

DEVELOPMENT AND PILOTING OF A BRIEF INTERVENTION FOR SUICIDAL AMERICAN INDIAN ADOLESCENTS

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Abstract: American Indian (AI) adolescents have the highest suicide death and attempt rates of any U.S. group, yet few interventions have been developed or evaluated for this population. This paper presents the first adaptation of a brief evidence-based intervention for AI adolescents from one reservation who made a suicide attempt. We describe our community-driven approach to intervention development and a small pilot study (n = 13). Preliminary findings indicate reductions in adolescents' negative thinking, depression, and suicidal ideation, and an increase in psychological service utilization. Key innovations include delivery by AI paraprofessionals and potential to strengthen the continuum of care between emergency department and outpatient settings.

INTRODUCTION

Suicide deaths and attempts are a major source of morbidity, mortality, and health care costs in the U.S., with the highest rates among American Indian and Alaska Native (AI/AN) youth. According to Center for Disease Control and Prevention (CDC) data, the suicide rate among (AI/ANs) ages 15-24 years is 51.93/100,000 and 16.74/100,000 for males and females, respectively (3-4 times higher than that of other U.S. youth), and suicide is the second leading cause of death for AI/ANs in this age group (Suicide Prevention Resource Center, 2013). While the majority of individuals who attempt suicide do not die, a suicide attempt is one of the most well-established risk factors for suicide death (Bridge, Goldstein, & Brent, 2006; Prinstein et al., 2008); 14.7% of high-school AI/AN youth reported a suicide attempt and 6.1%, a medically serious suicide attempt, in the past 12 months on the CDC's Youth Risk Behavior Survey, nearly 2-3 times the rate of other U.S. youth (7.8% and 2.4%, respectively; Suicide Prevention Resource Center, 2013).

Suicide attempts often go unrecognized (Claassen & Larkin, 2005; Kemball, Gasgarth, Johnson, Patil, & Houry, 2008; King, O'Mara, Hayward, & Cunningham, 2009), and many individuals who do receive medical attention obtain little or no follow-up treatment (Bridge, Marcus, & Olfson, 2012; Knesper & American Association of Suicidology, & Suicide Prevention Resource Center, 2010). This problem is compounded further in rural, reservation-based settings with significant barriers to care, including stigma, lack of available services, long wait lists, poor access to transportation, and lengthy travel distances (Freedenthal & Stiffman, 2007; Novins, 2009; Probst et al., 2006; Pullmann, VanHooser, Hoffman, & Heflinger, 2010). Only 24% of individuals who died from suicide on one reservation used IHS services in the 6 months prior to their death, versus 50% of controls (Mock, Grossman, Mulder, Stewart, & Koepsell, 1996), and over half of those who died from suicide or attempted suicide in one region of Alaska discontinued psychological care (Wexler, Silveira, & Bertone-Johnson, 2012). On the other hand, data from adolescent medical records in the study community indicate substantial contact (82%) with the local emergency department (ED) for any reason in the year before a suicide attempt with 26% for psychiatric reasons (Ballard et al., 2014). In one region of Alaska, 40% of those who died by suicide came into the ED for an alcohol-related accident in the year prior to their death (Hill, Perkins, & Wexler, 2007). Therefore, the central role of the ED in mental health triage on reservations provides a unique opportunity for developing and evaluating ED or ED-linked mental health interventions to address current service delivery gaps in these communities.

The National Strategy for Suicide Prevention calls for effective identification, assessment, and treatment of suicidal patients in the ED as a critical prevention strategy (U.S. Department of Health and Human Services [US DHHS], 1999; US DHHS Office of the Surgeon General & National Action Alliance for Suicide Prevention, 2012). For adolescents who attempt suicide, a brief ED-based intervention developed by Rotheram-Borus et al. (1996) might currently be considered the gold standard. The intervention has been empirically validated (Rotheram-Borus et al., 1996; Rotheram-Borus, Piacentini, Cantwell, Belin, & Song, 2000), recognized by the Suicide Prevention Resource Center's Best Practices Registry, and successfully adapted cross-culturally, but until now, not in a Native community (Asarnow, Armm, & McGrath, 2002; Asarnow et al., 2011; Donaldson, Spirito, Arrigan, & Weiner Aspel, 1997). The intervention includes a workshop for ED providers to improve their interactions with suicidal adolescents and their families, a video aimed at increasing families' treatment engagement, a crisis therapy session, an on-call therapist, and linkage to an existing outpatient therapy program (Rotheram-Borus et al., 1996). Significant outcomes have included positive maternal attitudes toward treatment, increased adolescent treatment adherence, decreased adolescent depression and suicidal ideation, and decreased maternal symptoms of depression (Rotheram-Borus et al., 1996, 2000). Because there is variable linkage to outpatient

care in many community settings, Asarnow and colleagues (2011) further adapted this intervention to incorporate a compliance enhancement component (Spirito, Boergers, Donaldson, Bishop, & Lewander, 2002; Wells, Tang, Carlson, & Asarnow, 2012) and demonstrated improved follow-up with treatment (Asarnow et al., 2011). (See Hughes & Asarnow, 2013 for a full description of these interventions.)

