



Pathways of Adaptation: Two Case Studies with One Evidence-Based Substance Use Prevention Program Tailored for Indigenous Youth

Jerreed D. Ivanich¹ · Alicia C. Mousseau² · Melissa Walls³ · Les Whitbeck¹ · Nancy Rumbaugh Whitesell⁴ 

Published online: 6 June 2018
© Society for Prevention Research 2018

Abstract

Indigenous communities often face disproportionate challenges across a variety of health domains, and effective prevention strategies are sorely needed. Unfortunately, evidence is scant regarding what approaches are effective for these communities. A common approach is to take an evidence-based practice or program with documented effectiveness in other populations and implement it with Indigenous populations. While a science of intervention adaptation is emerging, there remains little guidance on processes for adaptation that strategically leverage both existing scientific evidence and Indigenous prevention strategies. In this paper, two case studies illustrate promising practices for adaptation, documenting the approaches of two research teams funded under the National Institutes of Health's initiative to support Intervention Research to Improve Native American Health (IRINAH). These teams worked with distinct Indigenous populations in the USA and Canada to culturally adapt the same prevention program, the Iowa Strengthening Families Program for Parents and Youth 10–14. The approaches of these two teams and the programs that resulted are compared and contrasted, and critical elements of adaptation in partnership with Indigenous communities are discussed.

Keywords American Indian · Adaptation · Adolescent substance use · Prevention

The impetus for substance use prevention efforts with Indigenous youth (e.g., American Indian, Alaska Native, Native Hawaiian, and Canadian First Nations) derives from research documenting early substance use initiation in this population (Nigg, Konishi, Durand, & Cook, 2014; Stanley & Swaim, 2015; Whitesell et al., 2014), disparities in substance use disorders (Whitesell et al., 2007), and high substance use-related health issues and mortality (U.S. Department of Health and Human Services, 2009). The need for early substance use prevention in Indigenous communities

is clear; the path to prevention less so. While the field of prevention science has generated and amassed substantial evidence for many programs and approaches, Indigenous communities have largely been left out of the participant pools of both efficacy and effectiveness trials (Whitesell, Sarche, Keane, Mousseau, & Kaufman, 2017). Thus, very little is known empirically about “what works” in Indigenous communities.

Various strategies have been used to try to address the prevention gap for Indigenous youth. One approach exemplified in Wexler et al. (2016) builds prevention within community, using local knowledge to design programs from the ground up. A *culturally grounded* program is built from core components informed by culturally specific values, practices, beliefs, and socio-historical perspectives (Okamoto, Kulis, Marsiglia, Steiker, & Dustman, 2014b). Such programs take a long time to develop and require intensive community involvement, but are likely to demonstrate good fit within a community and foster community engagement.

Another approach adapts programs that have an evidence base in non-Indigenous populations, with the assumption that effectiveness will generalize as long as sufficient adaptations are made to align the program with the local culture and context. Cultural adaptations have been consistently demonstrated

✉ Nancy Rumbaugh Whitesell
nancy.whitesell@ucdenver.edu

¹ Department of Sociology, University of Nebraska-Lincoln, 204 Benton Hall, Lincoln, NE 68588, USA

² National Native Children's Trauma Center, University of Montana, 32 Campus Drive, Missoula, MT 59812, USA

³ University of Minnesota Medical School, Duluth Campus, 1035 University Drive, 235 SMed, Duluth, MN 55812, USA

⁴ Centers for American Indian and Alaska Native Health, Colorado School of Public Health, University of Colorado Anschutz Medical Campus, MS F800, 13055 E. 17th Avenue, Room 333, Aurora, CO 80045, USA

to increase the effectiveness of interventions across a variety of health domains (Barrera, Castro, Stryker, & Toobert, 2013). *Culturally adapted* interventions include systematic modification of an established evidence-based treatment or intervention in consideration of language, culture, and context (Bernal, Jimenez-Chafey, & Domenech Rodriguez, 2009). The extent of adaptations can range from surface-structure adaptations, including minor modifications to the curriculum language and images, on one end of the continuum to deep-structure adaptations including incorporating cultural teachings into curriculum core component (Resnicow, Soler, Braithwaite, Ahluwalia, & Butler, 2000), that resemble culturally grounded prevention strategies (Okamoto et al., 2014b).

Adaptation of an existing program has the appeal of ostensibly being more efficient than creating a culturally grounded intervention and capitalizing on an existing theory and research base. Nonetheless, the adaptation process itself can be daunting and resource intensive, and guidance on best practices in adaptation are scarce (McKleroy et al., 2006). Castro and Yasui (2017) point out the need to develop a science of intervention ensuring both fidelity and adaptation. While this science remains nascent, best practices to date include cultural relevance, including “top-down” core components of the original program and “bottom-up” components derived from cultural practice and teachings (Barrera et al., 2013).

This paper provides two case studies of adaptation, carried out by independent research teams with long partnerships with distinct Indigenous populations funded by the IRINAH initiative (*Interventions for Health Promotion and Disease Prevention in Native American Populations*, PAR-11-346 and PAR-14-260). *Bii-Zin-Da-De-Dah* (bē-zin-dā-dē-dā; BZDDD) involved seven small Indigenous communities in the upper Midwest and Canada (R01DA037177, Whitbeck, PI); *Thiwáhe Gluwás’akapi* (tē-wā-hey glōō-wāsh äkä-pē; TG) involved one large Northern Plains tribe (12 small communities) (R01DA035111, Whitesell, PI).

