the intervention over the specified time period, and has a post-intervention assessment and a 4-month follow-up. After a delay, Cohort B has a baseline assessment, receives the intervention over the specified time period, and has a post-intervention assessment and a 4-month follow-up. This design allows two sets of comparisons between those groups that have received the intervention and control groups. In addition, it is also possible to combine cohorts and compare pre-/post-intervention and 4-month follow-up scores. Given the small sample sizes and the non-normal distributional properties of scores, we conducted nonparametric analyses (Conover, 1999; De Muth, 2009; Nachar, 2008; Trochim, 2006). Analyses involving independent group comparisons used the Mann-Whitney-U statistic. For repeated measures across time, in a manner similar to that described for the tribal high school analyses, we conducted an overall analysis using Friedman's Two-Way Analysis of Variance by Ranks, followed by post hoc Wilcoxon Signed Ranks Test.

Figure 3
Planned Group Comparisons
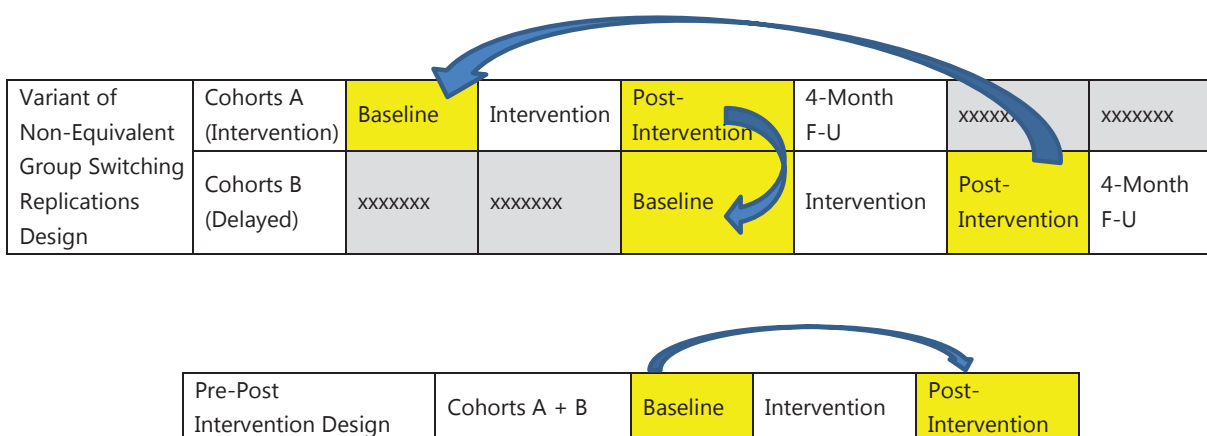
We hypothesized that involvement in the intervention would lead to increased levels of cultural identification and participation, hope/optimism/self-efficacy, and knowledge about substance abuse, and to lower levels of substance use. Based on directional hypotheses, 1-tailed probabilities were used against which to judge significance of differences.

RESULTS

Suquamish High School

Data were available for all 8 participants at baseline, 6 (75%) at the end of school and 7 (87.5%) at the 4-month follow-up assessment. At baseline, 50% of students reported having smoked cigarettes and having used marijuana; for those who reported prior use, the age of first use was 13.0 years and 10.5 years for tobacco and marijuana, respectively. Nearly two thirds (62.5%) of the students had consumed alcohol beyond a mere sip (e.g., drank a glass, can, or bottle of alcohol); their age of initial use was 12.2 years. One quarter of the sample had used pain pills to get high, with age of initial use being 16.5 years. Nearly two-thirds (62.5%) reported frequent/regular participation in cultural activities, with the remaining 37.5% having moderate levels of involvement (a few times per month); 71.4% indicated that they participated in such activities to the extent that they would like.

The results of the Friedman's test indicated that there was an overall difference across time for the measures of hope/optimism/self-efficacy ($X^2 = 6.50$, $p = 0.020$) and substance use ($X^2 = 7.43$, $p = 0.012$). Post hoc analyses indicated that the level of hope/optimism/self-efficacy increased significantly from the beginning to the end of the school year ($p = 0.021$) and remained significantly higher at the 4-month follow-up compared to the beginning of the school year ($p = 0.023$). Substance use reduced significantly from the beginning to the end of the school year ($p = 0.021$); however,

although it was still 26% lower at the 4-month follow up than at the beginning of school, it was no longer significantly different ($p = 0.051$). No differences were found on the measure of cultural identification and participation or knowledge substance abuse from the beginning of school to either the end of school or the 4-month follow-up.

Suquamish/PGST Workshops

Of the 23 participants who started the workshops, post-intervention data are available for 19 (82.6%). Of the 12 participants in the first series of workshops (Cohort A), 11 completed both the post-intervention and 4-month follow-up assessments (91.7%); of the 11 participants in the second series (Cohort B), 8 completed both post-intervention and 4-month follow-up assessments (72.7%). These rates represent an 82.6% follow-up rate at 4 months for the two cohorts combined.

In an initial analysis, we compared the two cohorts with respect to their baseline scores on the four primary measures to evaluate their comparability. There were no differences on any of these primary measures between Cohorts A and B from either community or the combined communities at baseline, indicating equivalence of participants prior to involvement in the workshops.

At baseline, over half of the combined cohorts had peviously smoked cigarettes (54.5%), while two thirds had consumed alcohol (68.2%) and used marijuana (66.7%). The ages of first use of these substances among those who had used them were 11.4, 12.1, and 13.1 years, respectively; 9.1% had used pain pills to get high. Only 39.1% of of the combined cohorts reported frequent/regular involvement in cutural activities, while an equal percentage reported low levels of involvement (once a month or less); the remaining 21.7% had moderate levels of involvement (a few times per month). Fewer than half (43.5%) of those in the combined cohorts felt that they were involved in such activities to the extent that they wanted to be.

Differences were found when those who had completed the workshop intervention (Cohort A post-intervention and Cohort B post-intervention) were compared to those who had not yet been exposed. In comparing the post-intervention assessment of Cohort A with the baseline assessment of Cohort B, Cohort A had significantly higher levels of hope/optimism/self-efficacy (Mann-Whitney-U = 20.5, Z = -2.639, p = .004, 1-tailed), and lower levels of substance use than those who had not yet received the intervention (Mann-Whitney-U = 34.5, Z = 1.71, p = .043, 1-tailed). However, neither the differences in hope/optimism/self-efficacy (U = 73.0, Z = 0.43, p = 0.333) nor those in substance use (U = 76.0, Z = 0.146) were maintained when comparing Cohort A 4-month follow-up to Cohort B baseline values. Also, there were no differences between groups with respect to cultural identity/practices when comparing Cohort A post-intervention or 4-month follow-up to Cohort B baseline values, nor were differences found between Cohort A post-intervention and Cohort

B baseline values with respect to knowledge about substance abuse; however, the comparison between Cohort A 4-month follow-up and Cohort B baseline values approached significance (U = 92.5, Z = 1.63, p = 0.051).

In the second comparison within the switching replication design, the post-intervention and 4-month follow-up scores for Cohort B were compared to the baseline scores of Cohort A. Youth who had received the intervention had significantly higher levels of cultural identity/practices (Mann-Whitney-U = 26.5, Z = -1.669, p = 0.048, 1-tailed), hope/optimism/self-efficacy (Mann-Whitney-U = 7.00, Z = -3.186, p = 0.001, 1-tailed), and knowledge about substance abuse (Mann-Whitney-U = 20.0, Z = -2.198, p = 0.014, 1-tailed) compared to those who had not yet received it. The differences with resepct hope/optimism/self-efficacy (U = 84.5, Z = 2.816, p = 0.0024) and knowledge about substance abuse (U = 68.5, Z = 2.24, p = 0.013) persisted at the 4-month follow-up, while cultural involvement approached significance at the 4-month follow-up (U = 67.0, Z = 1.466, p = 0.071). While substance use was 38% lower for those who had received the intervention compared to the baseline of those who had not, this difference was not significant (p = 0.193) at post intervention or at the 4-month follow-up (p = 0.439).

The third set of analyses combined the cohorts and examined changes from baseline to post intervention and 4-month follow-up, utilizing the Friedman's test followed by post hoc Wilcoxon Signed Ranks Test. Overall, there were significant differences across time on the measures of hope/optimism/self-efficacy (X^2 =7.914, p = 0.01), substance use (X^2 = 6.821, p = 0.017), and knowledge about substance abuse (X^2 = 4.966, p = 0.042). There was a significant increase in hope/optimism/self-efficacy (Z = -2.088, p = 0.019, 1-tailed) and a reduction in substance use (Z = -1.990, p = 0.024, 1-tailed) associated with receiving the intervention from baseline until completion of the three workshops. These differences in hope/optimism/self-efficacy (Z = -3.042, p = 0.001) and substance use (Z = -1.838, p = 0.033) remained significant at the 4-month follow-up compared to baseline. Although knowledge about drugs of abuse was not significant at post intervention (Z = -1.491, p = 0.068), it was significantly different at the 4-month follow-up (Z = - 2.502, p = 0.006).

Qualitative Information

Qualitative data from the Phase I external evaluation key stakeholder interviews and focus groups (Randall, 2008), and from the open-ended questions asked of youth participants at post intervention, reflect the communities' and youths' positive appraisal of the project, as well as the perceived community- and participant-level benefits attributed to involvement. This finding is reflected in the following exemplary quotations:

Responses from adult community members:

I think that the way that they have been able to combine the culture activities with the drug and alcohol prevention information and being able to combine those two things into one class has really been instrumental. I don't think anybody has done that really well in combining those two things.

I think that everyone benefits from it because even people who aren't involved in Healing of the Canoe, you know, they're still involved in the sense that the Healing of the Canoe is thinking about them. And weighing out all of these things that happen and basing it and really trying to see how it ripples throughout the rest of the community. Because I can tell you my experience, or somebody else can tell you their experience, but really it has to do with the rest of the community. And so Healing of the Canoe, definitely I think it benefits everybody that is in the surrounding area and then even farther.

Everyone has input into the project. We review the input and the kids review the input. It is a good way of doing it. Something everyone collaborated on. I saw my grandson blossom into a leader.

Responses from youth participants:

 I think that going to…or having Healing of the Canoe as a class in high school definitely helped me and also made changes in some of the other kids' lives.
 It was a good learning opportunity and a great experience. Good way to learn knowledge about drugs and alcohol. The people that I got a chance to learn with we strengthened our bond over the three workshops. Gained a better friendship with the other students.

It's very educational with culture and drugs and alcohol, expressing yourself, building a lil' community in a lil' class.

DISCUSSION

Community Engagement

HOC project development was predicated on an increased empirical and Indigenous knowledge evidence base suggesting that programs derived from the community and incorporating tribal-specific culture, values, and traditions are more acceptable, and may have a more positive impact, than interventions developed with majority populations (Brown et al, 2012; Hawkins et al., 2004; Kenyen & Hanson, 2012; Lowe et al., 2012; Moran & Reaman, 2002; Okamoto et al., 2014). The development process incorporated a number of key components previously noted as contributing to successful development, adaptation, and acceptance of interventions in AI/AN communities (Moran & Reaman, 2002; Trimble, 1992). These included establishing a collaborative working relationship and actively involving the communities; incorporating local tribal cultural values, customs, lifeways, and activities; and training community paraprofessionals to deliver the program. Clearly, our development process incorporated the spirit of and processes inherent in CBPR/TPR, and exemplified the principles of community engagement (Duffy et al., 2011). The curricula developed in the HOC project and evaluated in the present paper were based on these principles. They incorporate evidence-based components from standard interventions (e.g., social skills training, decision making, problem solving, emotional regulation), and were adapted to be consistent with and presented in the context of the values, culture, and traditions associated with the Canoe Journey and of the Suquamish Tribe and PGST. Such skills are important to complete the Canoe Journey successfully, as well as to navigate through life without being pulled off course by alcohol and drugs (Hawkins & La Marr, 2012).