This paper presents the first adaptation of the Rotheram-Borus intervention for AI adolescents, conducted by the Johns Hopkins Center for American Indian Health in partnership with the White Mountain Apache Tribe (Apache). We discuss: 1) our process for adapting the original ED intervention, 2) unique implementation challenges that were addressed and community assets that were applied to develop the intervention, and 3) preliminary results from 13 Apache adolescents and families who participated in a pilot study of the new intervention.

METHODS

Tribal Population

The White Mountain Apache Tribe (~17,100 enrolled tribal members) resides on the Fort Apache Indian Reservation in northeastern Arizona. Data from the Apache Suicide Surveillance System, a community-mandated reporting and follow-up system for suicidal and non-suicidal self-injury, provides tribal-specific data from 2001-2006 for Apache youth ages 15-24 years (Mullany et al., 2009). The suicide rate was 128.5/100,000 (13 times the U.S. All Races and 7 times the overall AI/AN rates); the suicide attempt incidence rate of 3.5% was approximately 17 times rates from similar studies (~0.2%); and 76% of all Apache youth suicide attempters were brought to the ED, 59% were given a referral for treatment, and just 24% made contact with the agency to which they were referred.

Phase I: Intervention Adaptation

Community-driven Participatory Approach

Johns Hopkins-Apache partners have refined a community-driven participatory approach to intervention development, where key stakeholders are actively involved from selection and adaptation to implementation and evaluation, which is necessary when partnering with AI/AN and other minority and disadvantaged populations (Barlow et al., 2006; Walkup et al., 2009). A participatory approach ensures interventions are culturally appropriate and facilitate community-level dissemination and sustainability. Johns Hopkins and Apache collaborators have an over 30-year trust relationship engaging in research aimed at addressing health disparities, and our current

Community Advisory Board (CAB) has many longstanding partners from earlier work, welcomes interested community members, and regularly selects new participants to meet the needs and content areas of new projects or to fill roles that have been vacated. Our CAB is comprised of tribal leaders, study staff, representatives from tribal agencies, ED providers, and Elders. Through a series of focus groups with the CAB, parents, and youth, the original intervention was adapted extensively for the Apache community in line with standard treatment development guidelines (Rounsaville, Carroll, & Onken, 2001).

Formative Development

Focus group participants discussed implementation considerations and adaptations to intervention content. Implementation considerations included: 1) the local Indian Health Service ED staff were overburdened to deliver the intervention; 2) the ED lacked mental health care providers and space to deliver the intervention; 3) the ED providers faced interpersonal challenges when establishing rapport with families, who were seen as central to the prevention of youth suicide; and 4) concurrent substance use precluded clinical evaluation until adolescents were sober again and limited intervention engagement during an ED visit. Content concerns included: 5) the intervention content did not emphasize the central role of family, Elders, and Apache cultural assets, and 6) the original video featured non-AI actors, thereby decreasing empathy and trust in intervention messages.

Implementation Adaptations

Based on the focus group feedback, the CAB and study team made the following changes to how the original intervention was implemented, corresponding to challenges 1-6 discussed above. The CAB and study team believed these adaptations were essential for establishing rapport and motivating behavior change with at-risk participants and their families. To address 1, 2, and 4, the intervention was delivered in the home or another private setting outside the ED, soon after the index ED visit. The CAB indicated that adolescents and families would be more open and responsive to the intervention in a comfortable setting, and home-visiting approaches are not bound by clinic constraints, particularly long wait times and need for transportation. (The original ED staff training workshop focused on building rapport with suicidal youth and families was omitted, because the intervention was no longer taking place in the ED.) To address 1-3, locally trained Apache paraprofessional Community Mental Health Workers (CMHWs) delivered the intervention, addressing the gap in available mental health professionals and capitalizing on their ability to navigate: cultural considerations (because the CMHWs and participants were of the same culture), treatment access issues, and the relationship between participants and non-Native providers (Barlow & Walkup, 1998; Lancet Global Mental Health Group et al., 2007).

To address 3, parent/guardian participation was required and was expanded to include additional family members, reflecting cultural values in the strength of extended families and local preference for family-based interventions. This adaptation also provided an opportunity to address family-based conflict (identified in the literature as an important risk factor for suicide), and for family members to reinforce skills, including implementation of the youth's safety plan (Barlow & Walkup, 1998; Cross, 1997; Hill, 1989; Rotheram-Borus et al., 1996). To address 4, in the part of the intervention addressing risk situations, we discuss substance use as a potential facilitator for suicidal thoughts and behaviors. We also added elements based on motivational interviewing techniques: a readiness scale for seeking help through counseling, and emphasis on continuing treatment until both the therapist and participant jointly decide to stop. Because this intervention was intended to be brief and to transition youth into outpatient care, the study team decided to focus on treating suicidal thoughts and behaviors directly, as opposed to specific potential underlying factors such as substance use.

