Feasibility, Acceptability, and Initial Findings from a Community-Based Cultural Mental Health Intervention for American Indian Youth and Their Families

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Abstract

Through a CBPR partnership, university and American Indian (AI) tribal members developed and tested *Our Life* intervention to promote mental health of AI youth and their families by addressing root causes of violence, trauma, and substance abuse. Based on premises that well-being is built on a foundation of traditional cultural beliefs and practices, and that it requires a process of healing and understanding, the 6-month intervention had four components: 1) recognizing/healing historical trauma; 2) reconnecting to traditional culture; 3) parenting/social skill-building; and 4) strengthening family relationships through equine-assisted activities. Feasibility, acceptability, appropriateness, and preliminary outcomes were examined in a mixed-method within-group design. Engagement and retention were challenging, suggesting that families faced numerous barriers to participation. Youth who completed the program experienced significant increases in cultural identity, self-esteem, positive coping strategies, quality of life, and social adjustment. Qualitative data supported these findings and suggested additional positive effects.

Keywords

American Indian and Alaska Native (AI/AN) youth are a rapidly growing population, and as such reflect the resiliency of indigenous peoples in the United States, whose population numbered as high as 5 million before European contact and reached a low of 375,000 around 1900 as a result of disease, war, genocide, forced removal and relocation, enslavement, and other changes related to European colonialism (Thornton, 2000). Recent estimates put the current AI/AN population at more than 4.3 million (Ogunwole, 2006).

Among AI/AN youth, there is wide diversity in cultures, experiences, communities, and contexts of development, which can translate into differences in mental health and substance use. However, research suggests that, overall, AI youth are burdened by several serious behavioral health disparities. They have the highest rate of suicide among 15 to 24 year-olds (Health United States, 2004); above average rates of drug and alcohol problems, physical abuse, and depressive symptoms (Deters, Novins, Fickenscher, & Beals, 2006); high prevalence of mental disorder and potential for subsequent behavioral health problems (Whitbeck, Johnson, Hoyt, & Walls, 2006); greater substance abuse risks such as drinking at a younger age, drinking more heavily, using drugs with alcohol and experiencing negative life consequences from drinking (Beauvais, 1996); and higher prevalence of diagnosable alcohol abuse/dependence and co-morbid alcohol use and psychiatric disorders (Beals, Novins, Mitchell, Shore, & Manson, 2002). High rates of traumatic loss and trauma exposure have also been found among AI youth (Jones, Daughinais, Sack, & Somervell, 1997; Manson et al., 1996). In a school-based screening study, 45% of AI adolescents had experienced clinically significant levels of both violence exposure and PTSD symptoms (Goodkind, LaNoue, & Milford, 2010). Exposure to trauma among AI youth were also found to be related to increased behavioral disorders and substance abuse (Jones, et al., 1997).

In addition to research that demonstrates a relationship between lifetime and current traumatic events and increased psychological distress among AIs (Manson, Beals, Klien, Croy, & TEAM, 2005), emerging literature is beginning to link psychological distress and substance use among AIs to multigenerational and historical trauma (Whitbeck, Adams, Hoyt, & Chen, 2004; Whitbeck, Chen, Hoyt, & Adams, 2004). The historical trauma concept emerged from studies of children of Holocaust survivors (Kellermann, 2001), and has been applied to the genocide and ethnic cleansing of AIs (Brave Heart, 1998, 1999; Duran & Duran, 1995). Brave Heart (1998) first provided a theoretical framework attributing PTSD symptoms and unresolved grief and depression to historical trauma. Subsequent work by Brave Heart (2003) suggested that historical trauma is more inclusive and relevant to AIs than PTSD, which doesn't capture enduring widespread, intergenerational components of trauma. Historical trauma has been operationalized and its relationships to symptoms of anger, avoidance, and depression have been demonstrated among AI adolescents and adults (Whitbeck, Adams, et al., 2004; Whitbeck, Walls, Johnson, Morrisseau, & McDougall, 2009). Structural stressors such as poverty and discrimination, that have resulted from colonialism and institutionalized oppression, have also been linked to mental health problems and substance use among AI adults and adolescents (Whitbeck, Chen, et al., 2004; Whitbeck, Hoyt, McMorris, Chen, & Stubben, 2001; Whitbeck, McMorris, Hoty, Stubben, & LaFromboise, 2002).

Despite their high levels of psychological distress, many AIs do not have access to mental health services, and services that are available are often not culturally appropriate. There were no AI/ANs among the 9266 participants in the efficacy studies used to develop treatment guidelines for bipolar disorder, schizophrenia, depression, and attention deficit/hyperactivity disorder (U.S. Public Health Service Office of the Surgeon General, 2001). A review of studies evaluating outcomes of mental health care found no such studies for AI populations (Miranda et al., 2005), raising the question of whether it is appropriate to

promote the use of such evidence-based treatments in these populations. Efforts to reduce behavioral health disparities experienced by AI/AN children and adolescents have focused on substance abuse or suicide prevention interventions that build upon traditional AI cultural strengths (Hamilton & Rolf, 2010; LaFromboise & Lewis, 2008; Moran & Bussey, 2007; Muehlenkamp, Marrone, Gray, & Brown, 2009) or adapting and implementing western evidence-based interventions (Dionne, Davis, Sheeber, & Madrigal, 2009; Goodkind, LaNoue, et al., 2010; Morsette et al., 2009).

Taken together, this evidence suggests that it is important that interventions consider the traumatic circumstances many American Indians have endured, while also focusing on their cultural strengths and resources. Research suggests that AI youth's identification with and connections to traditional cultural practices can act as a protective factor (Gray & Nye, 2001; Spicer, Novins, Mitchell, & Beals, 2003). Rieckmann, Wadsworth and Deyhle (2004) found that Navajo cultural identity protects against depression among Navajo adolescents ages 14–20 through its relationship with positive explanatory style. Enculturation has been found to have a direct negative effect on alcohol abuse among adults; a direct positive effect on pro-social behavior among adolescents; and a buffering effect on depressive symptoms among AI adults (Whitbeck, Chen, et al., 2004; Whitbeck, et al., 2001; Whitbeck, et al., 2002). Use of traditional AI health practices and spiritual orientations has also been linked to positive health outcomes (Buchwald, Beals, & Manson, 2000; Garroutte, Goldberg, Beals, Herrell, & Manson, 2003; Marbella, Harris, Diehr, & Ignace, 1998).

In sum, AI community members and the literature on AI mental health have identified a need for culturally-based mental health interventions and the recognition of historical trauma in prevention and intervention strategies. Community-based mental health interventions that are culturally appropriate, address both past traumas and current structural stressors, build upon individual and community strengths, and occur in non-stigmatized settings are needed. This article describes our efforts to create and pilot test a prevention/healing intervention model for AI youth and their families that is based on this foundation.