Both the BZDDD and TG teams began with a common goal: to prevent early initiation of substance use. Both began with a common prevention program: the Iowa State Strengthening Families Program for Parents and Youth 10–14 (SFP 10–14) (Spath & Redmond, 2002). Both teams utilized community-based participatory research approaches and built on longstanding community partnerships to adapt SFP 10–14 to needs of local communities. Despite these similarities, these two teams emerged from the adaptation process with very different programs. In this paper, we describe the processes of each of these projects to illustrate both the similar processes and the different outcomes that can result from adaptation, the considerations that must be weighed along the way, and the critical decisions that ultimately shape tailored interventions. Figure 1 depicts common elements of the processes reflected in both case studies; we suggest this as a guiding framework for communities and researchers

partnering to adapt EBPs. The process emerges from a community-research partnership with a *Decision to Adapt* an evidence-based program (EBP). This initial process may unfold in diverse ways (as will become evident in the BZDDD and TG examples); the common result, however, is the selection of an EBP to adapt. Community and research partners then engage in an *Iterative Adaptation Process* to integrate cultural knowledge and practice into the EBP while retaining the fundamentals that supported effective outcomes. This process is neither linear nor uniform; the shape, flow, duration, and number of cycles through the process will vary across communities and programs. Rigorous adaptation must systematically engage each element.

Strengthening Families Program for Parents and Youth 10–14

The SFP 10–14 was designed to prevent early initiation of substance use through engaging young adolescents and their parents, improving family communication and reducing family conflict, and teaching substance use resistance skills. The long-term protective effects of SFP 10–14 have been documented in a variety of community contexts (Kumpfer et al., 2015). This program is delivered through a series of seven weekly sessions that each include a group meal, separate 1 hour youth and adult sessions, and a 1-hour family session. Videos are used to depict typical family situations to teach content and spark discussion. Games and activities foster interaction and provide opportunities to practice skills.

Specific processes for collaboration decisions and processes with community partners will be described for BZDDD and TG below, but as depicted in Fig. 1, at both sites research partners suggested SFP 10–14 to community partners in response to requests for strategies to prevent early substance use and abuse. SFP 10–14 was chosen based on both substantial evidence of its effectiveness and on alignment with community priorities around the timing of prevention (i.e., early adolescence), the need to include families, and the approach of active engagement in learning skills. Partners at both sites also agreed on the need to tailor SFP 10–14 to address local needs and reflect local culture, and thus the adaptation cycles began.

Case Study 1—Bii-Zin-Da-De-Dah

Bii-Zin-Da-De-Dah (Listening to One Another) has been guided since its inception by the Ojibwe culture in which it originated. Early on, it became abundantly clear that the community did not want a dominant culture prevention program but one that reflected the cultural strengths of their families and culturally specific protective factors (e.g., traditional values). Community partners in each iteration of program

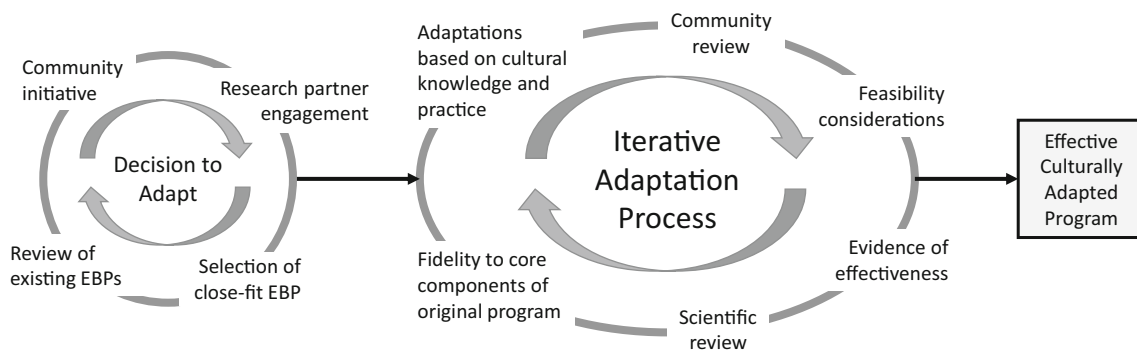


Fig. 1 Iterative adaptation process

development have been experts in family processes, community priorities, and cultural strengths. Their input and expertise is reflected in every program component and program objective. BZDDD truly is a product of the Ojibwe culture and belongs to the people who created it.

Adaptations of Bii-Zin-Da-De-Dah

Four major iterations in the development of BZDDD are described in chronological order. For each iteration, major adaptation decisions are highlighted and the benefits and consequences of those choices are discussed. To describe the adaptations made within each iteration, we call on theoretical models that have emerged in the prevention science literature concurrently with the BZDDD adaptation process (Castro, Barrera, & Martinez, 2004; Okamoto et al., 2014b; Whitbeck, 2006) and provide useful categorization frameworks.

Iteration 1 The first iteration of BZDDD originated in partnership with three Ojibwe reservations in the upper Midwest in 1996. It was the first Indigenous adaptation of SFP 10–14. BZDDD focused on 5th–8th grade adolescents and their families who lived on or near the reservation communities. The community-based processes developed in implementing this first iteration of BZDDD have resulted in community-researcher partnerships that have persisted over 20 years (Whitbeck, Walls, & Hartshorn, 2014).