Overall Findings

Despite the small sample sizes involved, there is support for the delivery of the expanded Holding Up Our Youth curriculum in the high school; participation was associated with increased hope/optimism/self-efficacy from baseline through the 4-month follow-up and with reduced substance use from baseline until the end of the school year. Similarly, there is support for the adapted Holding Up Our Youth and Navigating Life the S'Klallam Way curricula delivered in the workshop format. Workshop participants consistently demonstrated higher levels of hope/optimism/ self-efficacy across comparisons. In at least one of the cohort analyses, participation in the curricula also was associated with higher levels of cultural identity and practices, knowledge of alcohol and drugs, and lower levels of substance use than for those youth who had not yet participated. These

differences were all in the hypothesized direction. Thus, the curricula appear to have demonstrated effectiveness in addressing the primary concern identified by the communities—namely, youth substance use and abuse.

Cultural Identity and Participation in Cultural Activities

Somewhat surprisingly, we did not find consistent evidence of increased cultural identity among participants, or an increase in their cultural activities. It is possible that the measures utilized did not fully assess these constructs adequately; the addition of a more qualitative approach might have been more helpful in identifying them. A positive change was found in one of the analyses in the cohort comparisons, but not in the other, and not in the high school sample. The level of cultural activity in the high school sample at baseline was already quite high; that is, 100% of the high school youth reported moderate to high levels of participation (at least a few times per month), and over 70% indicated that they were satisfied with this level. As such, there may have been a "ceiling effect" with less probability of change among these youth. In contrast, youth who participated in the workshops were less actively involved in cultural practices at baseline. Nearly 40% of the combined cohorts reported low levels of involvement (once a month or less), with 56.5% at baseline saying that they were not participating as much as they would like. Given that the intervention demonstrated an increase in traditional activities in this group, it may be most effective among those youth who enter the program with lower levels of cultural involvement—consistent with one of the goals the communities had identified.

A community-based cultural mental health intervention for AI/AN youth and their families in the Southwest had a similar finding (Goodkind, LaNoue, Lee, Freeland, & Freund, 2012). While participants demonstrated increased cultural identity, the intervention did not lead to increased participation in traditional cultural activities. The authors suggest that, while youth may have gained cultural knowledge and interest, it may take time to translate this knowledge into practice. They also noted the importance of providing ongoing opportunities for youth to participate in traditional cultural learning and activities. Consistent with this latter point, the communities in the present study incorporated many activities to ensure that youth had opportunities to participate and to increase their interactions with other tribal members, including community events, presentations in classes by Elders and mentors, and projects that introduced students to community members and tribal programs.

Increased Hope/Optimism/Self-efficacy

The most consistent finding across all the analyses was an increase in, and maintenance of, a sense of hope/optimism/self-efficacy. Hope and optimism represent core competencies in substance abuse prevention and are components of positive youth development (Haegerich & Tolan, 2008; Lam et al., 2011). Higher levels of hope and optimism and a positive future orientation have also been found to predict lower levels of depressive symptoms, alcohol use, and heavy drinking in early adolescence and into early adulthood among Canadian Aboriginal youth (Ames, Rawana, Gentile, & Morgan, 2015; Rawana & Ames, 2012). As such, substance abuse prevention interventions should focus on increasing hope and optimism as elements of positive youth development (Lam et al., 2011).

Some researchers have suggested that substance abuse prevention programs for AI/AN youth might be more effective if they target entire communities rather than specific individuals (Hawkins et al., 2004). Although the HOC interventions focused on the individual level, community members actively participated in their development and implementation, the project was conducted in partnership with tribal agencies, tribal members were employed as research and facilitator staff, and the research team made regular presentations to the CABs and Tribal Councils and provided ongoing communication about the project in newspaper articles and community meetings. In addition, university-based team members spent (and still spend) a considerable amount of time in the communities, attending events and ceremonies and volunteering when appropriate. The project's early Phase I university-community partnership development process was selected by representatives from federal health agencies as one of 12 case examples of the effective use of the principles of community engagement (Duffy, Aguilar-Gaxiola, McCloskey, Ziegahn, & Silberberg, 2011; Thomas et al., 2009). These efforts led to the acceptance of the research and curricula by, and the perceived impact on, the broader community. It is clear from qualitative statements from community members and youth participants that the interventions were viewed as beneficial at both the individual participant and community levels.

Study Limitations

The present study has a number of limitations. First, the study must be viewed as preliminary in nature. The results are based on a small sample derived from a yearlong high school class and a series of intensive workshops. While both tribal communities are relatively small, the sample also was restricted due to community-driven changes in the target age group and the availability of venues in which the curricula were delivered (e.g., the Suquamish tribal high school closure; it should be noted that the high school has reopened, two of the high school teachers have been trained in the delivery of the Holding Up Our Youth curriculum, and the intervention is once again

being delivered as part of the school's offerings). While the small sample size may limit statistical power and generalizability, significant changes in key outcomes still were obtained over time and across settings. The fact that differences were obtained in both the high school and the workshop samples also speaks to the flexibility and adaptability of the core curricula.

A second concern was the design employed in evaluating the curricula. The high school evaluation used a pre-/post design and can be faulted for lack of a non-intervention comparison group. However, given the preliminary nature of the study and the small size of the student body, this was the most feasible approach available. We employed comparison groups to evaluate the workshops in a quasi-experimental design. We considered random assignment; however, our CABs both objected. They felt that if the proposed intervention might be effective, then it should be provided to all youth. As such, we chose the non-equivalent switching replication design, which has been described as very strong with respect to internal validity, and as one of the most ethically feasible quasi-experimental designs because participants in all groups eventually receive the intervention.

A third potential limitation was the conduct of the study in two different tribal communities with curricula developed in each. However, the core elements of the two curricula were the same; what differed were the tribal-specific traditions, values, and cultural activities that were inserted into the placeholders for each session. This approach facilitates the generalizability of the curricula across tribal communities while maintaining their evidence-based components, and allows integration of cultural elements in a way that accommodates the diversity across AI/AN populations (Hawkins & La Marr, 2012; Moran & Reaman, 2002). This flexibility is important now that the project is in Phase III, a dissemination phase in which we are providing 2-day trainings to tribal communities. These trainings cover the curricula, how to assess community needs and resources, how to engage the community in the curriculum adaptation process, how to determine a metaphor that best fits the community's context (e.g., we have trained a number of non-coastal tribes for which the canoe is not appropriate, but other types of journeys or metaphors fit), and how to tailor the curriculum with tribal-specific values, traditions, and activities to fill into the placeholders. In addition, we hold weekly technical assistance calls and/or webinars for individuals who have participated in the trainings. From February through December 2014, we trained 85 individuals from 17 tribes and five tribal organizations to adapt and implement the generic HOC curriculum template for their communities or organizations.

CONCLUSION

While acknowledging the preliminary nature of the current report, and the need for additional research with larger samples, the present findings suggest that the community-derived, culturally grounded prevention curricula represent promising practices. Integrating evidence-based components of positive youth development and tribal-specific culture, traditions, and values, the curricula have the potential of reducing substance use; increasing hope, optimism, and self-efficacy; and facilitating cultural identity. Further, it appears that a number of different delivery formats can accommodate the needs of different tribal communities. Consistent with the skills needed to successfully complete the Canoe Journey, the curricula have the potential of helping AI/AN youth stay on course as they navigate life's journey.

REFERENCES

Ames, M. E., Rawana, J. S., Gentile, P., & Morgan, A. S. (2015). The protective role of optimism and self-esteem on depressive symptom pathways among Canadian Aboriginal youth. *Journal of Youth and Adolescence, 44*(1), 142-154. doi: 10.1007/s10964-013-0016-4

Ball, J., & Janyst, P. (2008). Enacting research ethics in partnerships with indigenous communities in Canada: "Do it in a good way." *Journal of Empirical Research on Human Research Ethics, 3*(2), 33-51. doi: 10.1525/jer.2008.3.2.33

Barrera, M., & Castro, F. G. (2006). A heuristic framework for the cultural adaptation of interventions. *Clinical Psychology: Science & Practice*, 13(4): 311–316. Retrieved from http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=2&sid=7b6134fc-9a7c-4bad-921a-b8ab9fbb826a%40sessionmgr113&hid=105

Baydala, L. T., Sewlal, B., Rasmussen, C., Alexis, K., Fletcher, F., Letendre, L., . . . Kootenay, B. (2009). A culturally adapted drug and alcohol abuse prevention program for Aboriginal children and youth. *Progress in Community Health Partnerships, 3*(1), 37-46. doi: 10.1353/cpr.0.0054

Beauvais, F. (1992). Trends in Indian adolescent drug and alcohol use. *American Indian and Alaska Native Mental Health Research, 5*(1), 1-12. doi: 10.5820/AI/AN.0501.1990.1

Beauvais, F. (1996). Trends in drug use among American Indian students and dropouts, 1975-1994. *American Journal of Public Health, 86*(11), 1594-1598. doi: 10.2105/AJPH.86.11.1594

Beauvais, F., Jumper-Thurman, P., Helm, H., Plested, B., & Burnside, M. (2004). Surveillance of drug use among American Indian adolescents: Patterns over 25 years. *The Journal of Adolescent Health, 34*(6), 493-500. doi:10.1016/j.jadohealth.2003.07.019

Brave Heart, M. Y. H., & DeBruyn, L. M. (1998). The American Indian Holocaust: Healing historical unresolved grief. *American Indian and Alaska Native Mental Health Research, 8*(2), 56-78. doi: 10.5820/AI/AN.0802.1998.60

Brown, B. G., Baldwin, J. A., & Walsh, M. L. (2012). Putting tribal nations first: Historical trends, current needs, and future directions in substance use prevention for American Indian and Alaska Native youths. In C. Camp-Yeaky (Series Ed.) & S. R. Notaro (Vol. Ed.), *Advances in education in diverse communities: Research, policy and praxis. Volume 9 - Health disparities among under-served populations: Implications for research, policy and praxis* (pp. 3-47). Bingley, United Kingdom: Emerald Group Publishing Limited.