Method

CBPR Process and Intervention Development

The study described in this paper was the second component of a two-part study (THRIVE - Teen Health Resiliency Intervention for Violence Exposure), which had an overall goal of promoting the mental health and well-being of AI youth. The study was based within the University of New Mexico (UNM) Prevention Research Center's school-based health centers, which were founded in 1983 as partnerships between UNM and AI tribes to increase the accessibility of medical and mental health services, as well as prevention services. The first component of THRIVE involved adaptation and implementation of the evidence-based group intervention Cognitive Behavioral Intervention for Trauma in Schools (CBITS) (see Goodkind, LaNoue, & Milford, 2010). Based on the results of this study, the research team and community partners concluded that an adapted version of CBITS had potential for reducing PTSD, anxiety, and depression symptoms among AI youth, but issues of feasibility, acceptability, and appropriateness of the screening and intervention suggested that it did not adequately address the root causes of violence exposure or the needs of most

AI youth. Thus, we initiated the second component of THRIVE, through which we aimed to develop a non-stigmatizing intervention in collaboration with one partner community that: 1) addressed the complex realities of AI youths' lives, including the legacies of past oppression and current inequities, 2) included parents and other family members in change efforts, and 3) built on cultural traditions, strengths, and the effective healing practices that already exist.

Our study was guided by a community-based participatory research (CBPR) orientation that emphasizes the elimination of health disparities and promotion of social justice by supporting a research process that promotes equal relationships and mutual learning among researchers and local communities (Minkler & Wallerstein, 2008). Our focus was on partnering with local community members to develop an intervention that built upon community strengths, resources, and culture, and which was based upon what the community identified as priorities, combined with what research suggested might be effective. Researchers and community members agreed that data acquired through this study were owned by the community and the tribe. The study was approved by the UNM IRB and the tribal IRB. Additionally, we received resolutions of support from the Tribal Chapter and the community school board. One stipulation was that we would maintain confidentiality at the community level in all presentations or publications. We also shared the intervention curriculum and results of the study with tribal officials, school personnel, and other community members, including providing a two-day training for more than 50 tribal service providers and community members at the conclusion of the study.

Our study involved collaboration between researchers at the UNM PRC, members of one tribal community, the tribal substance abuse and mental health counseling agency in the community, and the Tribal Community Action Team, which is a coalition of community service providers and family members. In 2005, we collaboratively established a community advisory committee (CAC), which met biweekly for three years to participate in all aspects of the research, including conceptualization, design and implementation of the intervention, recruitment of participants, selection and pre-test of the measures, analysis and interpretation of the data, and dissemination of the results. The CAC spent the first year prioritizing health issues and developing the intervention and measurement protocols. This process included inviting Dr. Maria Yellow Horse Brave Heart to the community to share her work on historical trauma at the community school and at a community-wide forum at the Chapter House. Dr. Brave Heart's visit helped the CAC identify issues around historical trauma that they wanted to include in the intervention.

In 2006 we conducted three focus groups with six families to gain feedback and recommendations from community members on the feasibility and acceptability of the intervention. We compiled themes from the data, and adjusted the intervention, as necessary. For instance, based on these focus groups, we realized that we had many youth who were very excited about the program, but that one of our main challenges was going to be generating parental interest, support, and attendance. We thus devoted careful attention to processes and activities to encourage parental involvement. Also in 2006, the CAC held a 4-day retreat facilitated by Dr. Brave Heart, which focused on healing historical trauma among

CAC members and on training the facilitators for the intervention (which included American Indian UNM staff and community members).

The intervention involved a psycho-educational group structure with four main components: 1) recognizing and healing historical trauma through discussion, experiential methods, and traditional cultural practices; 2) reconnection to traditional culture and language through learning from traditional practitioners and elders; 3) parenting/social skill-building; and 4) further healing and building relationships between parents and youth through equine-assisted activities (see Figure 1 for conceptual model and intervention sessions description). The first component of the intervention was largely based on Brave Heart's model (1998, 1999) which involves: (a) increasing awareness among parents of intergenerational and community trauma and historical trauma symptoms/response; (b) facilitating a trauma resolution process; (c) re-connecting parents to traditional values and parenting practices; and (d) strengthening community and extended kinship network. These four elements were adapted by the CAC. The second component of the intervention was developed by UNM staff who were members of the tribe, in consultation with two traditional practitioners and the CAC. It focused on discussions and activities that engaged participants in learning about traditional teachings and practices related to roles of children, men, women, families, and communities. The third component of the intervention was adapted from the Anishinaabe (Ojibwe) *Listening to One Another* prevention and family strengthening curriculum developed by Anishinaabe tribal members in collaboration with Les Whitbeck, Ph.D. The fourth component of the curriculum involved adapted equine-assisted psychotherapy (EAP) techniques. This aspect of the intervention occurred monthly (total of six sessions) and involved youth and their parents working together in groups of six with community horses and a horse specialist to build their relationships with each other and develop self-awareness and trust. Although grounded in empirical research, the components of the proposed intervention were developed by the CAC. The CAC named the intervention with a word in their language that was translated as *Our Life*, to represent the positive focus of revitalizing a traditional, positive way of living and relating to the world.

Intervention Implementation

The community where the intervention was implemented has approximately 2,000 residents. As part of a sovereign tribal nation, the community has an independent government, court system, social services, tribal behavioral health system, school, and community health services. The intervention was facilitated by four members of the tribe (two UNM staff with bachelor degrees in psychology, the school-based health center licensed clinical social worker, and the community behavioral health service preventionist, who was the only facilitator from the particular Chapter (community) of the tribe. Youth and their parents met three evenings and one Saturday per month for six months (27 sessions total). Each evening session had a theme and included activities for youth and parents together and discussions and activities which youth and parents completed separately (during the "break-out" sessions, children ages 7–11 and adolescents ages 12–17 participated in separate, age-appropriate activities and parents met in a parenting group). The weekly sessions were held at a central non-stigmatized location (the Chapter House). Transportation (as needed) and dinner were provided. The monthly horse sessions were conducted on the land of a

community member who owned the horses, to contribute to sustainability of the intervention.

Fidelity to the intervention (and feasibility of maintaining fidelity) was assessed by a form that group facilitators completed after each session, which documented the activities and objectives of each session that were covered, omissions or changes, participants' reactions to the session, and facilitator reflections. Fidelity ratings were not calculated, but analyses of these forms indicated that all session objectives and activities were completed, although occasionally in a subsequent session.

Participants

Intervention participation was open to all community youth between the ages of 7 and 17, based upon the assumption that all youth and their families had been impacted by historical trauma. Community members were informed about the project through tribal council meetings, school board meetings, home visits, parents' groups, and school programs. The group facilitators met with youth and their parents who expressed interest in the program to explain the project. The pilot study included both youth and adult participants, although for clarity we present here data for the youth participants only. The trial was conducted in two 'waves'; data were subsequently combined when results indicated that the nine youth participants at each wave did not differ significantly on levels of enculturation, quality of life, social functioning, PTSD symptoms or trauma exposure at baseline.

It was decided to use a 'treated sample' in analyses for the purposes of characterizing treatment effects (Little & Yao, 1996). The research team developed an a priori definition of 'meaningful' treatment participation based on consultation with the program facilitators, and decided to include in analyses only those participants who had participated in at least 9 of the 27 sessions. This decision was based on subjective assumptions about 'effective' treatment delivery; and regarding ITT analysis in longitudinal trials (e.g., Brown et al., 2008). As can be seen in Figure 2, 48 youth took part in an initial screening and interview after open enrollment. Of those, 14 did not return for any of the sessions (29% - the untreated group). An additional 16 attended 8 or fewer sessions (33% -the 'intent to treat' group). Eighteen individuals met the criteria for inclusion in analyses (53% - 'treated group'). The 18 youth ranged in age from 7–17 (M=11.1, SD=3.2). They were primarily girls (78%) and half of them (50%) spoke their tribal language.