Content Adaptations

To address 5, the study team created an enhanced participant workbook and corresponding CMHW manual that incorporated familiar Apache characters, environments, and cultural practices, as well as added places for family participation. For example, the original description of the relationship among thoughts, feelings, and behaviors was adapted to include a fourth component—spirituality—reflecting Apache beliefs about the importance of spiritual balance in health and well-being. These elements were illustrated in a four-component circle, a familiar symbol to Apache and other AI groups. To address 6, a new video was produced with Native actors, dramatic vignettes specific to the characteristics of suicide attempts by male and female adolescents in this community, and added emphasis on connecting with local resources. To address 5, it also included testimonial messages from Elders who spoke in Apache and imparted messages about the seriousness of suicide, its impact on the community, their concern for the adolescent, and Apache beliefs about resilience and communal importance of each individual's life. The adaptation process for the video included drafting a script based on the original video; integrating Apache study staff and CAB feedback on the script; testing the revised messages in the script with youth, parents, and Elders in the community; finalizing the script, which was generally detailed and specific, but included only key points for the Elder portions so they could personalize their messages; and hiring an Apache producer to complete the video. All intervention materials were adapted in English, and CMHWs translated them orally into Apache as needed.

Final Intervention

The new intervention was named “New Hope” during a large community meeting led by the CAB, where the video component was previewed. New Hope was designed to be conducted over 1-2 visits in a family-preferred setting after discharge from the ED for a recent suicide attempt (2-4 hours total intervention time). New Hope emphasizes the seriousness of a suicide attempt; teaches coping skills to reduce risk, including emotion regulation, cognitive restructuring, social support, self-efficacy, and safety planning; and helps participants overcome barriers to treatment motivation, initiation, and adherence. CMHWs explain to participants and families that New Hope is psychoeducation designed to be adjunctive to clinical psychological services and to reinforce linkage to the local outpatient mental health center and other culturally acceptable care providers (e.g., church counselors, traditional healers).

Phase II: Pilot Evaluation

Study Design

We selected an open trial design to evaluate the potential impact of New Hope with assessments delivered by CMHWs at baseline and 1, 2, and 3 months post-intervention, in addition to brief case management and support over the follow-up period.

Inclusion Criteria

Eligible participants were Apaches ages 10 to 19 years who attempted suicide in the past 90 days.

Sampling Procedures

A convenience sample was recruited and followed up through the tribally mandated Apache Suicide Surveillance System, described in detail elsewhere (Cwik et al., 2014), between April 2009 and June 2011. The Apache system receives reports on community members of all ages for a range of suicidal and related behaviors; the majority of reports for suicide attempts come from the ED. The pilot was described by CMHWs affiliated with the Suicide Surveillance System to youth who came through the system and met study inclusion criteria. For interested youth ages 10 to 17 years, different CMHWs who were study team members approached parents to provide consent; youth provided assent. Youth ages 18-19 years consented independently. If youth wanted a non-parent/guardian adult to participate with them, parents/guardians provided permission and the additional adult signed a separate consent. Intervention delivery and data collection occurred in the participant’s home, Johns Hopkins office, or another private location of the participant’s choice. Participants received a \$25 Wal-mart gift card at the completion of each study assessment visit. The

New Hope intervention was only available during this time period to study participants; however, all community members who were reported to the surveillance system received an assisted referral to the local community mental health center.

The pilot study protocol was approved by the White Mountain Apache Tribal Council and Phoenix Area Indian Health Service Institutional Review Boards, and the Apache Health Advisory Board and Tribal Council. The Apache Health Advisory Board and Tribal Council approved this manuscript.

Quality Assurance

Six part-time CMHWs were trained in New Hope delivery and the study protocol by clinical supervisors for a total of 40 hours each, including extensive role-playing. CMHWs were required to score 80% or higher (on a 100% scale) on a written exam prior to intervention delivery. Supervision was provided daily by a local Apache site coordinator, weekly by clinical supervisors via phone, and quarterly on site. Clinical supervisors assessed intervention mastery and fidelity by rating audio files of all completed sessions according to key intervention content and delivery criteria. Feedback was provided through individual coaching and additional training when necessary.

Pilot Measures

We used a comprehensive battery to assess participant characteristics and outcomes, focused on constructs that evidenced change in studies of the original intervention (e.g., depression), and that we believed were important to capture locally based on adaptations and previous research by the study team (e.g., family functioning). We prioritized standardized measures used in our population previously, with other AI samples, or in the suicide field. All measures were reviewed by our CAB and CMHWs for cultural acceptability and were edited to reflect syntax and semantic preferences without changing underlying meaning. Core assessments are described below. Because our sample was too small to examine reliability, estimates are presented from the general literature.

