

THE ASSOCIATION BETWEEN POSITIVE RELATIONSHIPS WITH ADULTS AND SUICIDE-ATTEMPT RESILIENCE IN AMERICAN INDIAN YOUTH IN NEW MEXICO

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Abstract: This study examined the 2013 New Mexico Youth Risk and Resiliency Survey (NM-YRRS) to determine whether cultural connectedness and positive relationships with adults protected against suicide attempts among American Indian and Alaska Native (AI/AN) youth and whether these relationships differed by gender. The sample included 2,794 AI/AN students in grades 9 to 12 who answered the question about past-year suicide attempts. Protective factor variables tested included relationships with adults at home, school, and the community. The language spoken at home was used as a proxy measure for cultural connectedness. Positive relationships with adults were negatively associated with the prevalence of past-year suicide attempts in bivariate analysis. However, language spoken at home was not associated with the prevalence of suicide attempts. Multivariate analysis showed that among girls, relationships with adults at home, at school, and in the community were independently associated with lower suicide-attempt prevalence. Among boys, only relationships with adults at home showed such an association. These results have important implications for the direction of future research about protective factors associated with AI/AN youth suicide risk as well as in the design of suicide intervention and prevention programs.

INTRODUCTION

Suicide among American Indian and Alaska Native (AI/AN) youth is a major public health concern. The 2015 suicide death rate for AI/AN youth aged 13 to 19 years (15.3/100,000) is nearly twice the overall U.S. rate for that age group (8.1; Centers for Disease Control and Prevention [CDC] “WISQARS,” n.d.). The CDC identified suicide as the second leading cause of death among AI/AN Americans who are 15 to 34 years of age (CDC, 2015).

Risk factors for youth suicide include alcohol and other substance abuse, physical or sexual abuse, poverty, a psychological disorder, impulsivity, social isolation, access to lethal means, sexual minority status, and one or more previous suicide attempts (Balis & Postolache, 2008; Bostwick et al., 2013; Westefeld et al., 2010; Wexler, Silveira, & Bertone-Johnson, 2012). A qualitative analysis by Olson, Wahab, Thompson, and Durrant (2011) of suicide notes left by Hispanic, Anglo (White, non-Hispanic), and AI/AN children and adults who died from suicide in New Mexico revealed five common motivators: feelings of alienation, feelings of inadequacy or failure, being psychologically overwhelmed, a desire to leave problems behind, and a desire for reunification with deceased family members and friends in an afterlife. The authors observed an overall lack of difference in motivation among races, except for the alienation category, which included more Hispanic and AI/AN people than Anglos. Other studies have identified a significant association between perceived discrimination and suicidal ideation among AI/AN youth (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006; Yoder, Whitbeck, Hoyt, & LaFromboise, 2006; Freedenthal & Stiffman, 2004). Suicidal ideation and behavior have been linked to historical and intergenerational trauma (i.e., mass trauma resulting from colonization) among North American indigenous peoples (U.S. Department of Health and Human Services, 2010; Duran, 2006; Elias et al., 2012; Goodkind et al., 2010).

Compared with risk factors for suicide, factors associated with a *reduced* risk of suicide (protective or resilience factors) have received less attention. However, an understanding of protective/resilience factors for AI/AN youth is important for two principal reasons. First, understanding and preventing suicide among AI/AN youth requires more than a knowledge of risk factors, as prevention and treatment efforts that focus exclusively on risk factors may subject AI/AN youth to further trauma (Goldston et al., 2008; Hummingbird, 2011). Second, interventions to mitigate youth suicide risk (including among AI/AN youth) that seek to increase protective factors may be more effective than those that aim to reduce risk factors (Borowsky, Ireland, & Resnick, 2001; Borowsky, Resnick, Ireland, & Blum, 1999; Duran, 2006; Freedenthal & Stiffman, 2004).

