A public health approach: Documenting the risk and protective factors of suicide ideation in one American Indian community

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Abstract:

Suicide is the leading cause of injury-related death in the United States, and between 1999 and 2009 the greatest increases in suicide were among American Indians and Alaska Natives. The present study highlights the efforts of 1 American Indian community to prevent suicide using the public health approach as a framework. A survey was developed and administered by the community between March 2014 and July 2014 at various community events. The sample included 100 participants with a mean age of 15.62 years. Questions related to stress, suicide ideation, anxiety, self-esteem, and antisocial behaviors. Results from this study indicate that depression and stressful life events are the strongest predictors of suicide ideation among tribal youth.

Keywords: suicide | psychosocial risk factors | protective factors | American Indian community | prevention

Article:

Unique histories, communities, and cultures make up more than 566 federally recognized American Indian–Alaskan Native (AI– AN) tribes in the United States (U.S. Census Bureau, 2010) totaling about 1.7% of the population. Within these tribes, marked variation in tribal customs, languages, and histories exist. The variation and status of AI–AN tribes creates a distinct set of risk and protective factors that require further consideration in the context of suicide prevention.

Suicide is the leading cause of injury-related death in the United States, and between 1999 and 2009 the greatest increases in suicide were among American Indians and Alaska Natives (AI–ANs; Centers for Disease Control and Prevention [CDC], 2013). Among AI–AN women, suicide rates increased by 81.4% (from 5.7 to 10.3 deaths per 100,000), and among men, rates increased by 59.5% (from 17.0 to 27.2 deaths per 100,000; CDC, 2013). Suicide ideation and attempts are significant predictors of completed suicide (Keane, Dick, Bechtold, & Manson, 1996), and American Indian youth have consistently had the highest prevalence rates of suicide attempts in the nation. One national study reported 23.1% of American Indian youth had suicide ideation, and 16.4% reported suicide attempts (Pavkov, Travis, Fox, King, & Cross, 2010). In comparison, among Hispanic youth, 16.5% reported suicide ideation and 10.1% suicide attempts,

and among African American youth, 12.3% suicide ideation and 7.8% suicide attempts (Pavkov et al., 2010). The present study highlights the efforts of one American Indian community to prevent suicide using a public health approach framework (Suicide Prevention Resource Center [SPRC], n.d.) where defining the problem through data collection is the first step. The primary research question that this study sought to answer was, "What are the risk and protective factors of American Indian youth living in one reservation community?" Goals of this research were to support a public health approach to suicide prevention by collecting community data and developing prevention approaches based on needs identified in the data. Grounded in the interpersonal theory of suicide (Joiner, Van Orden, Witte, & Rudd, 2009), this was the first study to document the risk and protective factors of American Indian youth in this reservation community. Results from this study show that females were more likely to report significantly higher mean scores for all psychosocial risk factors with the exception of one protective factor, self-esteem. The combination of higher risk scores for all risk variables and lower self-esteem among females is one of the more important findings from this study—and efforts are under way to validate these results and promote culturally informed gender-based prevention initiatives at the middle schools and high schools on the reservation that focus on social connections and belonging. With this research question and study goals in mind, in the next sections we describe differences in suicide ideation among American Indian populations and the methods and results of this study.