Baseline Characteristics

Sociodemographics: A 51-item structured interview adapted by the study team from the Voices of Indian Teens survey (Moran, Fleming, Somervell, & Manson, 1999) assessed socioeconomic status, household composition, maintenance of traditional Apache practices, school status, and leisure-time activities.

Suicide History Screen: A 38-item structured interview adapted from two standard assessments, the Columbia Suicide Screen (test-retest reliability, 0.48 to 0.58; Beck, Shuyler, & Herman, 1974) and the Suicide Intent Scale (internal consistency, 0.79 to 0.95; Shaffer et al., 2004), assessed the context of current and past suicide attempts and treatment history.

Youth Risk Behavior Survey (YRBS; Borowsky, Resnick, Ireland, & Blum, 1999; Brener et al., 2002): An 87-item self-report widely used among AI samples with a median Kappa of 60% and range of 24% -91%, assessed substance use, sexual behaviors, and unintentional injuries/violence.

Outcomes Assessed at Baseline and 1-, 2- and 3-Month Follow-ups

Knowledge, Attitudes and Behavior (KAB): A 24-item self-report questionnaire designed by the study team assessed key content, messages, and skills included in New Hope, as well as participant satisfaction. Items cover participants' report of what was learned, attitude change, and intended behavioral change as a result of the intervention. The questionnaire contained multiple-choice and 5-point Likert scale items. Likert scale items are generally positively scored, with higher scores representing stronger agreement with or endorsement of an item.

Children's Negative Cognitive Errors Scale (CNCES; Leitenberg, Yost, & Carroll-Wilson, 1986): A 17-item self-report, with Cronbach's alpha of 0.89, the CNCES assessed cognitions about social/peer rejection, group activity competence, and academic competence.

Center for Epidemiological Studies-Depression Scale (CES-D; Weissman, Pottenger, Kieber, Ruber, & Williams, 1977): The study team used the CES-D, a 20-item self-report with a large body of supportive psychometric data among adolescents and AI samples, to assess depressive symptoms (Cronbach's alpha = 0.88). The CES-D has a cutoff of ≥ 28 indicating clinical impairment.

Children and Adolescent Services Assessment (CASA; Angold et al., 1998): A 21-item structured interview assessed mental health services utilization (e.g., help seeking).

Intervention Fidelity and Safety

Fidelity Rating Form: CMHWs received a rating of "Needs Training," "Satisfactory," or "Excellent" on 27 items pertaining to key intervention content (i.e., correctly explaining the problem-solving tool and using the tool to address a problem identified by the participant) and 19 items pertaining to intervention delivery (i.e., establishing rapport and using age-appropriate examples) that were developed by the study team.

Suicide Ideation Questionnaire (SIQ/SIQ-JR; Reynolds, 1988): The SIQ/SIQ-JR is a 15-item, 7-point scale that analyzes frequency and severity of suicidal ideation over the past 6 months, and has been widely used among AI adolescents and other populations (Cronbach's alpha = 0.97). The clinical cutoffs, indicating severe suicidal ideation warranting clinical intervention, are 30 for the SIQ and 23 for the SIQ-JR.

Safety Assessment and Management

CMHWs assessed the participant's current risk for suicide by completing the SIQ/SIQ-JR at the close of every intervention and assessment study visit. The study protocol for assessing suicide risk and corresponding safety procedures were reviewed with participants and parents at

the time of informed consent by CMHWs. Based on the SIQ/SIQ-JR score and corresponding risk categories developed by the study team, in addition to other information shared during the visit, the participant's current level of suicide risk was classified as either: Does Not Appear at Risk, At Some Risk, At Medium to High Risk, or At Very High Risk. Study safety protocol dictated CMHWs respond in a graduated fashion and contact study clinicians based on assessed risk, which ranged from making a safety plan with the adolescent and parent (At Some Risk) to taking the youth to the ED (At Very High Risk).