Burhansstipanov, L., Christopher, S., & Schumacher, S. A. (2005). Lessons learned from community-based participatory research in Indian country. *Cancer Control, 12*(Suppl 2), 70-76. Retrieved from http://moffitt.org/research--clinical-trials/cancer-control-journal/cancer-culture-and-literacy

Caldwell, J. Y., Davis, J. D., Du Bois, B., Echo-Hawk, H., Erickson, J. S., Goins, R. T., . . . Stone, J. B. (2005). Culturally competent research with American Indians and Alaska Natives: Findings and recommendations of the first symposium of the work group on American Indian Research and Program Evaluation Methodology. *American Indian and Alaska Native Mental Health Research, 12*(1), 1-21. doi: 10.5820/AI/AN.1201.2005.1

Castro, F. G., Barrera, M., Jr., & Martinez, C. R., Jr. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science, 5*(1), 41-45. doi: 10.1023/B:PREV.0000013980.12412.cd

Christopher, S., Saha, R., Lachapelle, P., Jennings, D., Colclough, Y., Cooper, C., . . . Webster, L. (2011). Applying Indigenous community-based participatory research principles to partnership development in health disparities research. *Family & Community Health, 34*(3), 246-255. doi: 10.1097/FCH.0b013e318219606f

Christopher, S., Watts, V., McCormick, A. K., & Young, S. (2008). Building and maintaining trust in a community-based participatory research partnership. *American Journal of Public Health, 98*(8), 1398-1406. doi: 10.2105/AJPH.2007.125757

Chu, J. P., Huynh, L., & Area'n, P. (2012). Cultural adaptation of evidence-based practice utilizing an iterative stakeholder process and theoretical framework: Problem solving therapy for Chinese older adults. *International Journal of Geriatric Psychiatry, 27*, 97-106. doi: 10.1002/gps.2698

Cochran, P. A., Marshall, C. A., Garcia-Downing, C., Kendall, E., Cook, D., McCubbin, L., & Gover, R. M. (2008). Indigenous ways of knowing: Implications for participatory research and community. *American Journal of Public Health, 98*(1), 22-27. doi: 10.2105/AJPH.2006.093641

Conover, W. J. (1999). *Practical nonparametric statistics* (3rd ed.). New York, NY: Wiley & Sons.

Cross, T. L., Friesen, B. J., Jivanjee, P., Gowen, L. K., Bandurraga, A., Matthew, C., & Maher, N. (2011). Defining youth success using culturally appropriate community-based participatory research methods. *Best Practices in Mental Health, 7*(1), 94-114. Retrieved from http://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=20311969-faba-44d9-84d5-754a3a83896f%40sessionmgr114&vid=4&hid=125

Cross, T. L., Friesen, B. J., & Maher, N. (2007). Successful strategies for improving the lives of American Indian and Alaska Native youth and families. *Focal Point, 21*(2), 10-13. http://www.pathwaysrtc.pdx.edu/pdf/fpS0704.pdf

De Muth, J. E. (2009). Overview of biostatistics used in clinical research. *American Journal of Health-System Pharmacy, 66*(1), 70-81. doi: 10.2146/ajhp070006

Duffy, R., Aguilar-Gaxiola, S., McCloskey, D. J., Ziegahn, L., & Silberberg, M. (2011). Successful examples in the field. In Clinical and Translational Science Awards Consortium Community Engagement Key Function Committee Task Force on the Principles of Community Engagement (Ed.), *Principles of Community Engagment* (2nd ed., pp. 57-89). Bethesda, MD: National Institutes of Health.

Duran, E., Duran, B., Brave Heart, M. Y. H., & Yellow Horse-Davis, S. (1998). Healing the American Indian soul wound. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 341-354). New York: Plenum Press.

Edwards, Y. (2003). Cultural connection and transformation: Substance abuse treatment at Friendship House. *Journal of Psychoactive Drugs, 35*(1), 53-58. doi:10.1080/02791072.2003.10399993

Fisher, P.A., & Ball, T.J. (2003). Tribal participatory research: Mechanisms of a collaborative model. *American Journal of Community Psychology, 32*(3-4), 207-216. doi:10.1023/B:AJCP.0000004742.39858.c5

Fisher, P. A., & Ball, T. J. (2005). Balancing empiricism and local cultural knowledge in the design of prevention research. *Journal of Urban Health, 82*(2 Suppl 3), iii44-iii55. doi:10.1093/jurban/jti063

Gone, J. P. (2007). "We never was happy living like a Whiteman": Mental health disparities and the postcolonial predicament in American Indian communities. *American Journal of Community Psychology, 40*(3-4), 290-300. doi: 10.1007/s10464-007-9136-x

Gone, J. P., & Alcantara, C. (2007). Identifying effective mental health interventions for American Indians and Alaska Natives: A review of the literature. *Cultural Diversity & Ethnic Minority Psychology, 13*(4), 356-363.doi: 10.1037/1099-9809.13.4.356

Gone, J. P., & Calf Looking, P. E. (2011). American Indian culture as substance abuse treatment: Pursuing evidence for local intervention. *Journal of Psychoactive Drugs, 43*(4), 291-296. doi: 10.1080/02791072.2011.628915

Gone, J. P., & Trimble, J. E. (2012). American Indian and Alaska Native mental health: Diverse persepctives on enduring disparities. *Annual Review of Clinical Psychology, 8*, 131-160. doi: 10.1146/annurev-clinpsy-032511-143127

Goodkind, J., LaNoue, M., Lee, C., Freeland, L., & Freund, R. (2012). Feasibility, acceptability, and initial findings from a community-based cultural mental health intervention for American Indian youth and their families. *Journal of Community Psychology, 40*(4), 381-405. doi: 10.1002/jcop.20517

Gowen, L. K., Bandurraga, A., Jivanjee, P., Cross, T., & Friesen, B. J. (2012). Development, testing, and use of a valid and reliable assessment tool for urban American Indian/Alaska Native youth programming using culturally appropriate methodologies. *Journal of Ethnic & Cultural Diversity in Social Work, 21*(2), 77-94. doi:10.1080/15313204.2012.673426

Gray, N., & Nye, P. S. (2001). American Indian and Alaska Native substance abuse: Co-morbidity and cultural issues. *American Indian and Alaska Native Mental Health Research, 10*(2), 67-84. doi: 10.5820/AI/AN.1002.2001.67

Haegerich, T. M., & Tolan, P. H. (2008). Core competencies and the prevention of adolescent substance use. *New Directions for Child and Adolescent Development, 122*, 47-60. doi: 10.1002/cd.228

Hawkins, E. H., Cummins, L. H., & Marlatt, G. A. (2004). Preventing substance abuse in American Indian and Alaska native youth: Promising strategies for healthier communities. *Psychological Bulletin, 130*(2), 304-323. doi: 10.1037/0033-2909.130.2.304

Hawkins, E. H., & La Marr, C. J. (2012). Pulling for Native communities: Alan Marlatt and the Journeys of the Circle. *Addiction Research and Theory, 20*(3), 236-242. doi:10.3109/16066359.2012.657282

Holkup, P. A., Tripp-Reimer, T., Salois, E. M., & Weinert, C. (2004). Community-based participatory research: An approach to intervention research with a Native American community. *Advances in Nursing Science, 27*(3), 162-175. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2774214/pdf/nihms127083.pdf

Indian Health Service. (2015). *IHS Fact Sheets: Indian Health Disparities*. Rockville, MD: Author. Retreived from http://www.ihs.gov/newsroom/factsheets/disparities/

Institute of Medicine. (2012). *How far have we come in reducing health disparities?* (p. 118). Washington, DC: Institute of Medicine of the National Academies.

Johnson. B.E. (2012). Canoe journeys and cultural revival. *American Indian Culture and Research Journal, 36*(2), 131-141. Retrieved from http://aisc.metapress.com/content/w241221710101249/fulltext.pdf

Jumper-Thurman, P., Plested, B. A., Edwards, R. W., Foley, R., & Burnside, M. (2004). Community readiness: The journey to community healing. In E. Nebelkopf & M. Phillips (Eds.), *Healing and mental health for Native Americans: Speaking in red*. Walnut Creek, CA: AltaMira Press.

Kenyon, D. Y. B., & Hanson, J. D. (2012). Incorporating traditional culture into positive youth development programs with American Indian/Alaska Native youth. *Child Development Perspectives, 6*(3), 272-279. doi: 10.1111/j.1750-8606.2011.00227.x

Lam, C. M., Lau, P. S. Y., Law, B. M. F., & Poon, Y. H. (2011). Using positive youth development constructs to design a drug education curriculum for junior secondary students in Hong Kong. *ScientificWorld, 11*, 2339-2347. doi: 10.1100/2011/280419

LaMarr, J., & Marlatt, G. A. (2005). *Canoe Journey Life's Journey: A life skills manual for Native adolescents*. Center City, MN: Hazelden Publishing and Educational Services.

Lane, D. C., & Simmons, J. (2011). American Indian youth substance abuse: Community-driven interventions. *Mt. Sinai Journal of Medicine, 78*(3), 362-372. doi: 10.1002/msj.20262

Larios, S. E., Wright, S., Jernstrom, A., Lebron, D., & Sorensen, J. L. (2011). Evidence-based practices, attitudes, and beliefs in substance abuse treatment programs serving American Indian and Alaska Natives: A qualitative study. *American Journal of Psychoactive Drugs, 43*(4), 355-359. doi:10.1080/02791072.2011.629159

LaVeaux, D., & Christopher, S. (2009). Contextualizing CBPR: Key principles of CBPR meet the Indigenous research context. *Pimatisiwin: A Journal of Aboriginal and Indigenous Community Health, 7*(1), 1-25. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2818123/pdf/nihms144307.pdf

Lonczak, H. S. V., Thomas, L. R., Donovan, D., Austin, L., Sigo, R. L. W., Lawrence, N., & the Suquamish Tribe. (2013). Navigating the tide together: Early collaboration between tribal and academic partners in a CBPR study. *Pimatisiwin: A Journal of Aboriginal and Indigenous Community Health, 11*(3), 395-408. Retrieved from http://www.pimatisiwin.com/online/wp-content/uploads/2014/02/05LonczakThomas.pdf

Lowe, J., Liang, H., Riggs, C., & Henson, J. (2012). Community partnership to affect substance abuse among Native American adolescents. *American Journal of Drug and Alcohol Abuse, 38*(5), 450-455. DOI: 10.3109/00952990.2012.694534

Lowe, J., Riggs, C., & Henson, J. (2011). Principles for establishing trust when developing a substance abuse intervention with a Native American community. *Creative Nursing, 17*(2), 68-73. doi: http://dx.doi.org/10.1891/1078-4535.17.2.68

Marlatt, G. A., Larimer, M. E., Mail, P. D., Hawkins, E. H., Cummins, L. H., Blume, A. W., . . . Gallion, S. (2003). Journeys of the Circle: A culturally congruent life skills intervention for adolescent Indian drinking. *Alcoholism: Clinical and Experimental Research, 27*(8), 1327-1329. doi: 10.1097/01.ALC.0000080345.04590.52

Michell, H. (2009). Gathering berries in northern contexts: A Woodlands Cree metaphor for community-based research. *Pimatisiwn: A Journal of Aboriginal and Indigenous Community Health, 7*(1), 65-73. Retrieved from http://www.pimatisiwin.com/uploads/July_2009/06Michell.pdf

Moran, J. R., & Reaman, A. (2002). Critical issues for substance abuse prevention targeting American Indian youth. *Journal of Primary Prevention, 22*(3), 201-233. doi: 10.1023/A:1013665604177

Nachar, N. (2008). The Mann-Whitney U: A test for assessing whether two independent samples come from the same distribution. *Tutorials in Quantitative Methods for Psychology, 4*(1), 13-20. Retrieved from http://www.tqmp.org/Content/vol04-1/p013/p013.pdf

National Institute on Alcohol Abuse and Alcoholism. (2011). Brochures and Fact Sheets. Bethesda, MD: Author. Retrieved from http://www.niaaa.nih.gov/publications/brochures-and-fact-sheets

National Institute on Drug Abuse. (2011). *NIDA for Teens. Drug facts*. Bethesda, MD: Author. Retrieved from http://teens.drugabuse.gov/facts/index.php

Nebelkopf, E., King, J., Wright, S., Schweigman, K., Lucero, E., Habte-Michael, T., & Cervantes, T. (2011). Growing roots: Native American evidence-based practices. Introduction. *Journal of Psychoactive Drugs, 43*(4), 263-268. doi:10.1080/02791072.2011.628909

Neel, D. (1995). *The great canoes: Reviving a Northwest coast tradition*. Seattle: University of Washington Press.