Social scientists are studying protective factors such as positive relationships in the home, school, and community as predictors of outcomes in their own right. In 2006, researchers found that AI students' perception that neighbors cared about them was associated with a significant reduction in past-year suicide attempts compared with an absence of this perception (18.3% vs

30.8%; Chino & Fullerton-Gleason, 2005). Chandler and Proulx (2006) identified strong cultural continuity (the degree to which practices or procedures exist that work to preserve a sense of identity) as protective against AI/AN youth suicide at the community level. Additionally, sexually abused AI/AN adolescents who perceived caring and attention from family, adults, people at school, and tribal leaders were found to be less likely to have suicidal thoughts and behaviors than those who did not have this perception (Pharris, Resnick, & Blum, 1997).

The purpose of this study was to measure associations between positive relationships with adults, cultural connectedness, and suicide-attempt resilience among AI/AN youth in New Mexico. Hypotheses tested included 1) that suicide attempts would be less common among AI/AN students who reported high levels of adult support at home, in school, and in the community compared with those who reported lower levels of adult support; and 2) the effect size of the protective variables identified would differ between female and male students.

METHODS

Study Design

Data from the 2013 New Mexico Youth Risk and Resiliency Survey (NM-YRRS) constituted the sample. The NM-YRRS is part of the CDC's Youth Risk Behavior Surveillance System (YRBSS; Brener et al., 2013). Briefly, the YRBSS is a biennial survey that collects cross sectional data about health risk behaviors, including suicide attempts, from a representative sample of public school students in grades 9 through 12. In addition to questions from the YRBSS, the NM-YRRS contains questions adapted from the California Healthy Kids Survey to measure resilience factors in the home, at school, and in the community (Constantine & Benard, 2001). The University of New Mexico Human Research Protections Office and the Southwest Tribal Institutional Review Board approved the protocol.

The NM-YRRS uses the YRBSS sampling methodology but includes an additional sample, which is drawn by using a stratified, two-stage complex sample design that is a modified version of the YRBSS sampling protocol. The main modifications are stratification of schools at the school district level and an oversampling of AI/AN youth by conducting a census in schools with a high proportion of AI/AN students. The New Mexico Department of Health, New Mexico

Public Education Department, and University of New Mexico Prevention Research center collected data for the 2013 NM-YRRS between September and December 2013 during regular class times; the overall response rate was 71.5%.

Measures

Students were considered to be AI/AN if they answered “American Indian or Alaska Native” to the question, “Which of these groups best describes you (select only one response)?” Students who did not answer this question but who selected *only* “American Indian or Alaska Native” to the question, “What is your race (select one or more responses)?” were also considered AI/AN. Of the 19,080 participants, 3,446 (18.1%) self-identified as AI/AN.

Suicide attempts during the previous year were assessed using responses to the question, “During the past 12 months, how many times did you actually attempt suicide?” Response options were *zero times, one time, two or three times, four or five times, and six or more times*. Responses were dichotomized as zero attempts and one or more attempts. A total of 2,794 AI/AN students (81.1%) answered the question about suicide attempts. Two students did not indicate their sex, so their surveys were excluded, leaving a sample of 2,792.

The NM-YRRS includes seven statements designed to elicit information about protective factors related to relationships with adults (Table 1). The seven variables measured aspects of the home, school, and community environment (with community defined as outside the home or school). For each variable, students were asked, “How true do you feel the following statements are for you?” The four response options (Table 1) ranged from *not true at all* to *very much true*. Because the NM-YRRS does not include a direct measure of cultural connectedness, the research team used language spoken at home as a proxy measure of this factor. The survey asked, “How often do you speak a language other than English at home?” The five response options (Table 1) ranged from *never* to *all of the time*.

Statistical Analysis

These analyses used unweighted data. Chi-square testing assessed differences between boys and girls in levels of agreement with resilience statements. The study epidemiologist stratified all other analyses by sex and controlled for age.

The first hypothesis predicted a negative relationship between the presence of protective variables and past-year suicide attempt. The study epidemiologist tested this hypothesis using logistic regression after determining that relationships were ordinal.