Adaptation Decisions The first iteration of the BZDDD program would be classified as falling between surface-structure cultural adaptation and deep-structure cultural adaptation; minimal changes were made to original core program materials yet cultural adaptation and community inclusion was a target goal (Okamoto et al., 2014b). As the first adaptation for Indigenous communities, culturally adapting the key constructs addressed by the original SFP 10–14 took considerable time. In order to accommodate cultural content, BZDDD grew from seven to ten weekly sessions. Examples of parent-child, child-child interactions provided in the SFP 10–14 addressed the needs of rural Midwestern White families; focus groups

with Elders, service providers, parents, and youth in the Indigenous communities were held to culturally adapt these program components for cultural relevance. For example, a section on connecting families with tribal Elders was introduced, including how to offer tobacco respectfully to seek advice (a common cultural custom for partner communities). This section took into account the cultural importance of community ties and the significance of extended families. For the same reasons, video vignettes for the program were reshot with heavy cultural content to include localized imagery and cultural stories from community Elders, services providers, parents, and children which held similar themes as the SFP 10–14 program. Advisory boards were involved in the adaptation process by providing input and approving each aspect of the program. The revised BZDDD program also included a culturally appropriate recruitment process that resulted in higher recruitment rates than the original SFP 10–14.

Benefits and Consequences One of the early lessons from adapting BZDDD was the amount of time required to do a thorough and culturally appropriate adaptation (Whitbeck, 2006). The whole process took about 2 years of meetings, revisions, and piloting before the final product was ready to be put into the field. Findings from the first iteration of BZDDD showed positive changes in family communication, child anger management, children’s perception of parental monitoring, and teaching children and family members the appropriate way to approach Elders for help and advice. At the 1-year follow-up, the program had little or no effect on alcohol use among the adolescents who had already used alcohol; however 10- and 11-year-olds who had not yet begun drinking were significantly less likely to drink at the 1-year follow-up than were controls (Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001).

Iteration 2 Results from iteration 1 along with feedback from families and community members suggested two major program modifications. First, the communities wanted more cultural program content. Second, it was clear from the post-tests that the program was effective only for the younger children.

These findings provided the justification to secure funds (SAMSHA, 1999; SP08696) to further develop the cultural aspects of the program and to adjust program content for pre-adolescents. In close collaboration with three Ojibwe reservations, the program was revised to focus on 3rd and 4th graders (9–10 years). Through numerous focus groups and advisory board consultations, cultural content was added that increased the number of sessions from 8 to 14 from the first iteration of BZDDD. A small pilot was carried out for further feedback on program components, timing, and appeal for the age-level activities. The second-generation program subsequently has been adapted for use by Dakota (AA015414), Navajo, Pueblo, and Lakota (NARCH U261HS300288) nations.

Adaptation Decisions The second iteration of the BZDDD drew on the strengths of the first while making concerted efforts to adapt BZDDD to be a more meaningful intervention program for the communities. Adaptation decisions in the second iteration were driven by working with communities to identify core components to add, change, or adapt. This iteration of BZDDD can be classified as a *deep-structure cultural adaptation* (Okamoto et al., 2014b), like that of the *Parenting in 2 worlds* adaptation (Kulis, Ayers, & Baker, 2015) reflecting a method to infuse cultural views, beliefs, and values, into the curriculum.

Benefits and Consequences The primary benefit of the second adaptation was the introduction of more cultural material representing the strength and resilience of the traditional culture especially those of the traditional family ways. There was community interest in the ways cultural connections and values can guide contemporary behaviors as Indigenous people endeavor to live successfully in two often-conflicting cultures (Whitbeck, 2006).

The most important consequence of this adaptation was the increased length of the program, which grew to 14 sessions. The investigators were concerned about the potential effects extending the program would have for recruitment and graduation rates. The first test of this was the implementation of the lengthier program in Canada (see iteration 3).

Iteration 3 The third iteration of BZDDD (2010–2014) was funded through a grant from the Public Health Agency of Canada (PHAC) to McGill University (Kirmayer, PI). In this iteration, the existing BZDDD program was implemented and adapted with four culturally distinct First Nations communities across Canada. This iteration focused heavily on documenting the adaptation process for cultural content to create a model whereby key constructs could be culturally adapted across various Indigenous communities. Program components were modified to extend focus to mental health promotion along with substance abuse prevention using qualitative input from focus groups and advisory boards. Iteration

3 diverged from previous iterations and the original SFP 10–14 to address local community concerns, most notably adolescent suicide.

Adaptation Decisions To accommodate application to four different Indigenous cultures across Canada, the program focus was changed from set cultural content to specific adaptation guidelines for individual community partners to make their own modifications of cultural content and cultural interpretation of key constructs. The third iteration empowered community partners to pilot, focus group, and add cultural content into the program that would be consistent key prevention constructs such as family communication, traditional values and spirituality, social skills, and reconnecting the generations.

Benefits and Consequences Adaptation to the third iteration of BZDDD was a slow process, but established a working model for application to multiple Indigenous cultures and resulted in a training manual and CD that outlined the adaptation process (“Program Materials | Mental Health Promotion for Aboriginal Youth - McGill University,” n.d.). The challenge was to create a program that could be adapted by any Indigenous community and outlined the procedures for collaboration between researchers and community experts. As the model presented in Fig. 1 suggests, efforts leaned heavily on community initiative to have a product that could be easily adapted (decision to adapt), yet was cognizant of areas that should remain flexible to future adaptation based on cultural knowledge (iterative adaptation process). Efforts to make the program sustainable have proven fruitful at a grassroots level across Canada. BZDDD has been certified as a Canadian Best Practice by the Public Health Agency of Canada (Contenu, 2016), and has been adapted for after school programming in some communities.

This approach, though strong on community enfranchisement, risked loss of fidelity to the original key prevention constructs. This risk was moderated by strong researcher-community partnerships, established over years of partnership and a continual administrative and research backing of community initiatives, that served to keep the empirically supported protective components in the forefront and provide strong cultural linkages to empirically supported key prevention constructs. What is now being offered to Canadian First Nations shares many of the key malleable constructs developed in SFP 10–14 but the various programs have evolved differently in accord with individual cultural adaptations. Whether these multiple cultural adaptations continue to retain the core elements of the parent intervention and if these adaptations demonstrate similar effects for each respective adaptation is an empirical question.