Gender

Gender differences in suicide ideation, attempts, and completions have been established in American Indian populations. In a recent meta-analysis conducted by the Great Lakes Inter-Tribal Council of all Indian Health Service Resource Patient Management Systems records from 2003 to 2012, suicide ideation and attempts were most common among unemployed single females between the ages of 15 and 19 years with less than 12 years of schooling (Great Lakes Inter-Tribal Council, 2013). Authors reported that American Indian males were more likely than females to complete suicide and accounted for 72.5% of suicide completions between 2003 and 2012 (Great Lakes Inter-Tribal Council, 2013). The results of this report were similar to the findings of a previous study in the U.S. general population where males were more likely than females to commit suicide (Mullany et al., 2009). Trauma, unemployment, and limited education may place individuals at greater risk. Age is a differentiating factor among AI–ANs; the highest rates of suicide in the United States are among AI–ANs ages 19 –24 (CDC, 2013). In comparison, among non-AI–ANs the highest rates of suicide occur in those over 75 (CDC, 2013). Reasons for gender and age differences may be related to the fact that American Indian males choose more lethal and irreversible means when compared with other populations (Herne, Bartholomew, & Weahkee, 2014). Differences in suicidality among AI–AN and other populations are not well understood, but previous research has pointed to psychosocial risk and protective factors. Common psychosocial risk factors among all racial and ethnic groups include the following: previous suicide attempt, poor mental health, comorbid psychiatric disorders, exposure to suicide, bullying, and stressful life events (Borowsky, Resnick, Ireland, & Blum, 1999; Liu & Miller, 2014). Among American Indians in the Northern Plains, psychosocial risk factors include female gender, depressive disorder, posttraumatic stress disorder, substance abuse– dependence, and violent ideation–aggression (LeMaster, Beals, Novins, & Manson, 2004). These risk factors may be more pronounced in American Indian communities because of

trauma, discrimination, unhealthy coping responses, substance use, and poverty (Manzo, Tiesman, Stewart, Hobbs, & Knox, 2015). Yet, an emerging body of literature has pointed to several protective factors found in American Indian communities, factors including social support, family cohesion, cultural identity, high self-esteem, and lower depression scores (Cwik, et al., 2015). These protective factors act as a buffer between individuals and suicidality. This study builds on previous literature by examining the relationships between suicide ideation and psychosocial risk and protective factors in one American Indian reservation community.

Suicide Prevention Grants

Existing suicide prevention grants in AI–AN communities like the Meth Suicide Prevention Initiative (http://www.ihs.gov/mspi/) and the Substance Abuse and Mental Health Services Administration's (SAMHSA) State and Tribal Garrett Lee Smith (GLS) grants (http://www.samhsa.gov/suicide-prevention/samhsas-efforts) are grounded in Western behavioral health theories and medical models. For example, SAMHSA's GLS grant emphasizes gatekeeper training and increasing knowledge about the warning signs for suicide and how to connect individuals with resources (SAMHSA, 2016). These prevention grants are based on the assumption that AI–AN communities experience risk and protective factors that are similar to those of the general population and therefore use similar training and prevention approaches. Some feel that such programs are narrowly focused and often not appropriate for AI–AN community populations (Gone & Trimble, 2012). Indeed, previous attempts to address suicide rates among AI–ANs have not been as effective as they need to be, and this is evident by the increasing rates of suicide in this population. Yet, developing an effective prevention approach is difficult due to limited suicide surveillance systems, limited behavioral health providers, and differences in how suicidality and psychosocial risk factors are de fined by behavioral health providers (Kelley, BigFoot, Small, Mexicancheyenne, & Gondara, 2015). Previous research has shown that a public health prevention approach is the most effective method to produce significant and sustained reductions in suicide in all populations (SPRC, n.d.). Briefly, this five-step approach includes defining the problem, identifying causes, developing and testing interventions, implementing interventions, and evaluating interventions. The first step is often difficult because of the emerging data infrastructure in AI–AN communities and the paradigmatic and epistemological differences in how suicide is defined and viewed in these communities. Another barrier in is the widespread mistrust of research, data, surveys, and the biomedical community (Kelley, Belcourt-Dittloff, Belcourt, & Belcourt, 2013). Nonetheless, the public health prevention approach serves as a guide for communities, where they must first define and document the extent of suicide, suicide ideation, and behaviors.

Present Study

The present study highlights the efforts of one American Indian community to prevent suicide using the public health approach as a framework. In this community, there was not a standard definition of *suicide*, so it was important for it to first define *suicide* based on cultural and historical definitions (Kelley et al., 2015). Some community members viewed suicide as a spirit that comes to help those in spiritual pain and also a spiritual guide that comes to listen and guide individuals in need of help. Others defined it using biomedical terms, considering it as an individual's thoughts or actions that may include ideation, attempt, or physical death caused by

self-directed injurious behavior (CDC, 2013). They considered both definitions and developed a survey to document risk and protective factors of youth in the community