Multivariable models identified variables that remained significant after controlling for age, grade in school, and other protective factors. The study epidemiologist constructed models to identify the most concise group of variables required to predict the odds of a suicide attempt for girls and boys separately. Factors found to be significantly associated with suicide attempts in bivariate testing were included in the full multivariable models. The epidemiologist removed variables one at a time based on changes in each model's positive likelihood ratio and the parameter estimates for individual variables. Results were considered significant at $p < .05$. All analyses were conducted using Stata version 13 software (StataCorp LP, 2013).

RESULTS

Prevalence Data

The prevalence of past-year suicide attempts among AI/AN respondents to the NM-YRRS (13.9%; 95% CI, 12.6%–15.1%) was higher than that for NM high school students overall (9.4%; 95% CI, 7.7%–11.3%). The majority of respondents (51.3%) were female. AI/AN girls had a higher prevalence of suicide attempts (16.7%; 95% CI, 14.3%–18.1%) than AI/AN boys (10.8%; 95% CI, 9.1%–12.4%). Age was not significantly associated with suicide attempts among either girls (OR, .82; 95% CI, .67–1.0) or boys (OR, .88; 95% CI, .70–1.1).

Levels of agreement with protective factor statements and with how often a language other than English was spoken at home are shown in Table 1. The statement “in my home, there is a parent or some other adult who believes that I will be a success” was endorsed more strongly by female than by male students ($p = .011$). Girls also provided more support than boys for the statements about parents knowing the student's whereabouts ($p < .0001$); teachers who believe the student will be successful ($p = .001$); and having an adult outside the home or school who cares ($p = .0003$) or tells the student that he/she did a good job ($p = .003$).

Table 1
Distribution of responses to resilience-factor statements in relation to prevalence of suicide attempt in the past year among AI/AN high school girls (*n* = 1,463) and boys (*n* = 1,329) in New Mexico in 2013

Statement/response	Response (%)		Suicide-attempt prevalence (%)	
	<i>Girls</i>	<i>Boys</i>	<i>Girls</i>	<i>Boys</i>
How often do you speak a language other than English at home? ^a				
Never	23.5	23.8	16.0	9.4
Less than half the time	38.1	33.8	15.5	9.0
About half the time	19.4	20.2	16.8	11.5
More than half the time but not all of the time	11.1	12.6	16.7	10.1
All of the time	7.9	9.6	23.2	15.8
In my home, there is a parent or some other adult who is interested in my school work.				
Not true at all	6.6	7.8	32.3	20.6
A little true	18.0	19.6	20.6	15.2
Pretty much true	28.2	30.5	18.7	10.8
Very much true	47.1	42.1	11.7	5.9
In my home, there is a parent or some other adult who believes that I will be a success.				
Not true at all	3.3	5.4	32.6	34.3
A little true	10.0	8.6	32.1	15.0
Pretty much true	16.1	18.4	21.8	12.3
Very much true	70.6	67.5	12.3	7.4
When I am not at home, one of my parents or guardians knows where I am and who I am with.				
Not true at all	4.4	8.0	32.8	31.3
A little true	15.0	16.8	24.5	15.0
Pretty much true	25.9	30.8	20.5	9.2
Very much true	54.8	44.4	11.0	5.8
At my school, there is a teacher or other adult who listens to me when I have something to say.				
Not true at all	9.2	11.9	34.4	16.3
A little true	26.5	21.7	22.6	12.6
Pretty much true	31.6	35.3	12.2	9.6
Very much true	32.7	31.2	10.7	7.5

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Table 1, Continued
Distribution of responses to resilience-factor statements in relation to prevalence of suicide attempt in the past year among AI/AN high school girls ($n = 1,463$) and boys ($n = 1,329$) in New Mexico in 2013