We undertook analyses to determine if the 'treated' group was similar to the untreated group and the intent to treat group in age, and on baseline measures of PTSD symptoms, trauma exposure, social adjustment and quality of life. The results of the comparison between completers and the untreated group yielded no significant differences. The comparison between the 'intent-to-treat' group and the completers revealed significant differences on quality of life (non-completers higher), and PTSD symptoms (non-completers lower, both p's < .05). There were no significant differences between the groups in age, violence exposure, or social adjustment. Although the differences are minimal and suggest that youth with better well-being were less likely to complete the intervention, intervention results must be considered exploratory as they represent only treatment completers.

Research Design and Analysis

In order to examine the feasibility, acceptability, and appropriateness of the intervention, we tracked eligibility and recruitment of participants and conducted qualitative interviews about the intervention process with participants and facilitators. To explore preliminary outcomes, we employed a mixed-method quantitative and qualitative within-group longitudinal design with five time points over a period of 18 months; participants were assessed prior to beginning the intervention, at the 3-month midpoint, at the end of the intervention, and at two follow-up time points 6 and 12 months post-treatment. This longitudinal design allowed for an examination of trajectories of participant change over time, which are important to understand when examining the impact of an intervention, but are obscured in group-comparison designs (Nugent, 1996). Our quasi-experimental design was strengthened by collecting data at five time points because it produced observable patterns of change and allowed for exploration of whether effects persisted over time.

The theoretical rationale for the intervention as a whole was based on a model which predicted that increased enculturation, self-esteem, and positive coping and parenting strategies could help to buffer the effects of stressors faced by AI youth (e.g., poverty, discrimination) that lead to depression, PTSD, and substance abuse (see Figure 1). This model further predicted increases in the ability of AI youth and parents to work together towards social change that could eliminate these stressors. However, because the project was primarily focused on the development of the intervention and only included a small pilot study, our main hypotheses focused on outcomes likely to be directly impacted or to mediate the intervention's impact on mental health. Thus, we tested five hypotheses regarding participants' change over time:

1. *Enculturation* would increase during and following the intervention

2. *Self-esteem* would increase during and following the intervention.

3. Use of *positive coping strategies* would increase during and following the intervention.

4. *Quality of life* would increase during and following the intervention.

5. *Social functioning* would increase during and following the intervention.

Growth curve modeling was implemented using hierarchical linear modeling (HLM; Raudenbush & Byrk, 2002). HLM is used with small samples of 15 or fewer individuals in a variety of fields (Abbott, Reed, Abbott, & Berninger, 1997; Kivlighan, Schuetz, & Kardash, 1998). HLM is more flexible in handling missing data, as it can estimate trajectories for participants missing data at a particular time point by imputing based on the individual and by utilization of the entire sample's data. HLM allows for examination of mean change over time for all individuals through estimation and significance testing of the 'fixed' effects and also allows for examination of individual variability in form and rate of change, through estimation and significance testing of the variance components of those effects. Because this was a pilot study with a small sample size, the following decisions were made in this dataset: 1) to model quadratic functions as the highest order polynomial for describing change, and 2) to not attempt to model significant variability in intercepts or trajectories,

when present, although such variability is noted in Table 2. It was important to be able to detect variance in individuals' responses to the intervention to inform future research that could explore moderators that might be impacting participant change and thus effects sizes observed.

In the presentation of these results, we therefore only report the significance of the fixed effects as a means of indexing average change over time across all participants. For a significant linear fixed effect, the value of the coefficient describes the average amount of linear change between each time point. A significant quadratic fixed effect describes average change of a quadratic form, indicating the rate at which the linear effect is changing. This can mean that the observed linear change is speeding up or slowing down, and depending on the value of the coefficient, can indicate a reversal of the linear change, which can be noteworthy in an intervention study with extended follow-up times, as symptom levels may decline from baseline during and/or immediately post-treatment, but may rise again as 'time from treatment' increases.

Data screening occurred in conjunction with model testing. Level-1 models (those with only significant fixed effects) were screened for homogeneity of variance at the level of individual scores. Models where the 'best fit' included significant random effects were screened for homogeneity of level-1 variance across level-2 units. Model fitting occurred by first fitting a baseline model to the data to examine the fit of a 'intercept-only' model which posits a common intercept value and no linear or quadratic change. Then a fully parameterized model, including linear and quadratic fixed and random effects, was fit and its fit was compared to the baseline model using deviance statistics. The use of deviance statistics for model comparison allows for tests of a null hypothesis of no improvement in variance explained with additional parameters estimated. Then effects were removed from the fully parameterized model one at a time and the fit of the resulting model was compared to it and to the baseline model until the model which best fit the observed data was found. In all cases, models were centered at the pre-interview time point, and were estimated with full maximum likelihood estimation.

The qualitative portions of all interviews were digitally recorded, transcribed, and checked for accuracy. Qualitative analyses were conducted using NVivo8. Four UNM research team members conducted the coding (authors 1, 3, 4, and 5): a White community psychologist, two bachelor-level members of the tribe, and a White doctoral student in clinical psychology. We began with a process of open-coding to identify emerging themes. Next, we created a nested coding structure to use for focused coding, allowing for identification of common themes as well as anomalies or unusual issues. We also used focused coding to finalize our coding structure, which depicted the relationship of themes to each other. Coding was conducted independently by the four team members with frequent meetings to reach consensus. Our coding meetings emphasized the development of a coding structure that was consistent with the world view of the tribe, as led and understood by the two tribal members of the coding team.

Interview Procedure

The interviews were conducted by AI undergraduates who were not involved in the intervention. The students received three months of training on interviewing techniques, supervision throughout the interview process, and course credit. The interviews were conducted in participants' homes or at the school-based health center, and ranged in length from 55 to 125 minutes. Participants were compensated for their time ($15 for adults, $10 for adolescents, and $5 for children for each interview). If participants consented, the interviews were digitally-recorded. Pre-interview open-ended questions focused on participants' current lives and what they hoped to learn and accomplish during the intervention. Open-ended questions at the other time points explored participants' experiences in the intervention (e.g., the most important things they learned, the best and most difficult things about participating, whether participants' expectations were met, and the ways in which the intervention affected their lives).

Measures

Pre-existing measures that had been used successfully with AIs were chosen in collaboration with the CAC. CAC members reviewed the interview questions and worked with the UNM team to make modifications, including creating specific enculturation questions for the particular tribal culture, adding questions that assessed factors community members prioritized, and creating qualitative questions. Feasibility and cultural appropriateness of the measures was assessed through pilot interviews with two AI youth who were not participating in the intervention. Pilot respondents provided feedback and further minor modifications to item wording and content were made.

Recent Exposure to Violence Scale is a measure of youths' exposure to violence in the past year that has high reliability (Singer, Anglin, Song, & Lunghofer, 1995). The short 9-item form includes questions about witnessing violence, experiencing violence, and being threatened. It was adapted from the full scale by Stein and colleagues (2003) for use as a screening measure for *Cognitive Behavioral Intervention for Trauma in Schools (CBITS).* They called the adapted version the *Life Events Scale* (range 0 – 27), which we also used for pre-assessment only. Average Cronbach's α (across the time points) in our sample was .75.