Community-Drive Approach

Community discussions about suicide prevention started in 2008. The evaluator (the first author) was invited to meet with tribal health program staff to talk about approaches to suicide prevention. This team developed a plan to prevent suicide using a community-based participatory research approach (CBPR; Wallerstein, Minkler, Carter-Edwards, Avila, & Sánchez, 2015) that was funded by SAMHSA in 2011 through the Tribal Garrett Lee Smith grant mechanism. The team mobilized resources, hired new staff members, and created an advisory board to implement the grant. Briefly, the primary goals of the grant were to increase the understanding of suicide prevention, help individuals in need through culturally based coordination of services and support, and promote partnerships that increase community involvement in suicide prevention activities. With these goals in mind, the first step was considering how to implement the grant in a manner that was community-driven and culturally responsive. The team used a qualitative grounded theory approach to explore community members' experiences and grant activities from the first 12 months of the program. Results from this previous study were published in Kelley et al. (2015). A global theme that emerged from that study was to expand understanding of suicide in the community, not limit the definition to what is technical or standard practice. Several people interviewed mentioned the spiritual nature of suicide. Many viewed suicide as a spirit that comes to help people in pain, yet misunderstanding the spiritual nature may lead people to think about suicide. For example, one person interviewed said:

> This new understanding is about what the spirit is and how it can be used as a way to help our people. The program is working to help others to understand, so they can start healing their own pain and listen better to the spirit being called to our community.

The present study builds on these recommendations by describing how the community documented risk and protective factors associated with suicide using a culturally appropriate survey measure. Team members felt this was an important step toward building administrative and community capacity and developing a data-driven tribal suicide prevention program.

Developing a Culturally Appropriate Survey

The first step in designing a survey was convening a diverse group of community members to talk about how to document risk and protective factors. Meeting participants included the team, elders, behavioral health specialists, cultural knowledge keepers, elders, community health workers, health educators, and other staff members. This initial meeting led to further discussions and planning around survey development. Discussions were guided by the historical and present-day teachings of the tribe, where all life is sacred and valued. The team reflected and discussed tribal histories, stories, and teachings, and these were then incorporated into the survey process and the community's suicide prevention approach. The values of generosity, helping, and respect were apparent in this process.

In the second meeting, participants reviewed the Voices of Indian Teens survey (Whitesell, Mitchell, & Spicer, 2009). After consulting with the Voices of Indian Teens survey authors and reviewing existing literature on the interpersonal theory of suicide, the evaluator developed a survey. The survey was piloted in the community by tribal health staff members to five youth identified by the program director. This process honored the tribal value of helping, where youth and adults helped one another for a common purpose or good. Most youth felt the questions and scales were appropriate but that the survey needed to be shorter. Shortening the survey honored the tribal value of respect for another person's time and contribution. Tribal health staff felt the substance use questions detracted from the focus of the survey, so the team removed all questions relating to substance use. The team added the following statement to the end of the survey, "If you want to talk with someone about problems you are dealing with, we want to help. By calling *1-800-273-TALK* (8255) you'll be connected to a skilled, trained counselor at a crisis center, anytime 24/7." This honored the tribal values of *generosity* and *helping*. The final survey included 21 questions to document risk and protective factors of suicide ideation based on age and gender.

Method

The present study was led by a reservation-based suicide prevention team using CBPR principles (Wallerstein et al. 2015). Within these principles, the American Indian community was the unit of identity—which required shared norms and values, similar goals, and common definitions of *suicide* among team members. Community members shared their knowledge about suicide, tribal histories, and culture. The evaluator helped build the members' skills in the areas of survey development, literature reviews, data analysis, and dissemination.

Setting

The American Indian reservation community was located in southeastern Montana. According to the 2010 Census, the population was approximately 5,000 people, and of these 92% were American Indian (U.S. Census Bureau, 2010). The entire reservation area is considered a medically underserved area, and marked health disparities exist among tribal members.

Theory

The theoretical standpoint used to design this study and interpret data was the interpersonal theory of suicide (Joiner et al., 2009). This theory posits that thwarted belongingness and perceived burdensomeness are sufficient to cause suicide ideation. A separate component of this theory that is not reviewed in this study is the capability to engage in suicidal behavior. The present study used the interpersonal theory of suicide and the following constructs: social support, self-esteem, depression, anxiety, stress, and suicide ideation.