Iteration 4 The fourth iteration of BZDDD is in the field as a 5-year randomized controlled trial, a collaborative effort (May 2015–April 2020) between the University of Nebraska-

Lincoln, the University of Minnesota Medical School, Duluth campus, Iowa State University, and four Ojibwe reservations, funded as a part of the IRINAH initiative represented in this *Prevention Science* Supplement. It is estimated that the participating reservations will support a sampling pool of 500 families and attempts will be made to recruit all families with tribally enrolled children between the ages of 8–10 years. In keeping with cultural norms of inclusion, all children in a family in the eligible age range will be invited to participate in the intervention and one child's data will be randomly selected for the analyses.

Adaptation Decisions The fourth iteration of BZDDD is more closely aligned with the *culturally grounded* end of the continuum of prevention approaches (Okamoto et al., 2014b), but definitionally still considered *deep-structure cultural adaptation*. In this most recent iteration of BZDDD, cultural components have been updated, based on input gathered through focus groups with Elders, services providers, parents, and youth. Community Prevention Research Councils (PRC) made up of representatives from tribal agencies (health, social services, education, mental health and chemical dependency) contributed to and approved every phase of the program update, including questionnaire development, video content, session procedures, and final program content. In addition, the PRCs have recommended recruitment, interviewer, and facilitator staff and continue to advise on personnel matters. The PRC members' affiliations in critical tribal agencies are an important element of the sustainability plan, which is to work with reservations to embed the program in existing services agencies.

The fourth iteration is a full update and revision of the program components including new cultural content (e.g., offering traditional rather than commercial tobacco, greater Elder/child interaction, and increased linkages to traditional values), new videos that involve local Elders, services providers, parents, and children, and shorter, more focused pre- and posttest interviews. Based on findings from an eight-year longitudinal study of families and children in this culture (Whitbeck et al., 2014), the fourth generation program focuses on 8–10 year olds and invites extended family members who have daily influence over the children to participate. Experiences in small remote Canadian reserves led to the inclusion of social network analyses to explore community diffusion and possibility of control group contamination.

Benefits and Consequences As of this writing there are no results for the current iteration of BZDDD beyond strong community partnerships and an ongoing healthy recruitment process for an intervention that requires such an intrusive time commitment for busy families. Retention rates, dosage, and effects remain to be seen. However, there have been noticeable positive effects of the development process within the community. The project prompted community conversations

about cultural strengths, family resilience, community assets, intergenerational connections, traditional values, and wellbeing of children and families. In particular, the videos made for the current iteration of BZDDD engaged community leaders and services providers and validated their cultural and community expertise. To date, the fourth iteration has duplicated the developmental processes of the previous three projects and the experiences of those who have adapted the program to other cultures.

Summary of BZDDD Adaptations

The long journey from initial adaptations to SFP 10–14 in 1996 to the culturally specific BZDDD program of 2017 has stretched across multiple reservations and reserves and has depended on strong community/researcher collaborations. These collaborations have emerged from a sustained history of community-based participatory research, including projects and activities extending beyond BZDDD. A benefit of this work is community investment and energy around the program. While BZDDD continues to target core risk and protective factors identified in the SFP 10–14 program (e.g., family communication, effective parenting, and children's social skills), the program has taken on a notably different form and content from the original SFP 10–14 evidence-based curriculum. Because of this divergence, the current effectiveness trial will be critical to determining impacts on substance use prevention, delay of onset, and promoting the wellbeing of Indigenous youth and families overall.

Case Study 2—Thiwáhe Gluwáš'akapi

The Thiwáhe Gluwáš'akapi (TG) program (translated as *sacred home where families are made strong*) was created as part of a 5-year research project funded by National Institute on Drug Abuse (R01DA035111, Whitesell PI), under the IRINAH initiative (PAR-11-346), cultivated out of a long-term research relationship between the Centers for American Indian and Alaska Native Health (CAIANH) and a Northern Plains American Indian Reservation. The goal of the TG project was to create a local solution to high rates of substance use disorder (Beals et al., 2005). It began in a prior research project, with a Community Advisory Board (CAB) that included a school counselor, culture and language teachers, youth program directors, substance use counselors, physicians, and elders. In response to findings from that study showing early substance use among local youth (Whitesell et al., 2014; Whitesell et al., 2007), the CAB urged us to find ways to prevent early use. They specifically guided us to involve family in prevention efforts, citing family as the fundamental conduit of teaching culture and healthy behavior. In the process depicted in the left circle in Fig. 1, we engaged with them to

identify EBPs and chose SFP 10–14 as a good fit for this community; we then entered into the adaptation process.

As with the BZDDD example, the processes through which key adaptations were made to SFP 10–14 involved the elements depicted in the circle at the right of Fig. 1. However, BZDDD demonstrates a long view of the extensive processes of adaptation through multiple iterations across several grant projects, while TG provides a deep view of adaptation within one grant project and one iteration cycle. Within this one cycle we detail two distinct phases. Phase 1 created a draft TG program, through iterative cultural and scientific review, community and researcher input, and consideration of feasibility and evidence, as depicted in Fig. 1. Phase 2 used experimental evaluation of components being considered for inclusion in the final program.

Phase 1 Adaptations

Phase 1 of the adaptation process spanned 2 years (2013–2015). The team approach included TG research staff, both in the community and at the university, the CAB, other community members, and SFP 10–14 program advisors. Team members worked together to balance data- and theory-driven perspectives with community perspectives to make the intervention relevant and effective in this reservation community. SFP 10–14 staff provided initial training to research staff (both field-based and university-based) and CAB members. Adaptation began *in vivo* during this training, in consultation with the SFP 10–14 trainers, who served as program advisors throughout the adaptation process. The lead author, who is a researcher and community member, was charged with making all of the adaptations in the manual and creating the adapted version, which was reviewed and approved by the entire team.