Statement/response	Response (%)		Suicide-attempt prevalence (%)	
	Girls	Boys	Girls	Boys
At my school, there is a teacher or some other adult who believes that I will be a success.				
Not true at all	5.4	8.8	37.3	16.5
A little true	18.1	15.9	23.5	17.8
Pretty much true	27.8	30.8	15.5	8.1
Very much true	48.7	44.5	12.0	8.2
Outside of my home and school, there is an adult who really cares about me.				
Not true at all	5.2	7.6	34.2	21.3
A little true	10.4	12.4	22.8	15.7
Pretty much true	17.5	21.0	18.4	10.0
Very much true	66.8	59.0	13.6	8.1
Outside of my home and school, there is an adult who tells me when I do a good job.				
Not true at all	8.4	12.5	33.3	20.8
A little true	14.7	14.7	21.5	13.8
Pretty much true	26.2	27.4	17.0	8.6
Very much true	50.6	45.5	11.9	7.6

AI/AN = American Indian/Alaska Native.

^a Proxy measure of cultural connectedness.

Table 1 shows the prevalence of past-year suicide attempt in relation to each level of response to a predictor variable, with the results stratified according to sex. The prevalence of past-year suicide attempts declines with increasing levels of hypothesized protective factor variables. The exception was the variable pertaining to language, which showed the highest prevalence of suicide attempts among those reporting the highest level of speaking a language other than English at home. There were few differences between girls and boys in effect sizes (ORs) for relationships with adults at home and in the community (Table 2). However, the odds of a suicide attempt decreased more for girls than for boys as positive relationships with adults at school increased.

Table 2
Odds ratios for suicide attempt in the past year among AI/AN high school girls and boys in New Mexico in 2013, according to resilience factor

Resilience factor	Girls		Boys	
	OR (95% CI)	<i>p</i> value	OR (95% CI)	<i>p</i> value
Speak language other than English at home	1.09 (.97–1.2)	.14	1.13 (.99–1.3)	.072
Parent/adult interested in my school work	.68 (.59–.79)	.000	.62 (.52–.75)	.000
Parent/adult believes I will be a success	.59 (.51–.68)	.000	.57 (.48–.68)	.000
Parent/guardian knows where I am when not home	.62 (.53–.72)	.000	.53 (.44–.63)	.000
Teacher/school adult listens to me	.61 (.52–.70)	.000	.74 (.62–.89)	.001
Teacher/school adult believes I will be a success	.64 (.55–.74)	.000	.71 (.60–.85)	.000
Outside adult who cares about me	.70 (.60–.81)	.000	.69 (.58–.82)	.000
Outside adult who tells me when I do a good job	.67 (.58–.77)	.000	.68 (.58–.80)	.000

Multivariable Modeling

Table 3 shows the results of the multivariable modeling. Among girls, relationships with adults in the home, at school, and in the community continued to be significant after controlling for other variables. The odds of a suicide attempt declined by more than 20% for each level of increasing agreement with three variables: parents/guardians knowing the student’s whereabouts, teachers listening, and adults in the community telling the student that he/she did a good job. Getting good grades in school also reduced the odds of a suicide attempt among girls. The final model for boys included only relationships with adults in the home. Among boys, the odds of a suicide attempt decreased by more than 30% for each level of agreement with having a parent who believes in their success and a parent or guardian knowing their whereabouts.

Table 3
Multivariable modeling results: odds ratios for suicide attempt in the past year among AI/AN high school girls and boys in New Mexico in 2013, according to resilience factor

Resiliency factor	Girls		Boys	
	OR (95% CI)	<i>p</i> value	OR (95% CI)	<i>p</i> value
Parent/adult believes I will be a success	—	—	.68 (.55–.85)	.001
Parent/guardian knows where I am when not home	.78 (.66–.94)	.007	.68 (.54–.84)	.000
Teacher/school adult listens to me	.74 (.62–.89)	.001	—	—
Outside adult who tells me when I do a good job	.78 (.65–.92)	.003	—	—
Age ^a	.90 (.79–1.03)	.130	1.06 (.90–1.24)	.49
Grades in school ^a	.69 (.59–.82)	.000	.87 (.71–1.08)	.20

AI/AN = American Indian/Alaska Native; CI = confidence interval; OR = odds ratio

^a Control variable.