Participant and Procedure

Data were collected between March 2014 and July 2014 at community events, a cultural camp, and the local tribal college. Participants ages 12 to 25 were recruited through posters and

word of mouth, and a member of the evaluation team explained the program and asked for consent. All participants gave written consent, and parental consent was obtained for those younger than 18. Participants were not given any reimbursement for their participation. The survey and procedures were approved by the local tribal leaders and health authority.

The sample included 100 participants (67 female). The mean age was 15.62 (SD 4.20, range 12–25). Eighty-nine percent of participants identified as tribal members of the American Indian community, 8% reported other tribal affiliations, and 2% were non-Native.

Theoretical constructs of the study. Youth may experience stressful events that place them at high risk for substance abuse, different forms of emotional–physical abuse, and suicide (Liu & Miller, 2014). Social support may be protective against suicide attempts in American Indian youth (Freedenthal & Stiffman, 2004). Depression has been correlated with suicide and previous suicide attempts in American Indian youth (Freedenthal & Stiffman, 2004; Hallfors et al., 2004). Previous studies in other adolescent populations have found associations between anxiety and suicidal ideation–attempts (Boden, Fergusson, & Horwood, 2007). High self-esteem has been protective against suicidal behaviors (Overholser, Adams, Lehnert, & Brinkman, 1995). In the general population, antisocial behavior has been consistently linked with suicide attempts (Verona, Patrick, & Joiner, 2001).

Measures

Demographics. Participants self-reported on gender, age, socioeconomic status, and ethnicity. Socioeconomic status was as sessed by asking the question "In the past six months, how often did your family not have enough money for food, clothing, rent, light bill, or fuel for your family?" Response options were 1 (Never), 2 (Rarely), 3 (Sometimes), and 4 (Often). Participants answered seven questions related to socioeconomic status and living conditions using this 5-point scale: 1 (Disagree), 2 (Somewhat Disagree), 3 (Neither Agree nor Disagree), 4 (Somewhat Agree), and 5 (Agree). Ethnicity was assessed using the following item: "Please mark the name of your tribe(s) below," with the response options being the name of the tribe leading the survey, a neighboring tribe, and other (space provided to specify) or nonNative.

Stressful life events. Participants were presented with six stressful events and asked to mark 1 (No, this event did not happen to me in the past 12 months) or 2 (Yes, this did happen to me in the past 12 months).

Social support. A five-item subscale of the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) was used to assess social support. Participants were asked a series of questions to describe their level of agreement with five statements related to social support (e.g., "There is a special person who is around when I am in need"). Participants responded on this 5-point scale: 1 (Disagree), 2 (Somewhat Disagree), 3 (Neither Agree nor Disagree), 4 (Somewhat Agree), and 5 (Agree).

Suicide ideation. The Suicidal Ideation Questionnaire (SIQ; Reynolds, 1988) was used to assess suicide ideation. Participants were instructed to choose the answer that best described their own thoughts in the past month. Eight statements related to suicide (e.g., "I thought about how I would kill myself") were listed, and participants selected how often they had suicidal thoughts on this 5-point scale: 1 (I do not have these thoughts), 2 (I had this thought before), 3 (About once a month), 4 (About once a week), and 5 (Almost every day).

Feelings of depression. A six-item depression affect subscale of the Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977) was used to assess depression. Participants

were asked a series of questions to describe how often they felt depressed, lonely, or helpless or had emotional break downs in the past week (e.g., "I felt that I could not change my feeling down even with the help of my friends or family"). Response options were 1 (Rarely or None [0 –1 day]), 2 (Some or a Little of the Time [1–2 days]), 3 (A Moderate Amount [3– 4 days]), and 4 (Most or All the Time [5–7 days]).

Feelings of anxiety. The revised Diagnostic Interview Schedule for Children (DISC-R) by Shaffer et al. (1993) was used to assess anxiety. Participants answered seven items (e.g., "Difficulty sleeping at night, wake up a lot") with 1 (No) or 2 (Yes).