With this foundation, both community and scientific perspectives were explored and examined. Focus groups were conducted with community adults and youth; both research and cultural literatures were reviewed; other researchers who had adapted SFP 10–14 were consulted (including the BZDDD team); and cultural experts were interviewed. Field staff observed the implementation of SFP 10–14 in a community bordering the reservation. All of these activities informed phase 1 adaptations to SFP 10–14, creating a draft version that was piloted with two groups of families on the reservation, led by community members who were hired and trained as facilitators. Feedback from facilitators and program participants informed further adaptations, which were approved by the CAB and the SFP 10–14 program advisors. These adaptations included (1) adaptations to the original SFP 10–14 curriculum and (2) new core components.

Adaptations to Original SFP 10–14 Curriculum A range of changes along the continuum from surface-structure to deep-structure adaptations were made across all elements of the

SFP 10–14 curriculum (Okamoto et al., 2014b). Surface-structure adaptations to make the materials relevant for local youth and families were suggested by all types of advisors. These included the translation of the program name into the tribal language (Thiwáhe Gluwás’akapi) and collaborating with the CAB to design a meaningful logo that reflected local culture.

Videos The importance of remaking program videos with local actors, local settings, and relevant scenarios was clear from the outset. Many SFP 10–14 sessions include videos that demonstrate skills, foster discussion and keep time to help ensure all curricular content is delivered, enhancing fidelity. Thus, it was critical that families be able to relate to the videos. SFP 10–14 videos were reviewed by community partners and focus groups for cultural and contextual fit and adaptations made as needed, while retaining core program messages. For example, in one SFP 10–14 scenario about communication, a couple discusses an upcoming visit by out-of-town in-laws. Community partners thought this would be difficult for families to relate to, because extended families often live in the same house or in very close proximity on this reservation. They suggested we substitute a discussion about planning for child’s upcoming birthday when financial resources are tight. Filming took place on location in local homes, parks, and youth centers. Participants reported appreciating local faces and places in the videos, confirming the value of this of adaptation for engaging families. Videos also included portrayals of extended family members as caregivers (e.g., grandma), reflecting a family structure common in the community. Most video adaptations were surface-structure, but one was deeply rooted in local tribal culture; tribal elders were included telling stories to reinforce program messages (e.g., the importance of listening). This approach honored oral traditions within this community.

Restructured Sessions TG maintained the length of the program at seven sessions, whereas BZDDD expanded to 14. Like BZDDD, however, sessions were rearranged, additional content added, and some content removed. For example, early in the adaptation process the foundational importance of listening and communication was emphasized by the CAB. They encouraged emphasizing this skill early in the program, so participants could use new listening skills to better understand subsequent material. The fifth SFP 10–14 session on communication became the second TG session. SFP 10–14 program advisors were originally reluctant to endorse this change, emphasizing the importance of building rapport with families first; ultimately, however, they concurred that this change was important and responsive to cultural values. Also in response to CAB input, a mindful listening activity was added for youth. The negotiation with the SFP 10–14 program developers around this adaptation illustrates the

importance of flexibility in program design to enhance cultural fit and the value of informed perspectives on fidelity.

Finally, after identifying adaptations, the entire curriculum was reviewed and sessions reorganized to maximize flow and make space for new core components. Some original SFP 10–14 program content and activities were removed to accommodate new material; decisions about removing particular content or activities prioritized program effectiveness and were made in close consultation with SFP 10–14 program advisors.

New Core Components In addition to the changes described above, a way to ground the TG program deeply within the local cultural context and to ensure that it was responsive to the needs of this community was sought. Toward this end, two intervention components were added that would be considered to be both deep-structure adaptations (Okamoto et al., 2014b) and core components of the TG program: (1) Incorporating the tribal kinship system, and (2) addressing exposure to trauma. The rationale and process for these adaptations are described here.

Tribal Kinship System A consistent message heard from community advisors was the belief that solutions to many problems in their community are inherent within their cultural and tribal historical teachings. One mechanism for transmitting these teachings has, traditionally, been family and tribal kinship system. The importance of kinship roles and responsibilities have been documented in anthropological writings such as *Speaking of Indians* (Deloria & Deloria, 1998): “*the ultimate aim of life, stripped of accessories, was quite simple: One must obey kinship rules; one must be a good relative*” (page 25). This statement highlights the kinship system as the structure that conveys rules and norms for living harmoniously with one another.

The critical role of family within this culture was one of the main reasons for choosing the SFP 10–14 program in the first place, but it became clear as the adaptation process began that it would be important to infuse cultural perspectives on family deeply into the TG program. Thus, the kinship system was incorporated into the TG curriculum in a number of ways, including a flashcard game, a family tree worksheet, and creating a family tipi. Traditional kinship introductions were practiced in each youth session (youth introduce themselves by naming their parents, grandparents, and other relatives, and the community they are from). These introductions make salient relationships and roles as a part of a family and larger community.

The kinship focus was reinforced throughout the program with extended family members represented in discussions, activities, and videos. Activities were adapted to incorporate kinship teachings, including adding material on the highly revered cultural practice of making friends into relatives if they display positive characteristics that would benefit the youth and their

family. Participants were encouraged to use kinship terms during sessions and at home (e.g., to start a statement to a family member by calling out the relationship, such as “*Mom, I am happy you came to the session with me tonight*” or “*Brother, do you want to play basketball with me?*”).