Norris, T., Vines, P. L., & Hoeffel, E. M. (2012). *The American Indian and Alaska Native population: 2010*. (C2010BR-10). Suitland, MD: U.S. Department of Commerce, U.S. Census Bureau. Retrieved from http://www.census.gov/prod/cen2010/briefs/c2010br-10.pdf

Oetting, E. R., Donnermeyer, J. F., Plested, B. A., Edwards, R. W., Kelly, K., & Beauvais, F. (1995). Assessing community readiness for prevention. *The International Journal of the Addictions, 30*(6), 659-683. doi: 10.3109/10826089509048752

Okamoto, S.K., Helm, S., Pel, S., McClain, L.L., Hill, A.P., & Hayashida, J.K.P. (2014). Developing empirically based, culturally grounded drug prevention interventions for Indigenous youth populations. *Journal of Behavioral Health Services & Research*, *41*(1), 8-19. doi: 10.1007/s11414-012-9304-0

Phinney, J. S. (1992). The Multigroup Ethnic Identity Measure: A new scale for use with diverse groups. *Journal of Adolescent Research, 7*(2), 156-176. doi:10.1177/074355489272003

Phinney, J. S., & Ong, A. D. (2007). Conceptualization and measurement of ethnic identity: Current status and future directions. *Journal of Counseling Psychology, 54*(3), 271-281. doi: 10.1037/0022-0167.54.3.271

Randall, L. L. (2008). *Evaluation for the Healing of the Canoe Project*. Seattle, WA: University of Washington Alcohol & Drug Abuse Institute.

Rawana, J. S., & Ames, M. E. (2012). Protective predictors of alcohol use trajectories among Canadian Aboriginal youth. *Journal of Youth and Adolesence, 41*(2), 229-243. doi: 10.1007/s10964-011-9716-9

Schweigman, K., Soto, C., Wright, S., & Unger, J. (2011). The relevance of cultural activities in ethnic identity among California Native American youth. *Journal of Psychoactive Drugs, 43*(4), 343-348. doi: 10.1080/02791072.2011.629155

Smokowski, P. R., Evans, C. B., Cotter, K. L., & Webber, K. C. (2014). Ethnic identity and mental health in American Indian youth: Examining mediation pathways through self-esteem, and future optimism. *Journal of Youth and Adolesence, 43*(3): 343-355. doi: 10.1007/s10964-013-9992-7

Snyder, C. R. (2000). *Handbook of hope: Theory, measures, and applications*. San Diego, CA: Academic Press.

Snyder, C. R., Hoza, B., Pelham, W. E., Rapoff, M., Ware, L., Danovsky, M., . . . Stahl, K. J. (1997). The development and validation of the Children's Hope Scale. *Journal of Pediatric Psychology, 23*(3), 399-421. doi: 10.1093/jpepsy/22.3.399

Stone, R. A., Whitbeck, L. B., Chen, X., Johnson, K., & Olson, D. M. (2006). Traditional practices, traditional spirituality, and alcohol cessation among American Indians. *Journal of Studies on Alcohol, 67*(2), 236-244. Retreived from www.jsad.com

Struthers, R., & Lowe, J. (2003). Nursing in the Native American culture and historical trauma. *Issues in Mental Health Nursing, 24*(3), 257-272. doi:10.1080/01612840305275

Substance Abuse and Mental Health Services Administration (SAMHSA). (2010). *Substance Use among American Indian or Alaska Native Adults. National Survey on Drug Use and Health Report: The NSDUH Report*. Rockville, MD: Author. Retrieved from http://www.oas.samhsa. gov/2k10/182/AmericanIndian.htm

SAMHSA. (2011). *Substance use among American Indian or Alaska Native adolescents. National Survey on Drug Use and Health Report: The NSDUH Report*. Rockville, MD: Author. Retrieved from http://oas.samhsa.gov/2k11/005/WEB_SR_005.htm

Sun, R. C., & Shek, D. T. (2012). Beliefs in the future as a positive youth development construct: A conceptual review. *ScientificWorldJournal, 2012:527038*. doi: 10.1100/2012/527038

Thomas, L. R., Donovan, D. M., & Sigo, R. L. W. (2010). Identifying community needs and resources in a Native community: A research partnership in the Pacific Northwest. *International Journal of Mental Health and Addiction, 8*(3), 362-373. doi: 10.1007/s11469-009-9233-1

Thomas, L. R., Donovan, D. M., Sigo, R. L. W., Austin, L., Marlatt, G. A., & the Suquamish Tribe. (2009). The community pulling together: A tribal community-university partnership project to reduce substance abuse and promote good health in a reservation tribal community. *Journal of Ethnicity in Substance Abuse, 8*(3), 283-300. doi: 10.1080/15332640903110476

Thomas, L. R., Donovan, D. M., Sigo, R. L. W., & Price, L. (2011). Community-based participatory research in Indian Country: Definitions, theory, rationale, examples, and principles. In P. Spicer, P. Farrell, M. Sarche & H. E. Fitzgerald (Eds.), *American Indian and Alaska Native children and mental health. Vol 1: Development, context, prevention, and treatment* (pp. 165-187). Santa Barbara, CA: Praeger.

Thomas, L. R., Rosa, C., Forcehimes, A., & Donovan, D. M. (2011). Research partnerships between academic institutions and American Indian and Alaska Native tribes and organizations: Effective strategies and lessons learned in a multisite CTN study. *American Journal of Drug and Alcohol Abuse, 37*(5), 333-338.   doi: 10.3109/00952990.2011.596976

Trimble, J. E. (1992). A cognitive-behavioral approach to drug abuse prevention and intervention with American Indian youth. In L. Vargas & J. Koss-Chioino (Eds.), *Working with culture*. San Francisco: Jossey-Bass.

Trimble, J. E., & Beauvais, F. (2001). Prevention of alcoholism, drug abuse, and health problems among American Indians and Alaska Natives: An introduction and overview. In *Health promotion and substance abuse prevention among American Indian and Alaska Native communities: Issues in cultural competence* (pp. 1-33). Publication No. (SMA) 99-3440. Rockville, MD: U.S. Department of Health and Human Services.

Trochim, W. M. (2006, October 20). *Research methods knowledge base*. Retrieved from http://www.socialresearchmethods.net/kb/

U.S. Census Bureau. (2011). *Profile America: Facts for Features: American Indian and Alaska Native Heritage Month: November 2011*. Retrieved from https://www.census.gov/newsroom/releases/archives/facts_for_features_special_editions/cb11-ff22.html

Walters, K. L., & Simoni, J. M. (2002). Reconceptualizing native women's health: An "indigenist" stress-coping model. *American Journal of Public Health, 92*(4), 520-524. doi: 10.2105/ajph.92.4.520

Washington State Department of Health. (2012). *Washington State Healthy Youth Survey*. Retrieved from http://www.doh.wa.gov/DataandStatisticalReports/HealthBehaviors/HealthyYouthSurvey.aspx

Washington Indian Gaming Association. (2014). *Tribal canoe journeys*. Olympia, WA: Author. Retrieved from http://www.washingtontribes.org/default.aspx?ID=50.

Wexler, L. (2011). Behavioral health services "don't work for us": Cultural incongruities in human service systems for Alaska Native communities. *American Journal of Community Psychology, 47*, 157-169. doi: 10.1007/s10464-010-9380-3

Whitbeck, L. B., Johnson, K. D., Hoyt, D. R., & Walls, M. L. (2006). Prevalence and comorbidity of mental disorders among American Indian children in the Northern Midwest. *The Journal of Adolescent Health, 39*(3), 427-434. doi:10.1016/j.jadohealth.2006.01.004

Whitbeck, L. B., Walls, M. L., & Welch, M. L. (2012). Substance abuse prevention in American Indian and Alaska Native communities. *American Journal of Drug and Alcohol Abuse, 38*(5), 428-435. doi: 10.3109/00952990.2012.695416

Whitesell, N. R., Beals, J., Big Crow, C., Mitchell, C. M., & Novins, D. K. (2012). Epidemiology and etiology of substance use among American Indians and Alaska Natives: Risk, protection, and implications for prevention. *American Journal of Drug and Alcohol Abuse, 38*(5), 376-382. doi: 10.3109/00952990.2012.694527

Whitesell, N. R., Kaufman, C. E., Keane, E. M., Crow, C. B., Shangreau, C., & Mitchell, C. M. (2012). Patterns of substance use initiation among young adolescents in a Northern Plains American Indian tribe. *American Journal of Drug and Alcohol Abuse, 38*(5), 383-388. DOI: 10.3109/00952990.2012.694525

Winterowd, C., Montgomery, D., Stumblingbear, G., Harless, D., & Hicks, K. (2008). Development of the American Indian Enculturation Scale to assist counseling practice. *American Indian and Alaska Native Mental Health Research, 15*(2), 1-14. doi.org/10.5820/aian.1502.2008.1

Zimmerman, M. A., Ramirez-Valles, J., Washienko, K. M., Walter, B., & Dyer, S. (1996). The development of a measure of enculturation for Native American youth. *American Journal of Community Psychology, 24*(2), 295-310. doi: 10.1007/BF02510403

ACKNOWLEDGEMENTS

AUTHOR INFORMATION

Dr. Donovan is Director of the Alcohol and Drug Abuse Institute at the University of Washington and Professor in the Department of Psychiatry & Behavioral Sciences at the University of Washington School of Medicine, Seattle, WA. He is Principal Investigator of the Healing of the Canoe project and the corresponding author and can be reached at ddononvan@uw.edu.

Dr. Thomas is a Research Scientist at the Alcohol and Drug Abuse Institute at the University of Washington and the Indigenous Wellness Research Institute at the University of Washington School of Social Work, Seattle, WA, and currently the Director of the Suquamish Tribe Wellness Program.

Ms. Sigo is with the Suquamish Tribe, Port Madison Reservation, Suquamish, WA. She is the Principal Investigator of the Suquamish component of the Healing of the Canoe project and served as one of the Facilitators. She is currently the Director of the Grants Department and member of the Tribal Council of the Suquamish Tribe.

Ms. Laura Price is with the Port Gamble S'Klallam Tribe, Port Gamble Reservation, Little Boston, WA. She is the Principal Investigator of the Port Gamble S'Klallam component of the Healing of the Canoe project and served as one of the Facilitators. She is also the skipper of the Tribe's Youth Canoe.

Dr. Lonczak was a Research Scientist with the Alcohol and Drug Abuse Institute and is currently a Research Project Coordinator, Harborview Medical Center, Department of Psychiatry & Behavioral Sciences, at the University of Washington School of Medicine, Seattle, WA.

Mr. Nigel Lawrence is with the Suquamish Tribe, Port Madison Reservation, Suquamish, WA. He served as one of the Healing of the Canoe Facilitators for the Suquamish Tribe. He is a member of the Suquamish Tribal Council and is a skipper of the Tribe's Youth Canoe.

Ms. Ahvakana is with the Suquamish Tribe, Port Madison Reservation, Suquamish, WA. She served as one of the Healing of the Canoe Facilitators for the Suquamish Tribe. She is currently the Program manager for the Suquamish Tribe's Sports & Recreation Department.

Ms. Austin is a Research Coordinator for the Healing of the Canoe project at the Alcohol and Drug Abuse Institute at the University of Washington, Seattle, WA.

Ms. Albie Lawrence is with the Suquamish Tribe, Port Madison Reservation, Suquamish, WA. She served as one of the Healing of the Canoe Facilitators for the Suquamish Tribe.