Self-esteem. The Rosenberg Self-Esteem Scale (Rosenberg, 1965) was used to assess self-esteem. Participants were asked their level of agreement with seven statements based on questions Rosenberg (1965) developed that were deemed effective and appropriate by the study team (e.g., "I take a positive attitude toward myself"). Response options were based on this 5-point scale: 1 (Disagree), 2 (Somewhat Disagree), 3 (Neither Agree nor Disagree), 4 (Somewhat Agree), and 5 (Agree).

Antisocial behaviors. Five items from Donovan, Jessor, and Costa's (1988) antisocial general deviance measure (e.g., "Been involved with bullying someone") were used. Response options were 1 (Never), 2 (Once a Month), 3 (Once a Week), and 4 (Daily).

Results

Descriptive statistics were generated for the following variables: age, ethnicity, location, and gender. Bivariate correlations were used to further examine the relationship between variables. The strongest correlations among variables were depression and suicide ideation ($r = .711$, $p < .01$), depression and stressful life events (.580, $p < .01$), antisocial behaviors and suicide ideation (r .505, p .01), and anxiety and stressful life events ($r = .520$, $p < .01$). As expected, self-esteem scores were negatively correlated with SIQ scores, depression, antisocial behaviors, and social support. Also, there was a weak but significant negative correlation between social support and suicide ideation scores ($r = -.292$, $p < .01$; see Table 1).

Gender and Psychosocial Factors

To examine differences based on gender, we used an analysis of variance (ANOVA) where the independent variable was gender and the psychosocial risk and protective factors were the dependent variables. Significant gender differences were found for the following variables: anxiety, $F(1, 87) = 15.68$, $p < .000$; antisocial behaviors, $F(1, 87) = 2.96$, $p < .09$; self-esteem, $F(1, 96) = 10.76$, $p < .001$; depression, $F(1, 90) = 6.14$, $p < .01$; and suicide ideation, $F(1, 89) = 4.48$, $p < .037$. Females were more likely to report significantly higher mean scores for all psychosocial risk factors with the exception of the protective factor, self-esteem, where males reported significantly higher levels of self-esteem.

Age and Psychosocial Factors

To examine differences based on age, we used an ANOVA where the independent variable was age and the dependent variables were psychosocial risk and protective factors. Significant differences were found for anxiety, $F(13, 75) = 1.87$, $p < .05$; antisocial behaviors, $F(14, 74) = 1.79$, $p < .05$; depression, $F(14, 77) = 2.35$, $p < .01$; and suicide ideation, $F(14, 76) = 1.96$, p

< .03. As age increased, anxiety, depression, and suicide ideation increased, whereas antisocial behaviors decreased.

Depression

Individual linear regression models were used to examine the best predictors of SIQ scores controlling for age and gender. Results demonstrated that only CES-D scores (depression) were associated with increased SIQ scores (suicidal ideation and risk) (R^2 = .505), F(1, 88) = 89.78, p < .000.

Table 1

Correlations and Descriptive Statistics American Indian Youth Risk and Protective Factors (N = 100)

Variable	1	2	3	4	5	6	7
1. Depression	--	-.512**	.433**	.411**	-.198	.711**	.50**
2. Self-esteem		--	-.577**	-.392**	.411**	-.539**	-.548**
3. Antisocial behavior			--	.204	-.270†	.505**	.516**
4. Anxiety				--	-.129	.422**	.520**
5. Social support					--	-.292**	-.202
6. Suicide ideation						--	.575**
7. Stressful life events							--
M	11.97	26.45	8.4	10.23	17.15	12.99	5.46
SD	5.75	5.4	3.05	2.26	5.14	6.5	3.67
Observed range	6-24	15-35	6-16	7-14	5-25	8.39	0-15
α	.92	.68	.76	.78	.65	.93	.75

Note. Correlation analyses were performed, and no significant differences were found by age, gender, or ethnicity.

† p < .10. **p < .05.