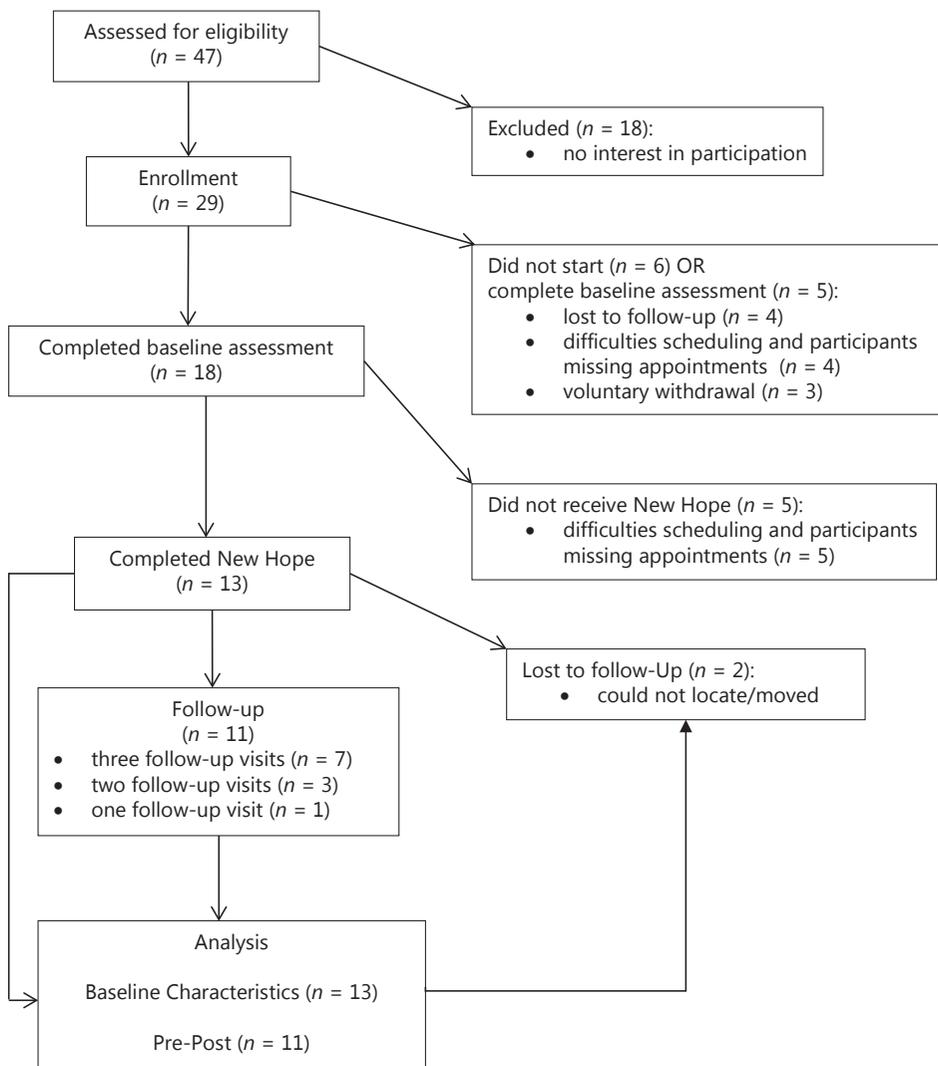
Participant Flow

Forty-seven youth (35 females and 12 males) were eligible and were approached during the recruitment period; 29 (22 females, 7 males) were interested and consented to study participation (61.7%). Eighteen youth completed the baseline assessment, conducted over 1-2 separate visits after consent (62.1% retention); of the 11 participants who did not complete the baseline, 4 were lost to follow-up, 4 were noncompliant with scheduled study visits, and 3 voluntarily withdrew. Thirteen of 18 completed New Hope, delivered over 1-2 separate visits after baseline completion (72.2% retention); 5 participants who did not complete New Hope due to scheduling difficulties or missed appointments. The majority (11/13) of those who received New Hope completed some portion of the follow-up visits (84.6% retention). There are no follow-up data on participants who did not complete the intervention. See Figure 1 for complete details.

Data Analysis

First, means and standard deviations were calculated for the full sample ($N = 13$) on sociodemographic and other baseline characteristics. Second, Kruskal Wallis tests were run, and the study team determined there were no differences between the full sample ($N = 13$) and those who had at least one follow-up visit ($N = 11$) on outcome measures at baseline; those with baseline data only were excluded from the rest of the analyses. Third, linear mixed model repeated measures analysis was conducted to examine cross-time changes in hypothesized outcomes for participants ($N = 11$) with at least one follow-up visit; 63.6% ($n = 7$) had all three follow-ups, 27.3% ($n = 3$) had two follow-ups, and 9.1% ($n = 1$) had only 1 follow-up. Analyses were conducted using the SPSS MIXED procedure utilizing restricted maximum likelihood estimation. Time was modeled as fixed effect (with subject as random). An autoregressive covariance structure (AR1) was specified to account for cross-time correlations of the repeated measures within subjects. Only significant findings are reported in the text (alpha level was set at $p < .05$). We will briefly describe CMHW intervention mastery, sociodemographics, and baseline characteristics, but the main focus of reporting will be on preliminary intervention outcomes.

Figure 1
New Hope Enrollment Chart



RESULTS

CMHW Intervention Mastery

The mean exam score was 87%. Two of the audio files were not recorded properly. Of the scored audio files (n = 11), 10% of items received a grade of “Needs Training”; 38%, “Satisfactory”; and 52%, “Excellent.”

Sociodemographic Characteristics ($n = 13$)

Mean age was 14.3 years ($SD = 2.2$) and 92% were female ($n = 12$). Approximately half reported currently living with just one parent (54%, $n = 7$), and the other half with both parents (46%, $n = 6$); 46% ($n = 6$) also had one or more grandparents living in the home. On average, participants had moved 3.6 times ($SD = 4.9$) in the past year, and 85% ($n = 11$) received monetary assistance with groceries. The majority were currently in school (77%, $n = 10$).