Mr. Joseph Price is with the Port Gamble S'Klallam Tribe, Port Gamble Reservation, Little Boston, WA. He served as one of the Healing of the Canoe Facilitators for the Port Gamble S'Klallam Tribe. He is a Youth Services Specialist and is a member of the Port Gamble S'Klallam Canoe Family.

Ms. Purser is with the Port Gamble S'Klallam Tribe, Port Gamble Reservation, Little Boston, WA. She served as the Healing of the Canoe Youth Specialist for the Port Gamble S'Klallam Tribe.

Ms. Bagley is with the Suquamish Tribe, Port Madison Reservation, Suquamish, WA. She served as the Healing of the Canoe Youth Specialist for the Suquamish Tribe She currently works as an One-on-One Aide in the Suquamish Tribe's Early Learning Center.

LATENT CLASS ANALYSIS OF SUBSTANCE USE AND AGGRESSIVE BEHAVIOR IN RESERVATION-BASED AMERICAN INDIAN YOUTH WHO ATTEMPTED SUICIDE

Elizabeth D. Ballard, PhD, Rashelle J. Musci, PhD, Lauren Tingey, MSW, MPH, Novalene Goklish, Francene Larzelere-Hinton, Allison Barlow, PhD, and Mary Cwik, PhD

Abstract: American Indian (AI) adolescents who attempt suicide are heterogeneous. A latent class analysis was used to identify subgroups of reservation-based AI adolescents with recent suicide attempts. Indicators of class membership were substance abuse and aggressive behaviors; clinical correlates of subgroup membership included risky sexual behavior and recent exposure to suicidal behavior. Three subgroups were identified, representing low, medium, and high substance use and aggressive behavior. Suicide exposure was associated with membership in the lowest risk behavior subgroup; risky sexual behavior was associated with membership the highest risk behavior subgroup. Findings suggest a continuum of risk behaviors in reservation-based AI youth who attempt suicide.

Suicide among reservation-based American Indian (AI) youth is a significant public health concern and impacts entire communities. Deaths by suicide peak in AI adolescents and young adults, rather than among older adults as seen in non-AI populations (Mullany et al., 2009; Wexler, Silveira, & Bertone-Johnson, 2012). Suicide rates among AI adolescents on the reservation in the current study are 128.5 per 100,000, 13 times higher than general U.S. adolescent rates (Mullany et al., 2009). Many reservation-based AI youth will have one, if not multiple, members of their social network who have attempted or died by suicide (Wissow, Walkup, Barlow, Reid, & Kane, 2001). While adolescent suicide has a devastating impact on AI reservations, these communities also have unique assets for suicide prevention embedded in traditional culture, language, involvement of elders with youth, and tribal sovereignty that can yield innovative community-based interventions (Barlow & Walkup, 2008; Henry, Allen, Fok, Rasmus, & Charles, 2012; Wallerstein & Duran, 2006). Therefore, approaches to youth suicide prevention on reservations should be as multi-faceted as the communities themselves (Wexler & Gone, 2012).

A critical issue for building a comprehensive suicide prevention program is the heterogeneity of at-risk individuals (Novins, Beals, Roberts, & Manson, 1999). A host of factors may lead an adolescent to consider suicide, each with specific implications for treatment and future prevention efforts. The current body of research among AIs is limited in that it relies largely on analyses that do not take into account the continuum of risk behaviors, such as substance use, aggression, depression, and previous suicide attempt that relate to suicide risk. One potential method of identifying subgroups for targeted prevention is Latent Class Analysis (LCA), a person-centered analysis that identifies classes of individuals based on their responses to a series of indicators. LCAs have been conducted with adolescents who have attempted suicide using national (Pena, Matthieu, Zayas, Masyn, & Caine, 2012) and state data (Jiang, Perry, & Hesser, 2010), as well as among specific ethnic groups (Wong & Maffini, 2011). These studies have used indicators such as substance abuse, aggression, and depression, but none has focused specifically on AI adolescents.

Understanding potential subgroups among AI adolescents who attempt suicide is an essential step toward AI suicide prevention. Depending on the profile of risk, interventions could focus on individual, family, and/or community-level factors (Wexler & Gone, 2012). In past studies, substance use (including alcohol and drug use) and aggressive behavior were correlated with increased suicidal ideation and attempts in samples of AI, Alaska Native, and First Nations adolescents (Mota et al., 2012; Shaughnessy, Doshi, & Jones, 2004; Yoder, Whitbeck, Hoyt, & LaFromboise, 2006). According to the National Violent Death Reporting System, blood alcohol content is higher among AIs at the time of suicide death than among other ethnic groups (Caetano et al., 2013). Over half of one sample of reservation-based AI adolescents was intoxicated at the time of suicide attempt or death (Barlow et al., 2012). Aggressive behavior, including being in a physical fight, has been associated with lifetime suicide attempt in analyses of responses from the Youth Risk Behavior Survey in AI high school students (Shaughnessy et al., 2004). Substance use and aggression have been shown to cluster in LCA of a nationally representative sample of high school-age suicide attempters that excluded AI students due to sample size (Pena et al., 2012). In this sample, physical fights, binge drinking (five or more alcoholic drinks on one occasion), and marijuana and other substance use co-occurred across three latent classes, which were designated "low," "high," or "extreme" depending on their level of risk behavior (Pena et al., 2012).

Other risk factors may have a differential impact on suicidal behaviors among AI adolescents. Depression is a well-established suicide risk factor among general U.S. adolescent samples (Nock et al., 2013; Portzky, Audenaert, & van Heeringen, 2005), but has shown a weaker relationship with AI adolescent suicide (Novins et al., 1999; Yoder et al., 2006). Risky sexual behavior, including sex without a condom, has been associated with suicide attempt (Epstein & Spirito, 2009; Shaughnessy et al., 2004); the fact that 46% of AI females bear children in adolescence, compared to 25% for

U.S. All Races (Indian Health Service, 2001), suggests that AI adolescent females are a high-risk subgroup. Lastly, high exposure to suicidal behavior by friends or family in some reservation communities has been associated with increased rates of lifetime suicide attempt, as well as with suicide clusters (Burke et al., 2010; Wissow et al., 2001). Understanding subgroups of suicidal individuals based on indicators of substance use and aggressive behavior allows us to identify those individuals at risk for subsequent suicidal behaviors and to develop tailored interventions. Additionally, with the identification of these subgroups, we can explore subgroup differences in predictors and outcomes of class membership.

The primary aim of this project was to identify subgroups of individuals from a sample of AI adolescents who attempted suicide through LCA of substance use and aggressive behavior. In this paper, we evaluate the impact of age, gender, and suicide exposure on class membership, as well as the association between class membership and history of multiple attempts, depression, and risky sexual behavior. Age and gender were included due to the relationship of these variables to suicide attempts (Brent, Baugher, Bridge, Chen, & Chiappetta, 1999), and multiple attempts was included as an outcome due to its relationship to later suicide death (Suominen et al., 2004). It was hypothesized that substance use and aggressive behavior would co-occur, as seen in other national analyses. We also hypothesized that depression, risky sexual behavior, and exposure to suicide would be associated with class membership.

METHODS

Population and Participants

The study population is the White Mountain Apache Tribe of approximately 17,100 enrolled members. Study participants were AI adolescents ages 13-18 years who made a recent suicide attempt (past 90 days) and resided on the White Mountain Apache Reservation in Northeastern Arizona.

Recruitment and Data Collection

Participants were identified and recruited between November 2006-June 2011 via the Apache Surveillance System and were enrolled into one of two studies: a descriptive exploration of risk and protective factors or a pilot of a brief, emergency department-linked intervention (Cwik et al., in press; Cwik, 2015). The Apache Surveillance System, described in detail elsewhere (Barlow et al., 2012; Cwik et al., 2014; Mullany et al., 2009), is a tribal-initiated system in which all members of the community are mandatory reporters of suicidal ideation, attempt, and death. After a report is made to the surveillance system, in-person follow-up is initiated to confirm the events, gather details, and facilitate connections to care (Cwik et al., 2014).

Parents/legal guardians for participants under the age of 18 years and participants age 18 years gave informed consent, and participants age 17 years and under gave assent. Apache study staff collected data via self-report surveys (described below), either in the participant's home or the study office, over 1-2 visits (approximately 2-4 hours). Participants received gift cards for completion of study measures.

Human Subjects Review

Both studies were reviewed and approved by the Johns Hopkins and Phoenix Area Indian Health Service Institutional Review Boards, and the White Mountain Apache Health Advisory Board and Tribal Council. This manuscript represents a secondary data analysis of these studies, and was reviewed and approved by the White Mountain Apache Health Advisory Board and Tribal Council.

Measures

The Youth Risk Behavior Survey (YRBS) is self-report measure administered nationally in high schools by the Centers for Disease Control and Prevention to assess a variety of high-risk behaviors. YRBS items have shown good reliability (Brener et al., 2002) and validity (May & Klonsky, 2011) and have been used with several AI samples (Borowsky, Resnick, Ireland, & Blum, 1999; Pavkov, Travis, Fox, King, & Cross, 2010). The 2005 version was used to assess indicator variables in the LCA—1) physical fights, 2) binge drinking, and 3) marijuana use—using individual items from the YRBS and original response categories (i.e., non-collapsed); 4) substance use was assessed by collapsing the lifetime use of cocaine, heroin, inhalant, and methamphetamine variables (see Table 1 for response categories). For substance use, the highest frequency of use for any of the four substances was coded (Pena et al., 2012). Items from the YRBS assessing multiple suicide attempts and sexual behavior were included to test possible associations with class membership. These variables were collapsed due to power concerns. Multiple suicide attempts in the past year were dichotomized into "one attempt" or "two or more suicide attempts." Sexual behavior was categorized as either "no sexual intercourse," "sexual intercourse with a condom," or "sexual intercourse without a condom."

The Center for Epidemiologic Studies Depression Scale (CES-D) is a widely used self-report measure of depressive symptoms (Radloff, 1977) and has been used with AI samples (Somervell et al., 1992). Standard scoring procedures were used to categorize depressive symptoms into low, medium, and high subgroups.

Table 1
Physical Fights, Alcohol Use, and Marijuana and Other Substance Use in Study Sample

		n	Percent
Physical fight in last 12 months	0 times (*Fight1*)	22	24
	1 time (*Fight2*)	21	23
	2 or 3 times (*Fight3*)	28	30
	4 or 5 times (*Fight4*)	8	9
	6 or 7 times (*Fight5*)	2	2
	8 or 9 times (*Fight6*)	3	3
	10 or 11 times (*Fight7*)	4	4
	12 or more times (*Fight 8*)	5	5
Drank 5+ alcohol drinks at one time in last 30 days	0 days (*Alc1*)	40	43
	1 day (*Alc2*)	19	20
	2 days (*Alc3*)	11	12
	3 to 5 days (*Alc4*)	15	16
	6 to 9 days (*Alc5*)	5	5
	10 to 19 days (*Alc6*)	2	2
	20+ days (*Alc7*)	0	0
Marijuana, lifetime	0 times (*Mj1*)	15	16
	1 or 2 times (*Mj2*)	15	16
	3 to 9 times (*Mj3*)	12	13
	10 to 19 times (*Mj4*)	10	11
	20 to 39 times (*Mj5*)	9	10
	40 to 99 times (*Mj6*)	16	17
	100+ times (*Mj7*)	16	17
Other substances (heroin, cocaine, methamphetamine, inhalants), lifetime	0 times (*Subst1*)	53	57
	1 or 2 times (*Subst2*)	16	17
	3 to 9 times (*Subst3*)	13	14
	10 to 19 times (*Subst4*)	5	5
	20 to 39 times (*Subst5*)	2	2
	40+ times (*Subst6*)	4	4

The Voices of Indian Teens-Happenings Scale (VOIT) is a self-report measure of stressful events related to family, school, relationships, major life changes, and illness (Manson, 1991). Items assessing the suicide attempt of a family member or friend in the last 6 months were dichotomized into "yes" or "no" responses.