PTSD symptoms were assessed using a shortened 7-item version of the *Childhood PTSD Symptom Scale* (CPSS) (Foa, Treadwell, Johnson, & Feeny, 2001), which was adapted and validated by Stein and colleagues (2003) for use as a screening and outcome measure in the *CBITS* study. We used this scale in our study for pre-assessment only. It has a range of 0 – 21; average Cronbach's α in our sample was .59.

Enculturation was measured by the *Native American Enculturation Scale* (Zimmerman, Ramirez-Valles, Washienko, Walter, & Dyer, 1996), which includes three components: cultural affinity (5 items measured on a 5-point Likert scale), involvement in cultural activities (checklist of traditional activities youth might participate in with their families – adapted from 9 items in original scale to 11 tribally-appropriate items in our study), and cultural identity (measured by the single item "Do you see yourself as [tribal member]?"

The sum of participants' Z-scores at each time point was used in analysis. Average Cronbach's α in our sample was .59.

Self-esteem was measured differently with children and adolescents. We used the *Harter Self-Perception Profile for Children* (Harter, 1985) for children ages 7 to 11. This 30-item Likert-type scale measures five areas of competence and is appropriate for young children. In adolescents ages 12–17, self-esteem was measured with the *Rosenberg Self-Esteem Scale* (Rosenberg, 1965), a 10-item Likert-type scale which has been used with AI adolescents (Dukes & Martinez, 1994). Average Cronbach's α in our samples were .71 and .80, respectively.

Coping was assessed with a shortened 12-item version of the *Children's Coping Strategies Checklist* (Ayers, Sandler, West, & Roosa, 1996), which asks children to rate their use of different coping strategies on a 4-point Likert scale. For the purpose of these analyses, we combined the subscales of 'problem-focused', 'positive cognitive restructuring' and 'support seeking' into a measure of positive coping strategies. Average Cronbach's α was .75.

Quality of life was assessed using the *Multidimensional Student's Life Satisfaction Scale* (MSLSS; (Greenspoon & Saklofske, 1998). We used three subscales (19 items) from the 40-item MSLSS: family life, school life, and friends, which were measured on a 4-point Likert scale and combined for a total score. Average Cronbach's α in our sample was .73.

Social functioning was measured with a shortened version (21 items) of the *Social Adjustment Inventory for Children and Adolescents* (SAICA; John, Gammon, Prusoff, & Warner, 1987), a 77-item Likert-type scale designed for school-aged children. It measures children's functioning in school, spare time activities, and with peers, siblings, and parents, and has demonstrated distinct patterns of social functioning among children with and without DSM-III, Axis I diagnoses. Average Cronbach's α in our sample was .80.

Results

Feasibility, Appropriateness, and Acceptability

To assess the feasibility, acceptability, and appropriateness of the intervention, we examined intervention attendance, completion rates, and qualitative data from participants and facilitators. Because this project was developed collaboratively with community members, based on what was culturally relevant and appropriate and what community members wanted and needed, we expected that participation rates would be high and that participants would be committed to the program. However, as illustrated in Figure 2, we found that retention and treatment delivery were challenging. For example, 48 youth from 30 families were initially screened and of those, 29% failed to return for any sessions. This may indicate that some participants found the interview questions to be intrusive (anecdotal evidence supports this conclusion). In addition, participants who did not attend any intervention sessions were almost all in the second wave, when we attempted to conduct two pre-interviews with each participant (3 months prior to the intervention and immediately before beginning the intervention). Given that the final completion rates in each wave were similar, our experience suggests that the loss of participants over time may not be due entirely to the

nature of the interview questions or the intervention itself, but instead may be related to other challenges in participants' lives. Our qualitative data from treatment completers suggests that youth enjoyed the intervention, felt they benefited from it, and would participate in a similar group in the future. In fact, many of those participants requested that the intervention be continued.

Quantitative Outcomes

Descriptive statistics for all outcome variables are shown in Table 1. Means and standard deviations reported are for all of the participants present at each time point for each measure. Using the screening measures for *CBITS* (see Stein et al., 2003 and Goodkind, LaNoue, & Milford, 2010), we found that participants had mean scores of 5.22 (*SD*=4.21) on the Recent Exposure to Violence Scale (REVS) and 6.60 (SD=3.58) on the Child PTSD Symptom Scale (CPSS) pre-intervention. Of the 18 youth participants, 11 (61%) met the CBITS screening criteria of clinically significant levels of violence exposure and PTSD symptoms (scores on REVS   3 and on CPSS   4). Our hypotheses predicted increases in enculturation, self-esteem, positive coping strategies, quality of life, and social adjustment. For all of these outcomes, significant variability in intercepts (participants' baseline scores) was observed (see Table 2). Additionally, for all outcomes except coping and quality of life, there was significant variance in the growth terms (linear or quadratic, or both).

Hypothesis 1 was partially supported. The enculturation scale showed no change over time in the HLM analyses (i.e., was best fit by an intercept only model). However, for the single item of Native American Identity ("Do you see yourself as a [tribal member]?"), there was a significant linear increase of, on average .75 points per time point, ($t(17) = 2.33$, $p < .05$) and a significant quadratic fixed effect ($t(83) = 2.05$, $p < .05$), indicating linear growth of .75 points per time point, with significant attenuation (e.g., the change demonstrated began to slow down). See Table 2 for model coefficients and Figure 3 for graph of the trajectory.

Hypothesis 2 was supported for both children and adolescents. For the Self-Perception Profile for Children (child), the linear fixed effect was non-significant, but the quadratic fixed effect was significant, ($t(43) = 2.04$, p < .05), and positive, indicating gradually increasing upward growth with no attenuation over the measured time points. All child participants followed the quadratic trend. For the Rosenberg Self-Esteem Scale (adolescent) both the linear and quadratic fixed effects were significant ($t(10) = 2.27$, $p < .05$; $t(38) = 2.82$, $p < .01$), respectively, indicating significant increases over time that began to slow down and decelerate around the first follow-up measurement.

Hypothesis 3 predicted increases in participants' positive coping strategies. We found a significant linear increase in positive coping strategies in this sample ($t(84) = 2.23$, $p < .05$) and no significant variance component for the linear change parameter. This indicates that participants' positive coping strategies significantly increased during the intervention and continued to increase at the same rate one year after the intervention ended.

Hypothesis 4 was supported. Quality of life demonstrated a significant component of linear growth ($t(17) = 2.76$, $p = .015$) which was attenuated by a significant quadratic fixed effect

(t(83) = 2.85, p = .006). Thus, participants experienced significant increases in quality of life over time that began to slow down and decelerate around the first follow-up measurement.

Hypothesis 5 was supported. Children's social adjustment improved linearly over time during and after the intervention (significant linear fixed effect, t(84) = 2.24, p = .03).

Qualitative Outcomes

The qualitative component of the interviews provided an important opportunity to understand participants' experiences in the intervention. In addition, the qualitative data helped support and explain the quantitative results while also allowing for assessment of outcomes that were difficult to measure quantitatively, were individualized, and/or were unexpected. Finally, the qualitative data enabled us to examine participants' perspectives on effects of the intervention beyond the individual level because many participants described how the intervention impacted their families and communities. We include qualitative data from youth and from their parents/guardians when it relates to youth experiences and outcomes.