Baseline Characteristics ($n = 13$)

The average age of first suicide attempt was 13.5 years ($SD = 2.3$) and median number of attempts was two ($SD = 7.1$, mean = 5.5, range, 1-22). Laceration was the most common method (39%, $n = 5$). The majority (62%, $n = 8$) reported family conflict as the reason for their current attempt. Most adolescents reported lifetime alcohol (62%, $n = 8$) or marijuana (69%, $n = 9$) use. Less than half (46%, $n = 6$) reported being referred initially for treatment after their attempt. See Table 1 for complete information.

Table 1
Baseline Characteristics

	Total ($n = 13$)
Suicide History, M (SD)	
Age first attempt	13.5 (2.3)
Number attempts	5.5 (7.1)
Current Attempt, % (n)	
<i>Method</i>	
Hanging/asphyxiation	23.1 (3)
Alcohol/drug overdose	30.8 (4)
Laceration	38.5 (5)
<i>Precipitating Event(s)</i>	
Suicide/death	23.1 (3)
Relationship problems	7.7 (1)
Family problems	61.5 (8)
Anger/depression	38.5 (5)
Other/don't know	30.8 (4)
<i>Referred for Treatment</i>	46.1 (6)
Lifetime Substance Use, % (n)	
Alcohol	61.5 (8)
Marijuana	69.2 (9)
Cocaine	7.7 (1)
Methamphetamine	7.7 (1)
Other (glue, heroin, steroid)	30.8 (4)

Pilot Outcome Evaluation ($n = 11$)

Knowledge and Satisfaction

Participants reported knowledge about suicide risk and attitudes toward counseling in the desired direction. For example, 100% of participants reported “knowledge of situations that may cause them to hurt themselves” and 90% of participants endorsed “staying in counseling until the counselor and the individual agree it is time to stop” at 3 months. In addition, items pertaining to quality of CMHWs (i.e., respectful, knowledgeable, helpful, professional) and overall program satisfaction (i.e., helpful) were some of the highest rated items on the KAB questionnaire at each of the follow-up time points, with averages ranging from 4.13-4.75 (on a 5-point scale) at 3 months.

Intervention Targets

Negative cognition scores improved significantly from baseline ($M = 50.4$; $SD = 14.8$) to 1 month ($M = 48.2$; $SD = 15.7$), 2 months ($M = 39.5$; $SD = 14.5$) and 3 months post-intervention ($M = 36.1$; $SD = 17.2$; $F[3,19.6] = 3.807$, $p = .03$). Depressive symptom scores also improved significantly from baseline ($M = 33.3$; $SD = 15.3$) to 1 month ($M = 25.1$; $SD = 10.2$), 2 months ($M = 25.7$; $SD = 12.8$), and 3 months follow-up ($M = 21.0$; $SD = 12.7$; $F[3,21.5] = 4.794$, $p = .01$)—representing a change from approximately 5 points above the CES-D clinical cutoff of ≥ 28 at baseline to 7 points below by 3 months. See Figures 2 and 3 for boxplots of these data.

The number of participants who scored above the clinical cutoff of 30 for the SIQ and 23 for the SIQ-JR seemed to decrease over the follow-up period, from 64% ($n = 7/11$) at baseline, to 11% ($n = 2/11$) at 1 month, to 9% ($n = 1/11$) at 2 months, and 10% ($n = 1/10$) at 3 months. In addition, participants appeared to utilize more outpatient care from a mental health provider at 1 month ($M = 12.9$ times) and 2 months ($M = 10.2$ times) in comparison to baseline ($M = 3.6$ times), but this increase attenuated by 3 months ($M = 2.8$ times). Conversely, visits to the ED for mental health reasons seemed to decrease during the study period: baseline ($M = 9.0$ times), 1 month ($M = 0.9$ times), 2 months ($M = 0.3$ times), and 3 months follow-up ($M = 0.3$ times).