Data Analysis

LCA was performed with the four YRBS items as indicators measuring aggressive behavior and substance use as indicators of class membership using Mplus v.7.1 software (Muthén & Muthén, 1998-2013). We did not collapse the variables in order to replicate findings from Pena et al. (2012) in a reservation-based AI sample and to obtain a more fine-grained detail about the behavior. Analysis began with class enumeration, whereby models were fit with an increasing number of classes, without the inclusion of covariates (Nylund, Asparouhov, & Muthén, 2007). Bayesian information criterion (BIC), Lo-Mendell-Rubin Likelihood Ratio Test (LMR LTR; Nylund et al., 2007), Bootstrapped Likelihood Ratio Test (BLRT), and entropy are standard structural equation modeling fit statistics that were used to compare model fit during class enumeration. As stated by Nylund et al. (2007), the BLRT represents a "very consistent" indicator of number of classes when compared to other approaches. In addition to these traditional fit statistics, we also explored how each set of classes fit within our substantive theory that there would be subgroups of reservation-based AI adolescents who have attempted suicide in order to inform the number of classes. Once the number of classes was chosen using these fit statistics, predictors of class membership (i.e., age, gender, suicide exposure) and outcomes (i.e., multiple attempts, depression, sexual behavior) were added to the model. All of the predictors (age, gender and suicide exposure) were included in the membership model as covariates, so that the fit statistics assessed the model as a whole. The final model was run in Mplus using these predictors and outcomes. Predictors of class membership were evaluated using logistic regression; outcomes were evaluated using chi-square analyses. Because of the small sample size, we were reluctant to run additional analyses of potential outcomes using continuous (i.e. non-dichotomous) variables. Other variables were not included in the model if the data were incomplete (e.g., method of attempt, $n = 81$), as we did not want to reduce the sample size. Missing data were handled in Mplus using full information maximum likelihood estimation (Muthén & Muthén, 1998-2013), which adjusts the parameter estimates from all available information (Muthén & Shedden, 1999; Schafer & Graham, 2002). For these models to converge successfully, Mplus requires the proportion of data available for each study variable and between each pair to be at least 0.10 (Muthén & Muthén, 1998-2013). Coverage for all variables and comparisons was approximately 0.989 in the current study.

RESULTS

Sample Characteristics

A total of 93 participants were included in the analyses. 67% ($n = 62$) were female and the average age was 15.6 years ($SD = 1.9$). Of the participants with data on suicide attempt method ($n = 81$), 32% ($n = 26$) attempted suicide by alcohol/drug overdose, 30% ($n = 24$) by hanging/asphyxiation, 28% (n = 23) by laceration, and 10% ($n = 8$) by jumping.   Twenty percent ($n = 19$) reported that a family member and 39% ($n = 36$) that a friend had attempted suicide in the past 6 months. The majority (68%, $n = 64$) met criteria for moderate to severe depression and a substantial proportion (38%, $n = 35$) reported two or more suicide attempts. Twenty-three percent ($n = 21$) indicated they had had sex without a condom at their last sexual encounter.

Table 1 presents data on physical fights, binge drinking, and marijuana and other substance use in the study sample. The majority reported lifetime marijuana use (84%, $n = 78$), had been in a physical fight during the past 12 months (76%, $n = 71$), and had drunk five or more alcoholic drinks in the past 30 days (56%, $n = 53$). The majority of the sample had never used heroin, cocaine, methamphetamine, or inhalants in their lifetime (57%, $n = 53$).

Number and Description of Subtypes

Using the fit statistics from Table 2, a three-class model provided the best fit. The sample size adjusted BIC was at its lowest point (1239.25) for the three-class model, which indicated adequate fit with the most parsimonious model. Entropy was suitably high (.871, scores closer to 1 indicate better classification quality). A nonsignificant BLRT indicated that a four-class solution was not needed (Nylund et al., 2007).

Table 2
Model Fit Statistics for Sample Estimating 1 Through 4 Subgroups

| Class	Log Likelihood	# of Free Parameters	SSA BIC[a]	LMR-LRT p Value	BLRT p Value	Entropy	Smallest Class
1-class	-624.625	23	1282.073	n/a	n/a	n/a	n/a
2-class	-587.343	47	1241.179	0.85	0	0.842	.33 (32)
3-class	-568.963	71	1239.251	0.911	0	0.871	.19 (19)
4-class	-552.912	95	1241.401	0.7662	0.25	0.918	.10 (9)

[a] SSA BIC is the sample size adjusted BIC value.

Regarding the three subgroups, 20% of participants ($n = 19$) were in the "high-risk behavior" subgroup, 58% ($n = 54$) were in the "moderate-risk behavior" subgroup, and 22% ($n = 20$) were in the "low-risk behavior" subgroup. Stacked bar graphs of the probability of endorsing items related to physical fights, binge drinking, and marijuana and other substance use by class are presented in Figures 1-4. Suicide attempters in the high-risk behavior class were characterized by comparatively high rates of all behaviors examined—physical fights, binge drinking, and marijuana and other substance use. Of note, marijuana use was particularly high in this class in comparison to other behaviors, as well as in relation to the other classes. For suicide attempters in the moderate-risk behavior class, binge drinking and marijuana use were their most frequent risk behaviors; other substance abuse propensity was low, but not quite as low as in the low-risk behavior class. The moderate-risk behavior class had less propensity for physical fights, comparable to the low-risk behavior class. Suicide attempters in the low-risk behavior class were characterized by low rates of behaviors across categories, including almost nonexistent use of other substances according to item response probabilities.
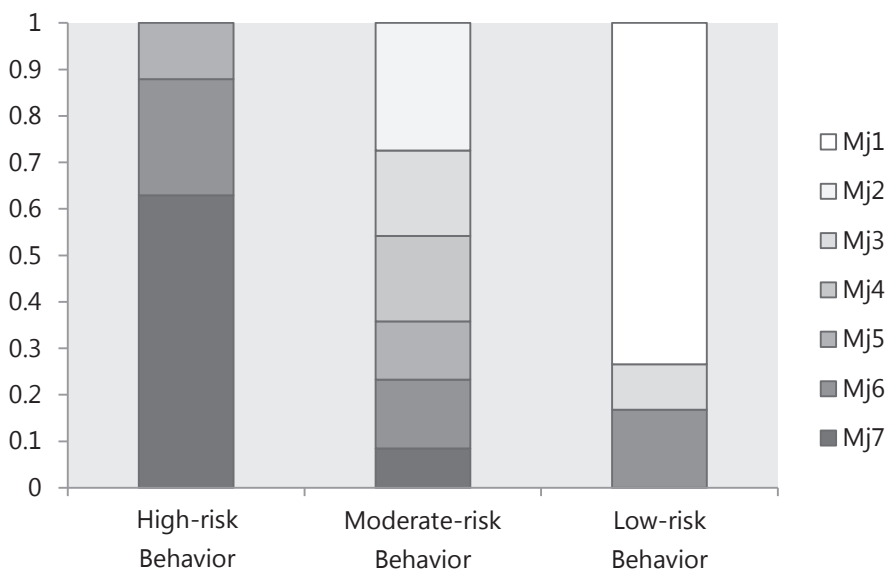
Figure 1
Item Response Probabilities for Physical Fight Frequency across Latent Classes
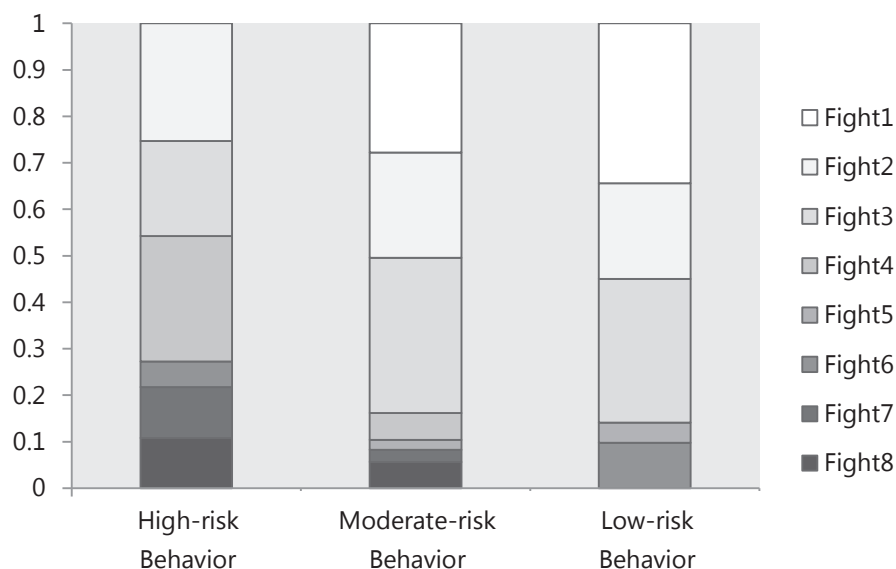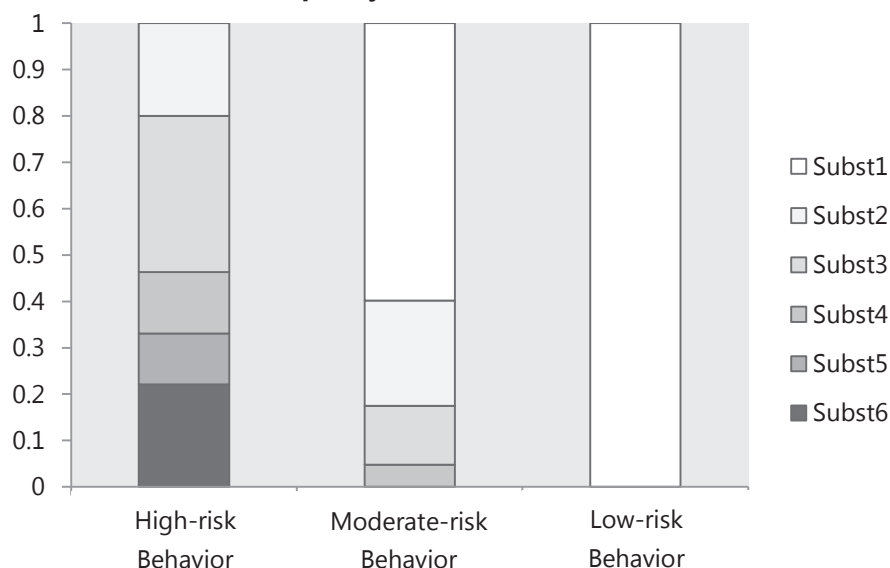
Figure 2
Item Response Probabilities for Binge Drinking Frequency across Latent Classes
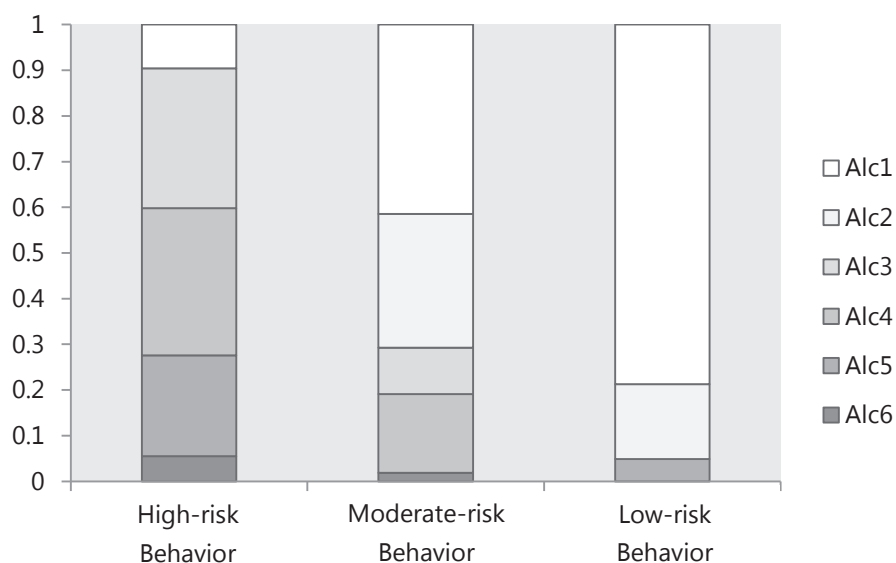
Figure 3
Item Response Probabilities for Binge Drinking Frequency across Latent Classes