Exposure to Trauma Exposure to stress has been shown to be one of the strongest predictors of problematic substance use in this population (Whitesell et al., 2014; Whitesell et al., 2007) and in other Indigenous populations (Cheadle & Sittner Hartshorn, 2012). Thus, the importance of addressing stress and trauma in the TG program was recognized and, specifically, providing parents with information about the potential impacts of exposure to trauma on their children and about potential resources. CAB and community members strongly supported the addition of this session. SFP 10–14 advisors, however, raised concerns about including this material, fearing that it went beyond the scope of the universal prevention program and that facilitators would not be prepared to handle what might arise in discussions. We had extensive discussions about this. One conversation that stands out as particularly useful was held in the community, in which SFP 10–14 staff had an opportunity to hear from researchers about findings on trauma exposure in this population and from field research staff about their experiences with families in their community. In the end, program developers recognized that the high levels of exposure to trauma in this community needed to be acknowledged and addressed, and assisted in creating a session that met the local community needs within a broadened scope of SFP 10–14. This process highlights the importance of collaboration in determining appropriate adaptations and the value of the expertise of all partners in informing adaptation decisions.

The trauma session was structured much like other adult sessions, including being led by video and including focused discussions, activities, and vignettes. It is built on existing SFP 10–14 material and activities on family problems and coping with stress but expanded to include more significant stressors and traumatic experiences. Participants were provided with information about trauma and about how to recognize signs that their child might be having difficulties coping with a traumatic experience, and offered strategies to help youth cope (many skills already taught in the original SFP 10–14 program). Information and resources on reporting abuse and accessing resources were provided, and a clinical psychologist was on call during these sessions in case problems were identified that needed immediate attention.

Phase 2 Adaptations

During the phase 1 process, we identified three potential adaptations to be explored through an innovative experimental process: Tribal language, social media, and removal of

substance use content; each will be described in turn below. To estimate the relative effect of each of these components on program outcomes, we utilized a multiphase optimization strategy (MOST) design (Collins et al., 2011). Using this design, we delivered different versions of the TG program to different groups of families, varying which experimental adaptation components they received (using a fractional factorial design). Analyses will be used to select the most effective components to be retained in the final TG program being built for this community.

Tribal Language This adaptation was made in response to guidance from CAB members about the importance of language in transmitting and preserving culture, and the value of teaching language as a way of connecting youth and families to their culture. Given great diversity of tribal language use across the reservation, with relatively few fluent speakers, the inclusion of tribal language was focused on terms for kinship relationships, so that participants with no knowledge of the language could learn a manageable list of relevant words. This strategy also reinforced the kinship teachings incorporated throughout TG. We considered this a traditional cultural adaptation, reinforcing connection to families' cultural roots.

Social Media The usefulness of social media to connect families within each intervention group and to reinforce program messages was examined. This adaptation was responsive to observations that Facebook is a key tool for communication and social connection on the reservation, coupled with increasing evidence on the value of using social media to enhance face-to-face interventions (Rice, Tulbert, Cederbaum, Barman Adhikari, & Milburn, 2012). Facebook groups were used to connect families between sessions and reinforce session content with posts, questions, and quizzes. This is a contemporary cultural adaptation, responsive to the dynamic nature of tribal culture in the twenty-first century.

Substance Use Content The third experimental adaptation removed substance use-specific content (i.e., working with parents to communicate family values around substance use, teaching youth resistance skills). We hypothesized that this content might not have added value above other core elements of the program (e.g., communication, positive parent-child relationships, roles and responsibilities) in protecting against early substance use. Thus, an attention control session, focused on healthy eating and exercise, was developed to test outcome differences for families who received substance use content compared to those who did not.

Benefits and Consequences

The decision to adapt the SFP 10–14 program, rather than to create a prevention program for this community from the

ground up, was responsive to community calls for immediate action to help prevent early substance use. This strategy was useful in reducing time and resources to create a data- and theory-driven foundation for the TG program—although the process nonetheless took considerable time and resources. By incorporating strategies for enhancing protective factors demonstrated to be effective in the larger population, TG was able to build on the research literature documenting links between those same protective factors and substance use risk among Indigenous youth (Whitesell et al., 2014). Collaboration among the CAB, SFP 10–14 program advisors, and the TG research team resulted in adaptations to enhance the relevance of the program, making it well-received within the community. The addition of the kinship system as a core component embedded prevention strategies inherent within this culture.

A limitation of tailoring a prevention program so closely for one community is that it is difficult to anticipate how well it will work in other communities, even those that share tribal language and similar cultural traditions. While the generalizability is arguably greater than would be likely with a fully grounded intervention, it nonetheless bears consideration. The process of careful adaptation undertaken in creating TG, however, helps to overcome a significant limitation of importing mainstream interventions into tribal communities, namely that such top-down approaches may be focusing prevention efforts in ways that miss opportunities to enhance longstanding cultural traditions of prevention.

Summary of TG Adaptations

In summary, TG has been created out of an extensive, community-engaged and evidence-informed process of adaptation. Data collection is ongoing and the final results of the study are pending. Once this process is complete, the final TG program—informed by the experimental design testing adaptation components—will be co-owned by tribe, specifically under the authority of the tribal research review board, and Iowa State University, the developers of the SFP 10–14 program. This ownership collaboration was agreed upon to ensure tribal authority inherent in sovereignty, as well as the intellectual property of the original SFP 10–14 program. It also capitalizes on the resources of Iowa State University to efficiently and effectively distribute program materials and train program facilitators. As demonstrated in the development of BZDDD above, it will also be important to explore ways to guide communities on further adapting the program for their own particular cultures and contexts.

Discussion

BZDDD and TG are both rooted in the same evidence-based program, SFP 10–14. Both were developed in response to

community calls for action in the face of troubling rates of early substance use initiation among Indigenous youth. Both were created through rigorous processes of adaptation founded on best practices of both community-based participatory research and prevention science, implemented through longstanding university-community partnerships.