Figure 2
Negative Cognition Scores over Follow-up

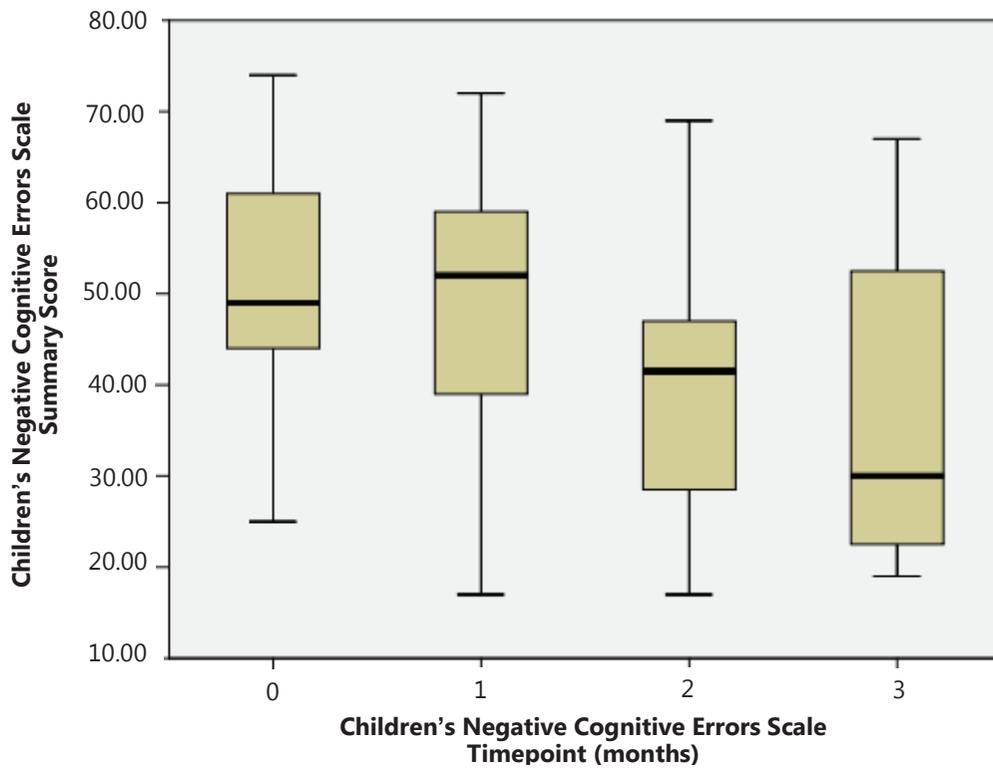
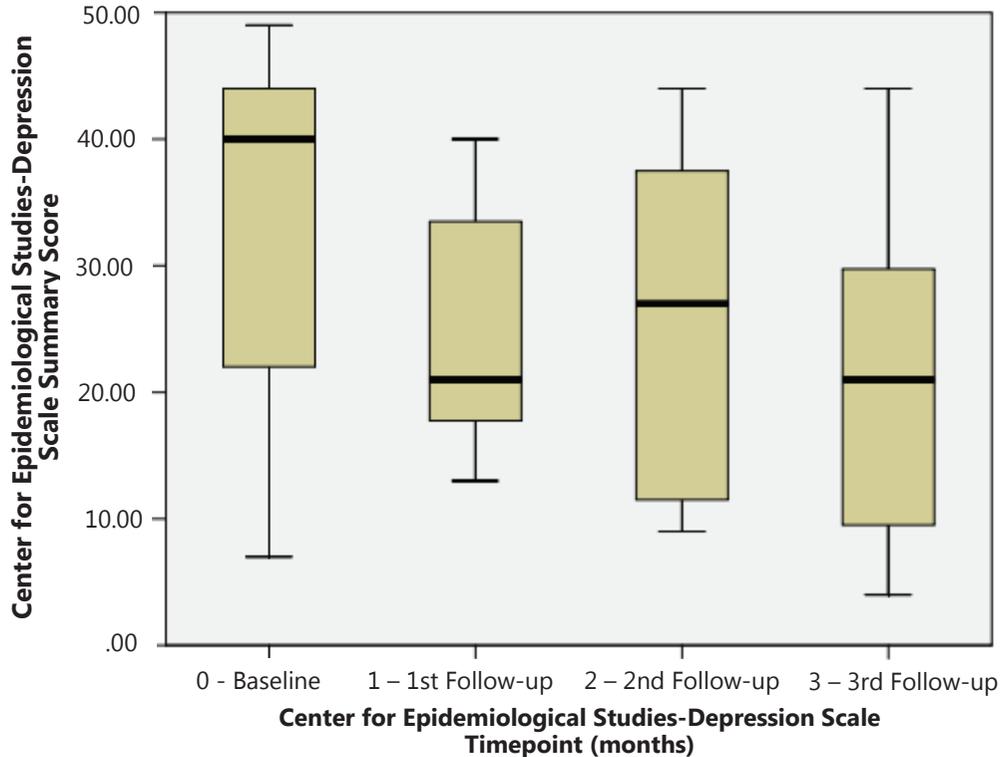


Figure 3
Depressive Symptom Scores over Follow-up



DISCUSSION

Preliminary findings from this pilot evaluation of New Hope, a brief intervention for AI adolescents with a recent suicide attempt, are promising for younger adolescent females. Participants reported changes in the hypothesized direction on several intervention targets that are worthy of further study, including decreased negative thinking and depressive symptoms; improved suicide-related outcomes, including knowledge about how to reduce suicide risk, as well as scores below the clinical cutoff for suicidal ideation post-intervention; and changes in targeted service use outcomes, including improved attitudes toward counseling, increased outpatient treatment utilization, and decreased ED visits for mental health.