Figure 4
Item Response Probabilities for Other Substance (Cocaine, Heroin, Methamphetamine, Inhalants) Frequency across Latent Classes

Frequencies of predictor and outcome variables by class membership, obtained from the overall Mplus model, are presented in Table 3. For the predictor variables, age significantly predicted class membership, with older participants more likely to be in the high-risk behavior subgroup as compared to the low-risk behavior subgroup (OR = 2.16, $p < .05$). In addition, participants with a history of family suicide attempt were more likely to be classified in the low-risk behavior subgroup (OR = 9.81, $p < .05$). There were no differences in predicting class membership by gender (OR = 0.53, $p = .53$) or history of a friend's suicide attempt (OR = 0.78, $p = .72$) between the high- and low-risk subgroups.

Table 3
Frequency of Predictors and Outcomes by Class Membership

	Class Membership			
	High-risk Behavior	Moderate-risk Behavior	Low-risk Behavior	Total
	n (%)	*n* (%)	*n* (%)	*N* (%)
Predictors				
Gender				
Female	12 (63)	36 (67)	14 (70)	62 (67)
Age				
12-15 years	5 (36)	22 (41)	15 (75)[a]	42 (45)

| | Class Membership | | | |
	High-risk Behavior	Moderate-risk Behavior	Low-risk Behavior	Total
	n (%)	*n* (%)	*n* (%)	*N* (%)
Predictors				
Exposure to suicide in last 6 months				
Family member attempted suicide	2 (11)	6 (11)	11 (55)[b]	19 (20)
Friend attempted suicide	8 (42)	19 (35)	9 (45)	36 (39)
Outcomes				
Multiple suicide attempts in last year				
2+ attempts	9 (47)	13 (24)	3 (15)	25 (27)
Depression				
Severe depression	5 (26)	19 (35)	8 (40)	32 (34)
Behavior during last sexual encounter				
Sexual intercourse without a condom	9 (47)[c]	8 (15)	4 (20)	21 (23)

[a] The low-risk behavior class was younger than the high-risk behavior class, $p < .05$.
[b] The low-risk behavior class was more likely to have a history of family suicide attempt than either the moderate- or high-risk behavior class, $p < .05$. [c] The high-risk behavior class was more likely to report sex without a condom than either the moderate- or high-risk behavior class, $p < .05$.

In the outcomes analysis, individuals in the high-risk behavior class were more likely to have sex without a condom then both individuals in the moderate- ($X^2 = 7.46$, $p < .05$) and low-risk behavior classes ($X^2 = 7.50$, $p < .05$). Multiple suicide attempts ($X^2 = 0.65$, $p = .72$) and depression ($X^2 = 0.17$, $p = .92$) were not associated with class membership.

DISCUSSION

LCA of reservation-based AI adolescents who attempted suicide identified three underlying subgroups differentiated by substance use and aggressive behavior: low, medium, and high risk, similar to results from national samples (Pena et al., 2012). However, a distinct profile of AI adolescents with a suicide attempt emerged. Rates of certain established suicide risk factors in other populations, including gender, repeated suicide attempts, and depressive symptoms, did not differ across classes within this AI sample, in contrast to factors such as suicide exposure and sexual behavior. While the low sample size may have limited the power to make these comparisons, these findings also may signify important cultural differences in AI suicide risk. Specifically, the presence of females in the high-risk behavior subgroup implies that high levels of substance use and aggression are not limited to males in this community, and interventions should be tailored

accordingly. The absence of significant differences across subgroups for depression and multiple attempts may imply that each subgroup is associated with comparable risk for future re-attempt, or that suicide risk severity may be associated with different factors in AI communities than in non-AI communities. These findings challenge assumptions around suicide risk and indicate that innovative, culturally informed preventative efforts are needed (Wexler & Gone, 2012).

One class was characterized by particularly high levels of aggression and alcohol and substance use (especially marijuana), similar to the analysis by Pena and colleagues (2012). This subgroup also was most likely to have sexual intercourse without a condom, suggesting a profile of individuals with a predisposition toward a range of risky behaviors characterized by impulsivity. These co-occurring risk factors have implications for how such adolescents are identified and how high-risk behaviors are prevented, which may include screening youth with these behaviors and connecting them to mental health resources proactively. Specifically, these adolescents may be identified by school staff based on problematic behavior, and/or seen in the juvenile justice system, drug treatment programs, or sexual health clinics and then referred for mental health services, highlighting the potential of early identification, prevention, and intervention in these settings. Prevention approaches in early childhood, such as school- or family-based interventions that target a host of risk factors, including substance use, aggression, and sexual behavior, also may be beneficial for this subgroup (Barlow et al., 2013; Whitbeck, Walls, & Welch, 2012). Interventions focused on co-occurring suicidal behavior, substance use, and aggression also are indicated (Goldston, 2004).

In contrast to the high-risk behavior group, the two remaining classes were characterized by medium- or low-risk behaviors, with the low-risk behavior class reporting few episodes of binge drinking and no use of other substances, further evidence of the range of substance use in an at-risk AI sample. The recent suicide attempt of a family member was related to membership in the low-risk behavior class, which may indicate the role of biological factors, social networks, or a combination of the two in the development of suicide risk for this subgroup (Brent et al., 2002; Burke et al., 2010). Proactive identification could be required, because these adolescents may not be as noticeably at risk as the high-risk behavior class. Clinical and preventative approaches for these subgroups may focus on suicidal behavior exclusively, including preemptive, family-based intervention after suicide attempt by a family member.

Findings related to gender and depression warrant further mention, as both are important suicide risk factors that were not significant in this analysis. Similar to the general suicide literature, AI/AN males are more likely to die by suicide, while females are more likely to ideate and attempt (Borowsky et al., 1999; Lewinsohn, Rohde, Seeley, & Baldwin, 2001). Analyses of suicide risk factors stratified by gender in non-Native samples show different risk profiles for male and female youth (King, Jiang, Czyz, & Kerr, 2014; Lewinsohn et al., 2001). For AI/AN youth, a suicide

attempt by or death of a family member and frequent alcohol/marijuana use were associated with suicide attempt history in both genders, while factors such as gang involvement and treatment for emotional concerns were risk factors for males, and gun access was a risk factor in females (Borowsky et al., 1999). As our sample was two-thirds female, it would be beneficial for future LCAs to stratify by gender to determine if latent classes of risk are different. Depression rates also may differ by gender; in one community-based study AI youth, 15% of males and 41% of females met DSM-III-R criteria for a major depressive episode (Gilder & Ehlers, 2012). Such findings speak to the potential gender differences in AI youth in this critical suicide risk factor, and to the importance of assessing both depressive diagnoses and symptoms to evaluate potential influences on AI youth at risk for suicide.

This study had several limitations. The small sample size restricted the number of indicators and predictors that could be included in the analysis. These data were collapsed across two studies and 5 years; one study was an investigation of suicide risk factors and the other, a small pilot intervention trial. Participation and decline rates may have differed across the two studies, and future prospective studies of these risk categories are indicated. Additionally, the sample represents just one tribe; analyses of data from other tribes may elicit different risk factors (Novins et al., 1999) and indicated interventions (Henry et al., 2012). Finally, individuals who made suicide attempts were included. Such individuals have been shown in Alaska Native samples to have higher rates of depression or substance abuse history than individuals who died by suicide (Wexler et al., 2012); therefore, we cannot assume the findings apply to those who die by suicide. Future analyses should include culturally specific variables, such as enculturation and perceived discrimination (Yoder et al., 2006), and variables identified as important protective factors against AI adolescent suicide, such as hope and optimism (O'Keefe & Wingate, 2013). Nonetheless, it is hoped that the subgroups proposed here can be further understood and addressed by future research in the current and other AI tribal contexts. Recommended directions for further research include evaluating the relationship between subgroup membership and outcomes related to suicide, non-suicidal self-injury, other intentional or unintentional morbidity and mortality, engagement in mental health services, and repeated emergency department utilization. Method of suicide attempt (e.g., high vs. low lethality) and impulsivity of suicidal behavior are other potential outcomes of interest.

Conclusions

Three subgroups of AI adolescents with a recent suicide attempt were identified through LCA, representing a broad continuum of substance use and aggression, with a notable proportion of adolescents engaging in few, if any, of these risk behaviors. On the other hand, key risk factors indicating level of suicide severity in other populations—namely, depression and multiple attempts—

did not differentiate across subgroups. Findings underscore the heterogeneity of AI youth who make suicide attempts and the need for appropriately tailored interventions. Subgroup analysis highlights the need for early prevention for a host of adolescent risk behaviors and risk factors, including risky sexual behavior and suicide attempt of a family member.

REFERENCES

Barlow, A., Mullany, B., Neault, N., Compton, S., Carter, A., Hastings, R., . . . Walkup, J. T. (2013). Effect of a paraprofessional home-visiting intervention on American Indian teen mothers' and infants' behavioral risks: A randomized controlled trial. *American Journal of Psychiatry, 170*, 83-93. doi:10.1176/appi.ajp.2012.12010121

Barlow, A., Tingey, L., Cwik, M., Goklish, N., Larzelere-Hinton, F., Lee, A., et al. (2012). Understanding the relationship between substance use and self-injury in American Indian youth. *American Journal of Drug and Alcohol Abuse, 38*, 403-408.