The qualitative data strongly supported Hypothesis 1, that the intervention would result in increased enculturation. Youth described increased connection with their tribal culture in terms of interest in learning more of their native language and cultural teachings, increased knowledge of language, culture, and history, and higher value placed on this knowledge. For example, a 17-year-old girl described specific aspects of her culture that she had learned about, including her community's history, traditional puberty ceremony, and traditional games. She then explained: "I've learned a lot about the [tribal] culture. Things that I really didn't know. Also, I have more respect for my people." Similarly, a 12-year-old boy said, "I'm more into it [traditional culture] and I want to learn more about it." Parents also were pleased that their children were learning about their traditional culture, and many of them emphasized how important it was that their children were having this opportunity that they had not had. A 46-year-old mother described:

> It's a good program. I've learned a lot. I've learned the history of [community name]. I've learned how to cope with things in traditional ways because I want her [daughter] to have more knowledge of the traditional ways than I've ever had. I want her to know where her roots are, who her family is, and I never got that opportunity.

Another mother, age 42, described how their participation in the intervention enabled her to be more open with her children about their history and culture:

> …they're [her children] learning more culture. I continue to speak to them about their culture, their people, their language and now it helped them a lot. And [I] try to continue to talk to them about what happened when there was a boarding school, and the things that Grandma went through…I still talk to them about…A lot of things…these elders went through when they were young.

The quantitative findings regarding increased self-esteem (Hypothesis 2) were also supported within the qualitative data, primarily evident in parents' descriptions of the impact of the intervention on their children. A 42-year-old mother explained:

I'm more into my work, and I'm also more into my daughter, who this is for. You know, we're doing okay as far as getting along, and her self-esteem is a lot better. This program has really helped her with her self-esteem.

A 30-year-old mother also described the effects on her children's self-esteem:

I think probably they [her children] think what was good was the self—what did they call it? The self—like it built self-confidence in my children.

One of the areas that youth described the most impact was an increase in their use of positive coping strategies for handling stress (Hypothesis 3). The most frequent description of positive coping strategies involved the numerous youth who described their increased use of support-seeking strategies. In the words of a 16-year-old girl:

That you can always go to someone and ask for help…Problem solving to talk to someone older instead of handling it yourself.

Several youth described support-seeking strategies in combination with other coping strategies such as positive cognitive restructuring or distraction. For instance, an 11-year-old girl stated:

…talk about it and go outside … or talk to yourself about it …to always talk to someone if you're mad or go walk around and calm yourself down.

A 42-year-old mother described changes she observed in her daughter's abilities to express their feelings, which is an important aspect of coping with stress and seeking support:

I know my daughter would not talk or anything. She was always feeling upset if I had talked to her about stuff and she didn't want to talk about it. Now, she'll write it out and everything, and she'll talk more about it now. That part is where it really helped her.

Hypothesis 4, that youth participants' quality of life would improve was also supported by the qualitative data. Youth described improvements in all three areas of quality of life measured quantitatively: family, friends, and school. As a 17-year-old girl explained:

Everything's good…since the program ended…Get along better with my family, my sister and my mother…Great. I'm doing better in school. Doing better with my friends.

Specific improvements in participants' quality of family life are discussed in a subsequent section. In terms of improvements in participants' quality of friendships, several youth noted that they were able to make new friends through their involvement in the intervention and that they learned to be more comfortable around new people. In specific reference to school, many youth reported that their grades and behavior had improved as a result of their participation in the intervention:

Interviewer: Is there anything different in your life that can be related back to the program? Yeah.

Interviewer: Yeah, like what?

Getting my grades up, and doing better in school. [8-year-old girl]

> I used to have F's, C's, but now I have A's right now. [10-year-old girl]

Finally, the qualitative data also supported Hypothesis 5, that participants' social adjustment would improve. Youth primarily described this in terms of their acquisition of skills for understanding and managing their anger. This is important because, according to parents and the mental health counselor at the school-based health center, anger was one of the primary behavioral health issues for youth in the intervention and in the broader community. As a 10-year-old girl responded when asked what she learned in the program:

> About being respectful…and how to get over anger.
>
> Interviewer: Anger management?
>
> I learned about being respectful and stop hitting [little brother].

Another common statement about anger was that youth learned the importance of talking about their feelings when they were angry. For example, an 11-year-old girl said:

> Talk about your anger with your mom or your dad and be kind and don't shout and don't get into fights.

In addition, to learning about how to deal with anger, several youth reported that they actually felt less anger after their participation in the intervention. A 14-year-old girl stated:

> My anger has gone down; my anger was up a long time ago. Up until the *Our Life* program, it's come down. It helped me, with my anger.

Similarly, when asked how the intervention affected his life, an 8-year-old boy explained:

> I stopped being so angry.

Also related to social adjustment were youths' descriptions of their changes in attitude and "problem" behaviors. A 14-year-old girl described several behavioral changes:

> I used to cuss a lot and I used to do bad things, think bad things, which I quit…
>
> Interviewer: They [intervention facilitators] helped you to change by talking to you?
>
> Yeah. I don't talk back as much as I used to.

Several other youth used the word respect to describe changes in their behavior, indicating that they had increased respect for their parents, teachers, and other people around them.

In sum, youth and parents' descriptions of youths' experiences in and effects of the intervention on their well-being supported and elaborated upon the quantitative findings. In addition, we were able to assess family-level impacts of the intervention. Youth described numerous changes, including improvements in their parents' behaviors, increased understanding of parents' perspectives and the reasons for parents' rules, and stronger relationships between parents and youth. In terms of parenting behaviors, an 11-year-old girl said:

> My mom and my dad pay more attention to me now and they know that they have to respect one another and be kind to each one including me.

Several youth described understanding their parents at a deeper level – recognizing their parents' challenges and also acknowledging that their parents' rules and guidance came from a genuine place of love and caring. A 10-year-old girl explained her understanding of her mom's struggles and how her mom had improved through their participation in the intervention:

> Interviewer: What did you learn about them [your parents]?
>
> I learned that they, like my mom, it's kind of hard for her and yeah I learned that she got better.
>
> Interviewer: It's hard for your mom? What do you mean?
>
> Sometimes she used to be all mean and stuff like she used to take off and you know go party with her friends but she's not like that anymore.

When asked what she learned about her parents in the intervention, a 13-year-old girl replied:

> How they feel and about what they think when you get in trouble. Like how they think.
>
> Interviewer: And their thoughts?
>
> Like, they really care about you and they love you. They don't want you to get hurt. And stuff like that. They just want the best for you.

Youth and parents frequently discussed improvements in their relationships with each other and with other family members. A 17-year-old girl said:

> The program helped me get along more with everyone—my mom and my sisters. It helped me get along with each other more.

Parents often emphasized their increased understanding of the importance of communicating with their children. In the words of several parents:

> …the communication is a lot better with my family, and we're all pretty much getting involved in a lot of—more involved with each other now than we used to be before. It [the program] really brought us all together… [42-year-old mother]
>
> I've learned that we have to work together. We have to communicate and communication is the main thing. We have a lot of difficulty in that because we think that we know what the other is talking about but we really don't and then we do the wrong thing. Here [in the intervention] we communicate and I'm trying to do that and then to work at that because that's the main thing for us. [46-year-old mother]

Finally, we also attempted to explore participants' perceptions of community-level factors that may have been impacted by the intervention. Youth did not have much to say about changes in their community, although parents mentioned their own increased involvement in the community, reduction of conflict with other community members, and interest in working with other community members to address community problems.