Discussion

The purpose of this American Indian community– based effort was to document psychosocial risk and protective factors as they relate to suicide ideation among American Indian youth in one reservation community. This was an important first step because these factors are often influenced by cultural and community context (Cwik et al., 2015). Findings from this study contribute to the literature on psychological services in community-based organized care settings.

Results show statistically significant outcomes for several factors of interest and differences based on age and gender that may inform future psychological services, prevention, targeted interventions in this American Indian community. Depression was the strongest independent risk factor for suicide ideation in this study, and this is consistent with previous literature on other populations (Saluja et al., 2004; Foley, Goldston, Costello, & Angold, 2006). However, the etiology of depression among American Indian youth may be deeply rooted in cultural traumas, adverse childhood experiences, and ongoing and persistent socioeconomic disadvantage. These underlying factors and environmental conditions create stressors that place youth at risk for suicide (Grant et al., 2003). In this study, depression was correlated with stressful life events.

Stressful life events were correlated with anxiety. Combined, these risk factors necessitate a prevention approach that supports a holistic system of care that is congruent with tribal values and traditions. Incorporating tribal values and traditions into existing psychological services and treatment programming is necessary for addressing the etiology of depression in a culturally responsive manner.

Gender differences were observed for all factors, and this requires further attention by American Indian community– based suicide prevention efforts. American Indian females had significantly higher SIQ scores than did males, and this is consistent with findings from a previous study (Pavkov et al., 2010). This is also consistent with the epidemiology of suicidal behavior, where females are more likely to report suicidal behaviors but less likely to complete suicide. A possible explanation for gender differences may be related to trauma, where females are more likely to report interpersonal trauma, rape, molestation, and intimate partner violence than are males (Beals et al., 2003). Females in this survey reported significantly lower scores for self-esteem, a protective factor against suicide, when compared with males. The combination of higher risk scores for all risk variables and lower selfesteem among females is troubling to the American Indian community. Efforts are under way to promote culturally informed gender-based prevention programs at the middle schools and high schools on the reservation that focus on social connections and belonging. Focused strategies, tribal best practices, support for crisis intervention response, and additional funding for innovative community-based programming are necessary to reduce risk.

This American Indian community– based process helped build the community's capacity to design and implement a survey for data-informed community-based suicide prevention efforts. These results were shared with public health and tribal behavioral health providers with the goal of documenting contributing factors to suicide ideation and attempts to inform prevention and intervention strategies. Through this process the team learned that suicide risk is not static; at times people may desire suicide because they feel alone or that they are a burden. This is consistent with the interpersonal theory of suicide (Joiner et al., 2009). The team plans to use what they learned to develop and implement culturally based community interventions and evaluate results following a public health prevention approach. Solutions implemented by the community as a result of this study and supported by the interpersonal theory of suicide include the following: hosting weekly talking circles at local schools led by trained tribal members to facilitate and maintain social connections, regularly scheduling sweats to facilitate belonging and cultural connections, and providing ongoing strengths-based cultural activities for youth that strengthen resiliency factors (e.g., block parties, community gatherings, cultural camps). Results underscore the need for future work in this area where tribal communities work in partnership with funding agencies and providers to develop prevention programing using a community-led, data-informed approach. Ultimately this supports tribal capacity building efforts leading to uniquely tailored community-driven suicide prevention strategies.

Future Considerations, Limitations, and Conclusions

Future studies should explore different aspects of risk and protective factors as they relate to age and gender differences among American Indian youth. Additional efforts are needed to determine how much and at what developmental time points prevention programming has the most impact on well-being throughout the life span. Future prevention programs could also expand their reach to include different age groups, tribes, and life histories to understand more

about the role of psychosocial risk and protective factors as they relate to suicide risk in AI–AN populations.

A limitation of this study is the small sample size and the manner in which individuals were recruited (convenience sample). This may not be representative of the community or be generalizable to other communities, contexts, or settings. Even with these limitations, this effort demonstrates the importance of data-driven suicide prevention efforts. American Indian communities have the capacity to design and implement surveys to document and further understanding about the risk factors and protective factors in their communities associated with suicide ideation while working toward strength-based community-informed prevention approaches (O'Keefe, Tucker, Wingate, & Rasmussen, 2012).

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