In both BZDDD and TG, university and community partners chose to adapt an existing program to the culture and context of the community, rather than to create original programs. While it has been suggested that adapting an existing program has advantage of being faster and more efficient than creating a new program, the case examples presented here are not convincing in that regard. What they do illustrate is a rigorous process of cultural adaptation incorporating many voices, diverse expertise, and systematic review. This process is neither quick nor easy, but we suggest that it is *efficient*. Beginning with an EBP provides a solid foundation on which to build a program tailored to local culture. Time is not the only consideration, or even the most critical one; starting with a program rooted in strong theory and evidence optimizes the likelihood of effectiveness. Ultimately, the decision about whether to adapt an existing program or create a new one will depend on several factors, including goals of community partners and availability of existing programs that offer a close-fit for addressing those goals. Either choice requires intensive

commitment and the combined expertise of research and community partners.

While the decisions about specific adaptations took these teams in somewhat different directions (e.g., 14 sessions for BZDDD and 7 for TG), several common adaptations were identified independently by each team, working collaboratively with distinct communities (e.g., creating new videos that included community elders). For those searching for guidance in adapting evidence-based programs for Indigenous communities, several common adaptation process themes were evident across projects (Table 1). These themes of doing adaptation within communities echo recent literature growing within the cultural adaptation literature (Bernal and Adames, 2017; Mejia, Leijten, Lachman, & Parra-Cardona, 2017).

Each of these projects provides both promising practices and innovation in the science of intervention adaptation. The BZDDD approach to create a template for adapting the program across multiple Indigenous communities sets the stage for effective dissemination across communities while providing structure to enhance fidelity and, ultimately, effectiveness. In contrast, the TG team utilized an innovative experimental design to examine the effectiveness of particular adaptation components. This approach may prove useful in informing efficient adaptations that ultimately support optimally effective programs.

Table 1 Key themes for cultural and contextual adaptation

Theme	Description	Examples in BZDDD and TG
Partner	Engage authentically with community partners throughout the adaptation process.	Both BZDDD and TG involved parents, youth, elders, service providers, and other community members—those with knowledge of the community and culture—to inform the need for and shape of adaptations.
Take time	Invest the time and resources necessary to identify appropriate adaptations.	Both projects initially invested about 2 years in the process to adapt the program to fit local needs.
Integrate	Integrate guidance from community partners and from the scientific literature thoroughly to determine where adaptations should be made and where program elements should be retained in original form.	In BZDDD, local prevention research councils worked closely with university scientists to adapt program materials, integrating cultural knowledge and theoretical perspectives to support effective adaptation. The adaptation process for TG was directed out of the university field office on the reservation, led by a doctoral level scientist located there, with cultural guidance from community advisors and field staff and scientific guidance from university-based researchers and program developer staff.
Make it familiar	Incorporate surface-structure adaptations to ensure that program materials and activities resonate with local families.	In the early iterations of BZDDD, community partners called for the need to integrate elders in each session. TG remade all program videos with local actors and in local settings to reflect the contexts and culture of participating families.
Go deep	Incorporate deep-structure adaptations that engage culture in the content and structure of the intervention in meaningful ways.	Both projects went beyond adding familiar words and images to integrate extended family and kinship networks in Indigenous communities, thus drawing on the strength of those traditions to enhance program effectiveness.
Innovate	Bring the best tools of science into Indigenous communities to ensure quality intervention, including advanced methods and designs.	The current BZDDD study includes social network analysis to explore intervention diffusion; the TG study utilized an innovative MOST design to estimate the relative effectiveness of experimental adaptation components.

The process of creating BZDDD began in 1996 with groundbreaking work in cultural adaptation for Indigenous populations long before recent guidance in the literature (Barrera et al., 2013; Castro et al., 2004; Castro & Yasui, 2017; Okamoto et al., 2014a; Okamoto et al., 2014b). The development of TG, in contrast, began in 2013, with much more robust guidance for adaptation, including that provided directly by the BZDDD team. The stories of the creation of both programs provided here can inform the science of intervention adaptation as it takes shape, particularly within Indigenous communities.

Funding Funding for this research was provided by the National Institute on Drug Abuse, R01DA035111, Whitesell, PI; and R01DA037177, Whitbeck, PI.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All research reported here received both tribal approvals and university Institutional Review Board approval.

Informed Consent Informed consent was obtained from all individual participants included in studies upon which this manuscript is based.