Discussion

Our study focused on developing, implementing, and evaluating a community-based mental health intervention for youth and their families through a community-based participatory research partnership with one AI community. The non-stigmatizing intervention attempted to address the complex realities of the lives of AI youth, including the legacies of past oppression and current stressors, to build on cultural traditions, strengths, and the effective healing practices that already existed in the community, and to include parents and other family members in change efforts. Intervention components focused on traditional cultural teachings, parenting and social-skill building, healing historical trauma, and equine activities. Our results suggest that for youth who completed at least 9 intervention sessions, their traditional cultural identity, self-esteem, positive coping strategies, quality of life, and social adjustment increased. Analyses revealed that increases in child self-esteem, positive coping strategies, and social functioning were maintained at least one year post-intervention, while cultural identity, adolescent self-esteem, and quality of life increased and then began to attenuate at the follow-up time points.

In terms of enculturation, it was interesting to note that the intervention seemed to have increased youth participants' cultural identity but did not affect the other components of enculturation (participation in traditional cultural activities or cultural affinity). Our qualitative data related to this issue suggest that youth felt that they acquired new cultural knowledge and an interest and value in learning more. It may be that the process of translating increased knowledge, identity, and enthusiasm into changes in cultural practices and beliefs is a longer-term process that may continue to emerge as youth enter early adulthood. However, given that youths' increased cultural identity began to slowly decline after the end of the intervention, it may be important for youth to have ongoing opportunities for traditional cultural learning and involvement. Finally, it is also important to mention that we observed significant variability in youths' cultural identity growth trajectories; a future study with a larger sample size would allow us to explore potential moderators that might explain this variance.

The self-esteem of child and adolescent participants in the intervention showed significant increases; however, the patterns of change were very different for these two groups. Children's self-esteem had a very small rate of increase during the intervention with large accelerations in the year after the end of the intervention. Adolescents, on the other hand, had large increases in self-esteem during the intervention that began to attenuate after it ended. Given the typical developmental finding that girls' and boys' self-esteem tends to drop sharply in adolescence (Eccles et al., 1999), our findings suggest that participation in the intervention may have interrupted this process. Unfortunately, without a control group, we cannot examine the separate impacts of development and the intervention.

Participants' increased use of positive coping strategies, which included problem-focused coping, positive cognitive restructuring, and support-seeking was one of our most robust findings, in that these increases continued during and one year after the end of the intervention, and all participants followed a similar pattern of change. This is an important finding, if replicable, because helping AI youth handle the numerous challenges they face

that are not always within their control is essential. Research suggests that active and support-seeking coping strategies are related to decreased depression and anxiety symptoms among U.S. adolescents (Wright, Banerjee, Hoek, Rieffe, & Novin). There is also evidence of this relationship among AI youth (Rieckmann, 2001).

In terms of quality of life, participants showed a consistent and significant increase in quality of life throughout the intervention that began to slow down after the end of the intervention. This pattern suggests that youths' satisfaction with their family, friends, and school experiences improved. Qualitative data from youth supported this finding. Youths' social functioning significantly increased during and after the intervention. Although this effect continued up to one year after the end of the intervention, there was significant variance in participants' trajectories,. This finding was also strongly supported by qualitative data.

Because of the exploratory nature of the study – this was the first implementation of the intervention – a large number of outcome measures were collected to ensure that we would be able to detect any changes in program participants that potentially occurred as a result of participation. In addition, our hope was that by affecting the short-term psychosocial outcomes of enculturation, self-esteem, positive coping skills, and social functioning, the intervention would have the ability in the long-term to impact trauma exposure, PTSD, depression, suicidality, and substance abuse. We hypothesized both direct and indirect mechanisms of action on these long-term outcomes, because we would expect that the improved psychosocial outcomes would buffer the negative effects of historical trauma, traumatic life events, and discrimination – risk factors that have led to health inequities among AI youth on PTSD, depression, substance abuse, and suicide. Although the empirical support for this model is limited, there is some evidence that enculturation buffers the negative effect of discrimination experiences on psychosocial functioning among AI adolescents (Galliher, Jones, & Dahl, 2011). In addition, a study with AI adults found that quality of life was negatively related to depression symptoms and that tribal cultural identity was positively related to quality of life (Morse, 2002).

Our qualitative data suggested other positive effects of the intervention that we did not measure quantitatively, including: increased positive attitude and respect, improved academic performance, increased social support, and decreased anger. Participants described positive effects on families such as: reconnecting, including more family time and closer family connections, improved family social dynamics (communication and expressing feelings and emotions), and increased cultural knowledge (including history, interest in learning traditional language, children's interest in culture, clans, and individual and family roles). Thus, based on the positive changes we observed through triangulation of qualitative and quantitative data, we conclude that the intervention shows promise in being able to create short-term and long-term improvements in youth participants' mental health and well-being.

Given our retention and attrition problems, issues of acceptability and engagement loom large. Although research has suggested that culturally sensitive interventions may result in higher rates of engagement and retention (McCabe et al., 1999), our experiences seem to

contradict this finding. Based on non-completers' reasons for leaving the intervention, it was apparent that youth and parents were faced with numerous life challenges and barriers to participation. For instance, some of the youth participants who did not complete the intervention were impeded by a lack of interest and support from their parents. In many cases, this was because parents were coping with severe lack of resources that threatened their families' survival and/or their own serious substance abuse issues. Comparing our retention and treatment completion rates to the first component of our THRIVE study (see Goodkind, LaNoue & Milford, 2010), we were surprised. We expected that by creating a culturally-grounded, strengths-based, and community-located intervention, we would improve appropriateness and therefore treatment engagement and completion; however we found that completion rates were much lower in our current study (38% of youth interviewed, 53% of youth who attended at least one session). It is possible that youth found CBITS more engaging, but we hypothesize that the much higher rates of treatment completion in the CBITS study were due to providing the intervention to youth in schools during regular school hours. The importance of providing mental health treatment and prevention services to youth in schools, particularly in terms of improving engagement and retention, has been well-documented (Atkins et al., 1998); our results support these findings. Involving parents and offering strengths-based, culturally-grounded mental health programs is also essential, but these interventions may need to include increased focus on addressing resource issues and social stressors frequently faced by AI families. The importance of addressing practical barriers and limited resources in order to increase capacity for participation in mental health interventions has been recommended for many marginalized and/or resource poor communities (Boniface, Khasim, Manikese, & Dijkman, 2009; Goodkind et al., 2010). Combined, this evidence suggests that both types of intervention are important, but that interactions between participant attributes and treatment structure should be taken into account. For those youth who have parents who are willing and able to be involved, the *Our Life* intervention improved youths' psychosocial functioning and well-being, strengthened parent-child relationships, and increased parent and youth commitments to their tribal culture, families, and communities. However, for other youth, it may be better to offer short, school-based interventions. We also recognize the importance of incorporating more specific engagement efforts, such as those outlined by McKay and Bannon (2004) or Dionne and colleagues (2009).