The most innovative aspects of this study are the relevant lessons learned for suicide prevention in AI/AN communities. First, the treatment development process, which can be replicated in other contexts, serves as an example of a community-driven participatory approach to culturally adapt an evidence-based intervention, including specific changes to the intervention that seemed to work well (i.e., changing who delivers the intervention) and others that might not have worked as well (i.e., removing from the ED setting). In this case, the tribal-academic partners created what might be considered a new intervention that was flexible in implementation, but had replicable goals and content to achieve desired outcomes. Second, the evaluation demonstrated that local paraprofessional CMHWs can be successful in delivering a brief intervention and providing follow up to adolescents with a recent suicide attempt, as evidenced by high intervention exam scores, quality assurance ratings, participant satisfaction ratings, and improved outcomes. Paraprofessionals have been trained in other settings to conduct a variety of psychoeducational interventions consisting of support, problem solving, and other skill development (Barlow et al., 2006; Bass et al., 2006; Bolton et al., 2007; Holden, 1996; Walkup et al., 2009), but this pilot may represent the first instance directly targeting adolescents with suicide attempts. Integrating paraprofessionals into Western medical settings to supplement limited psychological services in reservation-based and other rural and disadvantaged communities is an important mental health model that also increases capacity of the local workforce.

New Hope also responds to several objectives of the National Strategy for Suicide Prevention: it addresses the needs of a vulnerable group through intervention tailoring to a specific cultural and situational context;) promotes the safety and well-being of suicidal adolescents treated in the ED by providing them a brief intervention; coordinates with the existing Apache Suicide Surveillance System, local ED, and outpatient mental health center to ensure continuity of care, as fewer than half of those in the pilot sample reported being referred for treatment initially after their attempt; and establishes a unique link among the ED, CMHWs, and local mental health care providers to provide alternatives to ED-based care (US DHHS, 1999; US DHHS Office of the Surgeon General

& National Action Alliance for Suicide Prevention, 2012). Specifically, youth were connected at a high-risk time with CMHWs who could assess risk, teach them to use a safety plan and coping skills developed through the intervention, communicate with providers, and connect them with a counselor—perhaps providing enough support to avert ED visits for less severe crises.

This pilot study has several limitations. First, and most importantly, the subsample of participants with full participation was composed mostly of younger females (92%). While youth suicide intervention trials generally have underrepresentation of males, with samples ranging from 68-100% female (Asarnow et al., 2011; Diamond et al., 2010; King et al., 2006, 2009; Rotheram-Borus et al., 1996; Spirito et al., 2002; Wharff, Ginnis, & Ross, 2012), this challenge is still especially concerning, as the majority of suicide deaths are among older adolescent/young adult males and almost as many males as females attempt suicide among AIs (Mullany et al., 2009). Second, but equally important, retention was a critical issue; 29 youth were consented to achieve a sample of 13 youth who received the intervention. Closer examination of the participant flow illustrates that the greatest challenges were difficulty locating and contacting youth following their ED visit, and completing the baseline battery (62.1% retained); but, once youth started New Hope, the majority completed the intervention and follow-up visits (84.6%). The study's required parent participation in intervention visits may have been a barrier; CMHWs reported challenges finding a mutually agreeable time for parents and adolescents. We did provide flexibility by allowing an additional adult to participate, but none of the participants utilized this option. Third, there was no control group; it is possible that participants may have shown improvement in targeted domains without the intervention, or that we observed regression to the mean with a sample that was high risk from baseline. Findings should be considered within the context of these limitations.

The study team has planned future directions to increase participant retention and the target population reached: 1) utilize alternative strategies to reach males, such as more activities (and less didactic material) and delivery by male CMHWs; 2) provide flexibility (e.g., a separate family visit) and/or motivational enhancement to encourage (but not require) family participation, and widen criteria to include Elders and trusted friends as additional social supports; 3) incorporate part of the intervention back into the ED (as per the original model) or into other settings where at-risk adolescents can be identified, such as primary care, schools, churches, or other community-based locations; 4) better understand the need for the intervention to address co-morbid substance use; 5) minimize the number of assessments/visits prior to intervention delivery; and 6) review the findings with key stakeholders, including ED staff, to get their feedback on which adaptations worked and did not work, and on next steps.

Development and evaluation of interventions directly targeting AI/AN suicidal adolescents are important for several reasons. First, few interventions have been shown effective for suicidal adolescents in general and none have been developed or evaluated specifically with this population, the most at-risk group in this age range. Second, the use of a community-driven participatory process and study implementation render preliminary findings more transferable to a real-world setting and to other populations with similar risk profiles and barriers to care. Lastly, New Hope has the potential to fill one important gap in the continuum of care, the bridge between an ED visit and outpatient treatment, for Native suicidal adolescents by providing psychoeducation and connectedness to a trusted community resource and cultural mediator that safeguards this high-risk group and improves their engagement with mental health services.

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