Barlow, A., & Walkup, J. T. (2008). The first Americans have much to teach us. *Journal of the American Academy of Child and Adolescent Psychiatry, 47*, 843-844. doi: 10.1097/CHI.0b013e318179a087

Borowsky, I. W., Resnick, M. D., Ireland, M., & Blum, R. W. (1999). Suicide attempts among American Indian and Alaska Native youth: Risk and protective factors. *Archives of Pediatric and Adolescent Medicine, 153*, 573-580. doi:10.1001/archpedi.153.6.573

Brener, N. D., Kann, L., McManus, T., Kinchen, S. A., Sundberg, E. C., & Ross, J. G. (2002). Reliability of the 1999 youth risk behavior survey questionnaire. *Journal of Adolescent Health, 31*, 336-342. doi: 10.1016/S1054-139X(02)00339-7

Brent, D. A., Baugher, M., Bridge, J., Chen, T., & Chiappetta, L. (1999). Age- and sex-related risk factors for adolescent suicide. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*, 1497-1505. doi: 10.1097/00004583-199912000-00010

Brent, D. A., Oquendo, M., Birmaher, B., Greenhill, L., Kolko, D., Stanley, B., . . . Mann, J.J. (2002). Familial pathways to early-onset suicide attempt: Risk for suicidal behavior in offspring of mood-disordered suicide attempters. *Archives of General Psychiatry, 59*, 801-807. doi: 10.1001/archpsyc.59.9.801

Burke, A. K., Galfalvy, H., Everett, B., Currier, D., Zelazny, J., Oquendo, M. A., . . . Brent, D.A. (2010). Effect of exposure to suicidal behavior on suicide attempt in a high-risk sample of offspring of depressed parents. *Journal of the American Academy of Child and Adolescent Psychiatry, 49*, 114-121. doi: 10.1016/j.jaac.2009.10.008

Caetano, R., Kaplan, M. S., Huguet, N., McFarland, B. H., Conner, K., Giesbrecht, N., & Nolte, K. B. (2013). Acute alcohol intoxication and suicide among United States ethnic/racial groups: Findings from the national violent death reporting system. *Alcoholism: Clinical and Experimental Research, 37*, 839-846. doi:10.1136/injuryprev-2012-040317

Cwik, M.F., Barlow, A., Goklish, N., Larzelere-Hinton, F., Tingey, L., Craig, M., . . . Walkup, J. (2014). Community-based surveillance and case management for suicide prevention: An American Indian tribally initiated system. *American Journal of Public Health, 104*(Suppl 3), e18-e23. doi: 10.2105/AJPH.2014.301872

Cwik, M.F., Barlow, A., Tingey, L., Goklish, N., Larzelere-Hinton, F., Craig, M., & Walkup, J.T. (in press). Exploring risk and protective factors with a community sample of American Indian adolescents who attempted suicide. *Archives of Suicide Research*.

Epstein, J. A., & Spirito, A. (2009). Risk factors for suicidality among a nationally representative sample of high school students. *Suicide and Life-Threatening Behavior, 39*, 241-251. doi: 10.1521/suli.2009.39.3.241

Gilder, D. A., & Ehlers, C. L. (2012). Depression symptoms associated with cannabis dependence in an adolescent American Indian community sample. *American Journal on Addictions, 21*, 536-543. doi: 10.1111/j.1521-0391.2012.00281.x

Goldston, D. B. (2004). Conceptual issues in understanding the relationship between suicidal behavior and substance use during adolescence. *Drug and Alcohol Dependence, 76 Suppl*, S79-91. doi: 10.3109/00952990.2012.704460

Henry, D., Allen, J., Fok, C. C., Rasmus, S., & Charles, B. (2012). Patterns of protective factors in an intervention for the prevention of suicide and alcohol abuse with Yup'ik Alaska Native youth. *American Journal of Alcohol and Drug Abuse, 38*, 476-482. doi: 10.3109/00952990.2012.704460

Indian Health Service. (2009). *Trends in Indian health, 2002-2003 edition.* Rockville, MD: U.S. Department of Health and Human Services, Public Health Service. Retrieved from http://www.ihs.gov/dps/files/Trends_02-03_Entire%20Book%20(508).pdf

Jiang, Y., Perry, D. K., & Hesser, J. E. (2010). Suicide patterns and association with predictors among Rhode Island public high school students: A latent class analysis. *American Journal of Public Health, 100*, 1701-1707. doi: 10.2105/AJPH.2009.183483

King, C. A., Jiang, Q., Czyz, E. K., & Kerr, D. C. (2014). Suicidal ideation of psychiatrically hospitalized adolescents has one-year predictive validity for suicide attempts in girls only. *Journal of Abnormal Child Health Psychology, 42*, 467-477. doi: 10.1007/s10802-013-9794-0

Lewinsohn, P. M., Rohde, P., Seeley, J. R., & Baldwin, C. L. (2001). Gender differences in suicide attempts from adolescence to young adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry, 40*, 427-434. doi: 10.1097/00004583-200104000-00011

Manson, S. M. (1991). Voices of Indian Teens-Happenings Scale. Unpublished instrument. "Alcohol Use/Abuse among Indian Boarding School Students." National Institute on Alcohol Abuse and Alcoholism grant # R01 AA08474, 8/91-7/96. Beals J., & Mitchell C. M., Co-investigators.

May, A., & Klonsky, E. D. (2011). Validity of suicidality items from the Youth Risk Behavior Survey in a high school sample. *Assessment, 18*, 379-381. doi: 10.1177/1073191110374285

Mota, N., Elias, B., Tefft, B., Medved, M., Munro, G., & Sareen, J. (2012). Correlates of suicidality: Investigation of a representative sample of Manitoba First Nations adolescents. *American Journal of Public Health, 102*, 1353-1361. doi: 10.2105/AJPH.2011.300385

Mullany, B., Barlow, A., Goklish, N., Larzelere-Hinton, F., Cwik, M., Craig, M., & Walkup, J. T. (2009). Toward understanding suicide among youths: Results from the White Mountain Apache tribally mandated suicide surveillance system, 2001-2006. *American Journal of Public Health, 99*, 1840-1848. doi: 10.2105/AJPH.2008.154880

Muthén, B., & Muthén, L. (1998-2013). *Mplus users guide*. Los Angeles: Authors.

Muthén, B., & Shedden, K. (1999). Finite mixture modeling with mixture outcomes using the EM algorithm. *Biometrics, 55*, 463-469. doi:10.1111/j.0006-341X.1999.00463.x

Nock, M. K., Green, J. G., Hwang, I., McLaughlin, K. A., Sampson, N. A., Zaslavsky, A. M., & Kessler, R. C. (2013). Prevalence, correlates, and treatment of lifetime suicidal behavior among adolescents: Results from the National Comorbidity Survey Replication Adolescent Supplement. *JAMA Psychiatry, 70*, 300-310. doi: 10.1001/2013.jamapsychiatry.55

Novins, D. K., Beals, J., Roberts, R. E., & Manson, S. M. (1999). Factors associated with suicide ideation among American Indian adolescents: Does culture matter? *Suicide and Life-Threatening Behavior, 29*, 332-346. doi: 10.1111/j.1943-278X.1999.tb00528.x

Nylund, K.L., Asparouhov, T., & Muthén, B. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: A Monte Carlo simulation study. *Structural Equation Modeling, 14*(4), 535-569. doi:10.1080/10705510701575396

O'Keefe, V. M., & Wingate, L. R. (2013). The role of hope and optimism in suicide risk for American Indians/Alaska Natives. *Suicide and Life-Threatening Behavior, 43*, 621-633. doi: 10.1111/sltb.12044

Pavkov, T. W., Travis, L., Fox, K. A., King, C. B., & Cross, T. L. (2010). Tribal youth victimization and delinquency: Analysis of Youth Risk Behavior Surveillance Survey data. *Cultural Diversity and Ethnic Minority Psychology, 16*, 123-134. doi:10.1037/a0018664

Pena, J. B., Matthieu, M. M., Zayas, L. H., Masyn, K. E., & Caine, E. D. (2012). Co-occurring risk behaviors among White, Black, and Hispanic US high school adolescents with suicide attempts requiring medical attention, 1999-2007: Implications for future prevention initiatives. *Social Psychiatry and Psychiatric Epidemiology, 47*, 29-42. doi: 10.1007/s00127-010-0322-z

Portzky, G., Audenaert, K., & van Heeringen, K. (2005). Suicide among adolescents. A psychological autopsy study of psychiatric, psychosocial and personality-related risk factors. *Social Psychiatry and Psychiatric Epidemiology, 40*, 922-930. doi: 10.1007/s00127-005-0977-x

Radloff, L. S. (1977). The CES-D Scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401. doi: 10.1177/014662167700100306

Schafer, J.L., & Graham, J.W. (2002). Missing data: Our view of the state of the art. *Psychological Methods, 7*, 147-177. doi: 10.1037/1082-989X.7.2.147

Shaughnessy, L., Doshi, S. R., & Jones, S. E. (2004). Attempted suicide and associated health risk behaviors among Native American high school students. *Journal of School Health, 74*, 177-182. doi:10.1111/j.1746-1561.2004.tb08217

Somervell, P. D., Beals, J., Kinzie, J. D., Boehnlein, J., Leung, P., & Manson, S.M. (1992). Use of the CES-D in an American Indian village. *Culture, Medicine and Psychiatry, 16*, 503-517. doi: 10.1007/BF00053590

Suominen, K., Isometsa, E., Suokas, J., Haukka, J., Achte, K., & Lonnqvist, J. (2004). Completed suicide after a suicide attempt: A 37-year follow-up study. *American Journal of Psychiatry, 161*, 562-563. doi:10.1176/appi.ajp.161.3.562

Wallerstein, N. B., & Duran, B. (2006). Using community-based participatory research to address health disparities. *Health Promotion Practice, 7*, 312-323. doi: 10.1177/1524839906289376

Wexler, L. M., & Gone, J. P. (2012). Culturally responsive suicide prevention in indigenous communities: Unexamined assumptions and new possibilities. *American Journal of Public Health, 102*, 800-806. doi: 10.2105/AJPH.2011.300432

Wexler, L., Silveira, M. L., & Bertone-Johnson, E. (2012). Factors associated with Alaska Native fatal and nonfatal suicidal behaviors 2001-2009: Trends and implications for prevention. *Archives of Suicide Research, 16*, 273-286. doi: 10.1080/13811118.2013.72205

Whitbeck, L. B., Walls, M. L., & Welch, M. L. (2012). Substance abuse prevention in American Indian and Alaska Native communities. *American Journal of Drug and Alcohol Abuse, 38*, 428-435. doi: 10.3109/00952990.2012.695416

Wissow, L. S., Walkup, J., Barlow, A., Reid, R., & Kane, S. (2001). Cluster and regional influences on suicide in a Southwestern American Indian tribe. *Social Science and Medicine, 53*, 1115-1124. doi: 10.1016/S0277-9536(00)00405-6

Wong, Y. J., & Maffini, C. S. (2011). Predictors of Asian American adolescents' suicide attempts: A latent class regression analysis. *Journal of Youth and Adolescence, 40*, 1453-1464. doi: 10.1007/s10964-011-9701-3

Yoder, K. A., Whitbeck, L. B., Hoyt, D. R., & LaFromboise, T. (2006). Suicidal ideation among American Indian youths. *Archives of Suicide Research, 10*, 177-190. doi: 10.1080/13811110600558240

ACKNOWLEDGEMENTS

and manuscript. The opinions expressed are those of the authors and do not necessarily reflect the views of the Indian Health Service. Finally, we acknowledge our Apache research assistants for their tireless efforts and dedication to help people in their community.

AUTHOR INFORMATION

Dr. Ballard is with the Experimental Therapeutics & Pathophysiology Branch at the National Institute of Mental Health, National Institutes of Health.

Dr. Musci is with the Department of Pediatrics at the Johns Hopkins School of Medicine and the Department of Mental Health at the Johns Hopkins Bloomberg School of Public Health, Baltimore, MD.

Ms. Tingey, Ms. Goklish, Ms. Larzelere-Hinton, Dr. Barlow, and Dr. Cwik are with the Center for American Indian Health at the Johns Hopkins Bloomberg School of Public Health, Baltimore, MD. Dr. Cwik is the corresponding author and can be reached at the Center for American Indian Health, Johns Hopkins University, Bloomberg School of Public Health, 415 North Washington Street, Room 457, Baltimore, MD, 21231, mcwik1@jhu.edu, or (410) 955-6931.