This study had several methodological limitations worth noting. First, the small sample size of 18 youth limited our power and the generalizability of our findings. However, given that caveat, our ability to detect significant changes in outcome measures over time with this small sample is encouraging. A second important concern is the lack of a control group in our study design. A true experimental design is the ideal method to test intervention effectiveness, and we recommend that for future study. We employed a mixed-methods research design with multiple time points and a one-year follow-up time period in order to strengthen our ability to understand participants' experiences and outcomes and to thoroughly examine and eliminate some potential threats to validity. We did not attempt to randomly assign youth to an intervention or control group because our study involved working with families in a small community to effect change at multiple levels. In addition, many families in the community were related to each other. Considering both of these

issues, we anticipated that contamination across groups would likely occur, and in fact, that the community's goals were to create a process of change that would result in radiating effects. Furthermore, our CAC thought that random assignment might impede the fragile trust being built with community families asked to join the study. Without a control group, we cannot conclude that the positive changes observed were due to the intervention. However, the attenuation of several effects (increased cultural identity, adolescent self-esteem, and quality of life) after the end of the intervention, as well as the qualitative data that helps to explain participants' experiences and potential mechanisms of change within the intervention, lend support to the conclusion that the intervention had positive effects.

Many American Indian scholars and communities have suggested that community-based participatory research approaches are essential when working to promote the well-being of American Indian youth, families, and communities (Fisher & Ball, 2003; Gone, 2007). Our findings are important because they suggest that developing a long-term partnership and addressing historical inequities while emphasizing traditional culture and community strengths can improve several elements of the well-being of American Indian youth. Our university research team and community partners worked collaboratively to develop a culturally-driven family intervention, with intervention components designed to build on individual and community strengths and address root causes of community trauma and violence. Importantly, we conclude that our research remains at the preliminary stages. We have sought and received additional funding to continue our collaborative efforts with the community. We recognize that efforts to address the effects of current stressors and multiple generations of oppression on American Indian youth and families require intensive commitment over longer periods of time, and hope that our research demonstrates the valuable family, cultural, and community strengths which can be successfully built upon through community-university partnerships.

Acknowledgments

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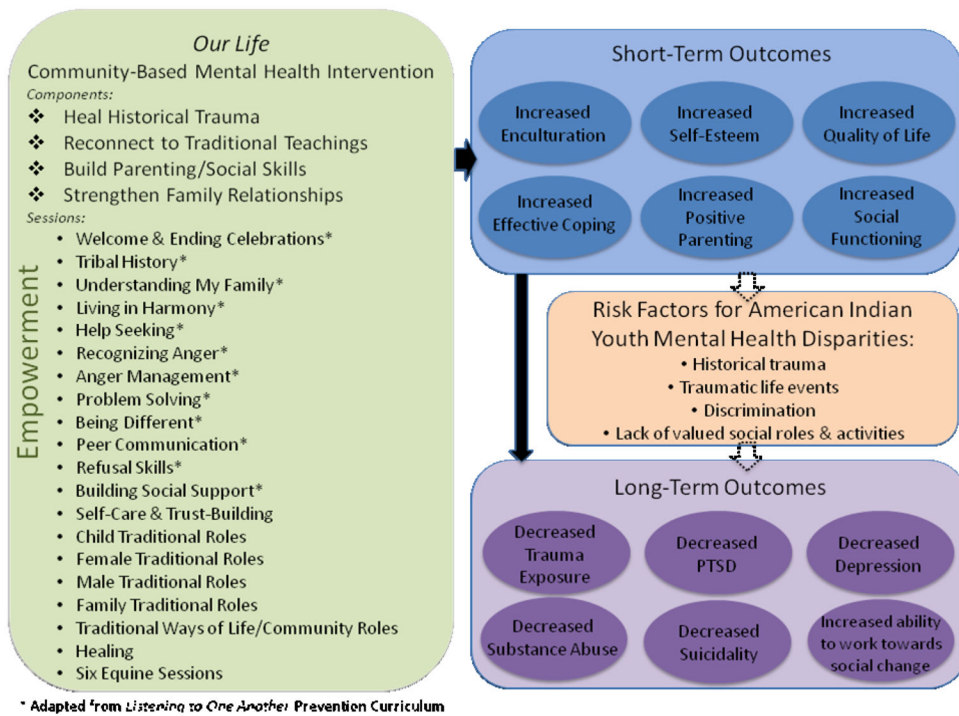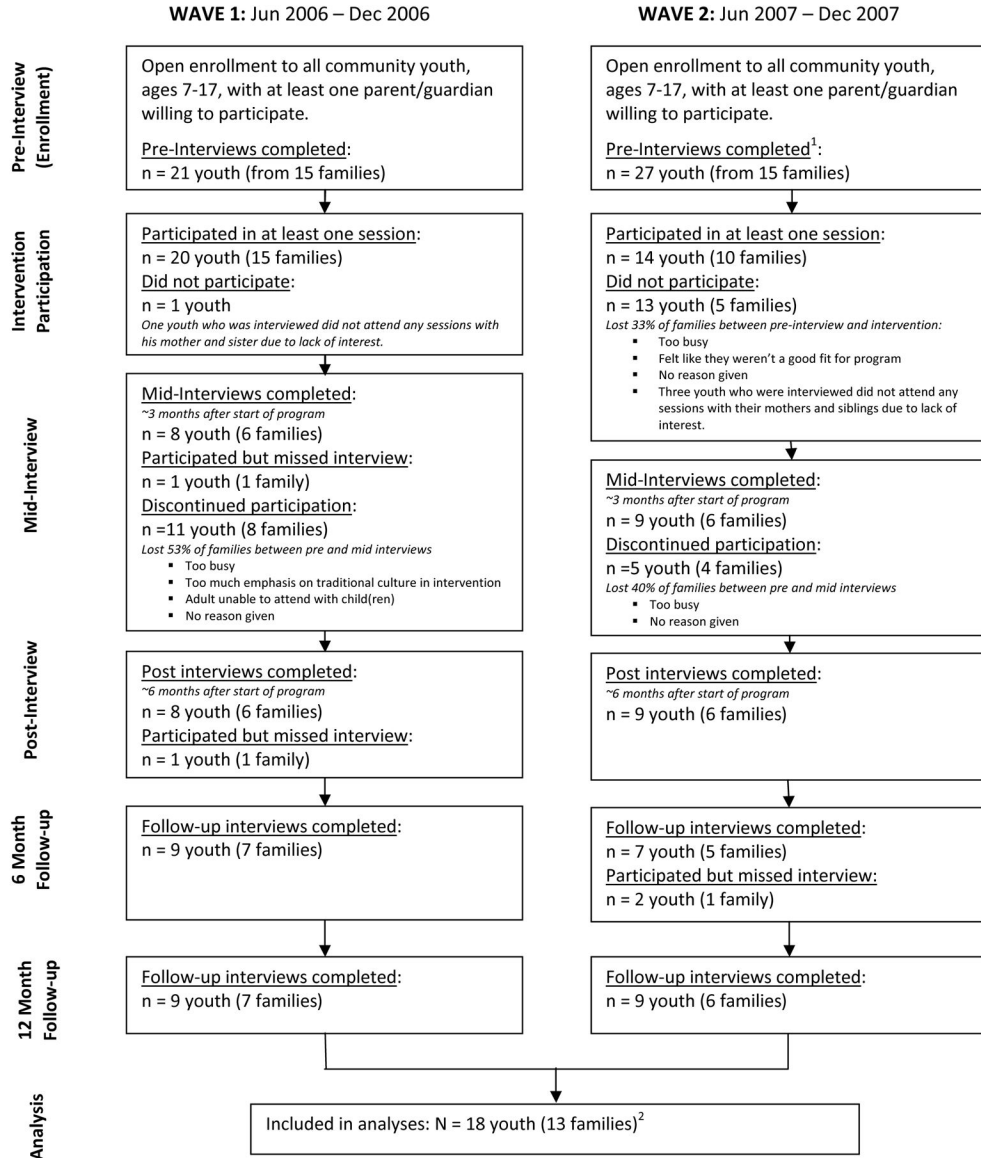
Figure 1.
Our Life intervention conceptual model.