DISCUSSION

This study shows that positive relationships with adults—in the home, school, and community—are associated with reduced rates of suicide attempts among AI/AN youth in New Mexico. The association was stronger for girls than boys. Approximately one in three girls who reported the lowest level of agreement (*not at all true*) with the protective factor statements about all three types of adult relationships reported a suicide attempt in the past year. Boys and girls differed with respect to the adults with whom a relationship provided protection against a suicide attempt. Final models indicated that positive relationships with adults at home, school, and in the community remained significantly protective for girls, whereas for boys, only relationships with adults in the home remained protective.

Previous studies have also found perceived support from adults at home and in the community to be associated with reduced suicide attempts among AI/AN adolescents (LaFromboise et al., 2006). The current study provides further evidence of the importance of adults other than parents in suicide resilience in this population and also identifies male/female differences with respect to the influence of adults in the home compared with other adults.

Language spoken at home was not statistically significantly associated with past-year suicide attempts for either boys or girls. Although not significant, the results suggest that

speaking a language other than English at home all the time may be positively associated with suicide-attempt risk. Acculturation, a process wherein attitudes and behaviors of people from one culture are changed through contact with a different culture, may partially explain this relationship (U.S. Department of Health and Human Services, 2010). A study examining the relationship between acculturation and health risk factors in *immigrant* adolescents found an association between language spoken at home and suicide ideation and attempts, with those speaking a language other than English at increased risk for psychosocial risk factors (Yu, Huang, Schwalberg, Overpeck, & Kogan, 2003). For AI/AN people, acculturation and resulting “cultural voids” have also been associated with depression and suicide (U.S. Department of Health and Human Services, 2010). However, language represents only one dimension of culture. Additional cultural aspects, such as spirituality and cultural continuity, are also associated with suicide attempts among AI/AN and Canada’s First Nations people (Garrouette et al., 2003; Chandler & LaLonde, 1998). Without including other important aspects of culture, language spoken at home is likely an inexact proxy of cultural connectedness. To clarify this issue, alternative or additional measures of cultural connectedness should be developed for use in surveys that include a large proportion AI/AN youth.

Study limitations include use of self-reported, cross-sectional data and missing data. The association between suicide attempts and protective factors is not necessarily causal and may have been influenced by factors not measured by the survey. The NM-YRRS is administered only to students who attend public schools in New Mexico; therefore, these results may not apply to NM AI/AN youth who are homeschooled or have dropped out of school, or to AI/AN adolescents in other states.

Results of this study may inform programs and policies that support protective and resilience factors while reducing risk (Tousignant, Vitenti, & Morin, 2013). Youth suicide prevention should seek to boost protective factors—at both the individual and community level—while simultaneously reducing individual risk factors (Freedenthal & Stiffman, 2004; Goldston et al., 2008; Bearinger et al., 2005; Berger, Wallace, & Bill, 2009). The findings of this study demonstrate the limitations of a strictly quantitative study of the factors that impact AI/AN suicidal behavior. Because AI/AN youth have unique lived experiences, further research using in-depth qualitative measures would be a significant benefit to further exploring these lived experiences, the protective factors in these youths’ lives, and the overlap of community and

home environments in mitigating risk. Additionally, the results of this study indicate that protective factors for AI/AN boys and AI/AN girls are distinct.

These unique findings provide an opportunity to move the research and eventual development of effective interventions forward. Possible future research questions on this topic suggested by these results include the following: 1) Why are AI/AN boys less likely than AI/AN girls to have a protective relationship with an adult outside the home? 2) Who in the home is most likely to provide AI/AN boys the protection against suicidal ideation and behavior, and what are the dynamics involved in that relationship? 3) Which adults in the school or community are most likely to provide AI/AN girls the protection against suicidal ideation and behavior, and what are the dynamics involved in that relationship? Prevention and intervention programs need to keep in mind that protective factors for AI/AN boys and girls are potentially distinct from each other, and these distinctions may impact the development of those programs.

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