References

- Barrera, M., Castro, F. G., Stryker, L. A., & Toobert, D. J. (2013). Cultural adaptations of behavioral health interventions: A progress report. *Journal of Consulting and Clinical Psychology, 81*, 196–205.
- Beals, J., Novins, D. K., Whitesell, N. R., Spicer, P., Mitchell, C. M., Manson, S. M., & AISUPERPFP-Team. (2005). Prevalence of mental disorders and utilization of mental health services in two American Indian reservation populations: Mental health disparities in a national context. *American Journal of Psychiatry, 162*, 1723–1732.
- Bernal, G., & Adames, C. (2017). Cultural adaptations: Conceptual, ethical, contextual, and methodological issues for working with ethnocultural and majority-world populations. *Prevention Science, 1*–8. <https://doi.org/10.1007/s11121-017-0806-0>.
- Bernal, G., Jimenez-Chafey, M. I., & Domenech Rodriguez, M. M. (2009). Cultural adaptation of treatments: A resource for considering culture in evidence-based practice. *Professional Psychology: Research and Practice, 40*(4), 361–368.
- Castro, F., & Yasui, M. (2017). Advances in EBI development for diverse populations: Towards a science of intervention adaptation. *Prevention Science, 18*(6), 623–629.
- Castro, F., Barrera, M., & Martinez, C. R. (2004). The cultural adaptation of prevention interventions: Resolving tensions between fidelity and fit. *Prevention Science, 5*, 41–45.
- Cheadle, J. E., & Sittner Hartshorn, K. J. (2012). Marijuana use development over the course of adolescence among North American indigenous youth. *Social Science Research, 41*, 1227–1240.
- Collins, L. M., Baker, T. B., Mermelstein, R. J., Piper, M. E., Jorenby, D. E., Smith, S. S., . . . Fiore, M. C. (2011). The multiphase optimization strategy for engineering effective tobacco use interventions. *Annals of Behavioral Medicine, 41*, 208–226.
- Contenu, E. (2016). Canadian best practices portal—CBPP. Retrieved June 19, 2017, from <http://cbpp-pcpe.phac-aspc.gc.ca/aboriginalwtt/listening-to-one-another/>.
- Deloria, E., & Deloria, V. J. (1998). *Speaking of Indians*. Lincoln: University of Nebraska Press.
- Kulis, S., Ayers, S. L., & Baker, T. (2015). Parenting in 2 worlds: Pilot results from a culturally adapted parenting program for urban American Indians. *The Journal of Primary Prevention, 36*(1), 65–70.
- Kumpfer, K., Magalhães, C., & Greene, J. A. (2015). Strengthening families program. *Evidence-based Parenting Education: A Global Perspective, 277*.
- McKleroy, V. S., Galbraith, J. S., Cummings, B., Jones, P., Harshbarger, C., Collins, C., et al. (2006). Adapting evidence-based behavioral interventions for new settings and target populations. *AIDS Education and Prevention, 18*, 59–73.
- Mejia, A., Leijten, P., Lachman, J. M., & Parra-Cardona, J. R. (2017). Different strokes for different folks? Contrasting approaches to cultural adaptation of parenting interventions. *Prevention Science, 18*, 630–639.
- Mental Health Promotion for Aboriginal Youth. (n.d.). Retrieved from <https://www.mcgill.ca/mhp/>. Accessed 12 Jul 2017.
- Nigg, C.R., Konishi, M., Durand, Z., & Cook, A. (2014). State epidemiological profile: Selected youth and adult drug indicators. *State of Hawaii Department of Health*.
- Okamoto, S. K., Helm, S., Pel, S., McClain, L. L., Hill, A. P., & Hayashida, J. K. P. (2014a). Developing empirically based, culturally grounded drug prevention interventions for indigenous youth populations. *The Journal of Behavioral Health Services & Research, 41*, 8–19.
- Okamoto, S. K., Kulis, S., Marsiglia, F. F., Steiker, L. K. H., & Dustman, P. (2014b). A continuum of approaches toward developing culturally focused prevention interventions: From adaptation to grounding. *The Journal of Primary Prevention, 35*, 103–112.
- Resnicow, K., Soler, R., Braithwaite, R., Ahluwalia, J., & Butler, J. (2000). Cultural sensitivity in substance use prevention. *Journal of Community Psychology, 28*, 271–290.
- Rice, E., Tulbert, E., Cederbaum, J., Barman Adhikari, A., & Milburn, N. G. (2012). Mobilizing homeless youth for HIV prevention: A social network analysis of the acceptability of a face-to-face and online social networking intervention. *Health Education Research, 27*, 226–236.
- Spoth, R., & Redmond, C. (2002). Project family prevention trials based in community-university partnerships: Toward scaled-up preventive interventions. *Prevention Science, 3*, 203–221.
- Stanley, L. R., & Swaim, R. C. (2015). Initiation of alcohol, marijuana, and inhalant use by American Indian and white youth living on or near reservations. *Drug and Alcohol Dependence, 155*, 90–96.
- U.S. Department of Health and Human Services (2009). *Regional Differences in Indian Health: 2002–2003*. Retrieved from Rockville, MD.
- Wexler, L., McEachern, D., DiFulvio, G., Smith, C., Graham, L. F., & Dombrowski, K. (2016). Creating a community of practice to prevent suicide through multiple channels: Describing the theoretical foundations and structured learning of PC CARES. *International Quarterly of Community Health Education, 36*(2), 115–122.
- Whitbeck, L. B. (2006). Some guiding assumptions and a theoretical model for developing culturally specific preventions with Native American people. *Journal of Community Psychology, 34*(2), 183.
- Whitbeck, L. B., Hoyt, D. R., McMorris, B. J., Chen, X., & Stubben, J. D. (2001). Perceived discrimination and early substance abuse among American Indian children. *Journal of Health and Social Behavior, 42*(4), 405–424.

- Whitbeck, L. B., Walls, M., & Hartshorn, K. (2014). *Indigenous adolescent development: Psychological, social and historical contexts*. New York: Routledge.
- Whitesell, N. R., Beals, J., Mitchell, C. M., Keane, E. M., Spicer, P., & Turner, R. J. (2007). The relationship of cumulative and proximal adversity to onset of substance dependence symptoms in two American Indian communities. *Drug and Alcohol Dependence*, *91*, 279–288.
- Whitesell, N. R., Asdigian, N. L., Kaufman, C. E., Big Crow, C., Shangreau, C., Keane, E. M., . . . Mitchell, C. M. (2014). Trajectories of substance use among American Indian adolescents: Patterns and predictors. *Journal of Youth and Adolescence*, *43*, 437–453.
- Whitesell, N. R., Sarche, M., Keane, E. M., Mousseau, A. C., & Kaufman, C. E. (2017). Advancing scientific methods in community and cultural context to promote health equity: Lessons from intervention outcome research with American Indian and Alaska Native communities. *American Journal of Evaluation*.