WAVE 1: Jun 2006 – Dec 2006

WAVE 2: Jun 2007 – Dec 2007

Pre-Interview (Enrollment)

Open enrollment to all community youth, ages 7-17, with at least one parent/guardian willing to participate.

Pre-Interviews completed:
n = 21 youth (from 15 families)

Open enrollment to all community youth, ages 7-17, with at least one parent/guardian willing to participate.

Pre-Interviews completed[1]:
n = 27 youth (from 15 families)

Intervention Participation

Participated in at least one session:
n = 20 youth (15 families)
Did not participate:
n = 1 youth
One youth who was interviewed did not attend any sessions with his mother and sister due to lack of interest.

Participated in at least one session:
n = 14 youth (10 families)
Did not participate:
n = 13 youth (5 families)
Lost 33% of families between pre-interview and intervention:
- Too busy
- Felt like they weren't a good fit for program
- No reason given
- Three youth who were interviewed did not attend any sessions with their mothers and siblings due to lack of interest.

Mid-Interview

Mid-Interviews completed:
~3 months after start of program
n = 8 youth (6 families)
Participated but missed interview:
n = 1 youth (1 family)
Discontinued participation:
n =11 youth (8 families)
Lost 53% of families between pre and mid interviews
- Too busy
- Too much emphasis on traditional culture in intervention
- Adult unable to attend with child(ren)
- No reason given

Mid-Interviews completed:
~3 months after start of program
n = 9 youth (6 families)
Discontinued participation:
n =5 youth (4 families)
Lost 40% of families between pre and mid interviews
- Too busy
- No reason given

Post-Interview

Post interviews completed:
~6 months after start of program
n = 8 youth (6 families)
Participated but missed interview:
n = 1 youth (1 family)

Post interviews completed:
~6 months after start of program
n = 9 youth (6 families)

6 Month Follow-up

Follow-up interviews completed:
n = 9 youth (7 families)

Follow-up interviews completed:
n = 7 youth (5 families)
Participated but missed interview:
n = 2 youth (1 family)

12 Month Follow-up

Follow-up interviews completed:
n = 9 youth (7 families)

Follow-up interviews completed:
n = 9 youth (6 families)

Analysis

Included in analyses: N = 18 youth (13 families)[2]

[1] In order to establish a base rate for change, we conducted two pre-interviews (3 months prior to intervention and immediately prior to intervention) with Wave 2 families.
[2] Because this was a pilot study of the intervention, participants were included in the analyses if they received a meaningful amount of intervention (at least 9 of 27 sessions), rather than inclusion by intent to treat.

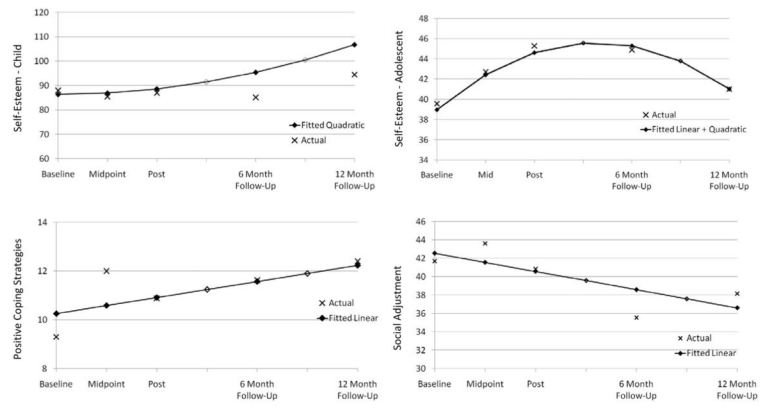**Figure 2.**
Our Life intervention flowchart.

Figure 3.
Graphs of four selected outcomes.

Table 1

Means (Standard Deviations) for All Outcome Measures at Each Time Point

Scale	Pre Intervention	Mid-Point	Post Intervention	6-month Follow-up	12-month Follow-up	Variable Range
Enculturation[1]	22.27(1.39)	24.24(1.54)	23.77(1.36)	24.34(1.12)	23.15(1.51)	0–39
Cultural Identity – 1 Item	2.44 (0.78)	2.47 (0.94)	2.82 (0.39)	2.82 (0.40)	2.67 (0.68)	0–3
Self-Esteem Child	87.91 (12.40)	85.40 (16.90)	87.00 (10.20)	85.14 (11.90)	94.44 (10.60)	30–120
Self-Esteem Adolescent	39.57 (8.66)	42.71 (8.36)	45.28 (10.90)	44.89 (4.96)	41.00 (7.24)	10–60
Positive Coping	9.30 (3.71)	12.00 (5.89)	10.88 (5.24)	11.62 (4.60)	12.40 (5.30)	0–21
Quality of Life	60.89 (9.76)	63.42 (7.79)	68.00 (7.90)	63.72 (7.98)	62.94 (9.84)	19–76
Social Functioning [2]	41.69 (10.70)	43.62 (14.40)	40.82 (12.60)	35.54 (12.00)	38.14 (11.90)	21–105

[1] Scale created after Zimmerman (1996) as the sum of the Z-scores for three individual scale totals at each time point. For descriptive purposes, totals presented in the table are aggregate sums.

[2] Instrument is scaled such that lower scores indicate better functioning.

Table 2

Coefficients for all HLM Models

Outcome	Average (Fixed) Effects				Random Variance Estimates	
	Intercept – initial level (β_{00})	Linear change (β_{10})	Quadratic change (β_{20})	Intercept variance (τ_{00})	Linear change variance (τ_{10})	Quadratic change variance (τ_{20})
Enculturation	–.01	NE	NE	3.29***	NE	NE
Cultural Identity	2.39***	.076*	–.0033*	.40***	.002**	NE
Self-Esteem Child	86.33***	n.s.	.063*	70.68***	NE	NE
Self-Esteem Adolescent	38.98***	1.35*	–.0687**	40.33**	.174*	NE
Positive Coping	10.25***	.11*	NE	16.85**	NE	NE
Quality Of Life	61.38***	1.02*	–.054*	42.52***	.26***	n.s.
Social Functioning	42.53***	–.33*	NE	93.39***	.40***	NE

Note.

***
p < .001;

**
p < .01;

*
p < .05;

NE = not estimated in 'best fit' model; *n.s.* = estimated but non-significant