UNDERSTANDING SUICIDE ATTEMPTS AMONG AMERICAN INDIAN ADOLESCENTS IN NEW MEXICO: MODIFIABLE FACTORS RELATED TO RISK AND RESILIENCY

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Objective: To examine correlates of suicide attempts among American Indian adolescents living on reservations in New Mexico.

Design: Cross-sectional

Participants: American Indian adolescents attending school in New Mexico, grades 6 to 12.

Main Outcome Measures: Data from the Search Institute Profiles of Student Life Attitudes and Behaviors survey related to suicide attempts and student assets and risk behaviors. Hypothesized predictor variables derived from 39 survey questions were tested against one outcome variable relating to prior suicide attempts.

Results: Of 690 American Indian students included in the study, 24.2% indicated having attempted suicide one or more times in their lives. Salient assets included having neighbors who cared about them, adults who made them feel important, and having friends who did well in school. Notable risk factors were feeling depressed, drug and alcohol use, and having been the victim of violence.

Conclusions: Adolescent suicide continues to be a major concern for American Indians. A focus on strengthening parent-child relationships and community support for families may increase resiliency among youth at risk. (*Ethn Dis*. 2006;16:435–442)

Key Words: Adolescent, American Indian, Resiliency, Risk Factor, Suicide

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INTRODUCTION

Morbidity and mortality data reflect an array of health disparities for American Indians and Alaska Natives, including many preventable conditions such as diabetes, alcoholism, and injuries.[1] Contributing to these disparities among a population that is undereducated, underemployed, and disproportionately poor[2] is a comparatively lower health status, lower life expectancy, and per capita healthcare spending that is less than half that for the general population.[3,4] While the type of health disparities experienced by American Indians and Alaska Native populations has changed over time, the underlying inequalities have not. Today, chronic disease, unintentional and intentional injury, and unhealthy behaviors are as destructive as infectious diseases were a half century ago.[3]

Youth suicide exemplifies the consequences of health disparities among American Indians and Alaska Natives relative to the overall US population.[5] Although the overall rate of suicide among youth in the general population has declined slowly since 1992,[6] rates for American Indians <20 years of age are still more than twice the national average of 2.3 per 100,000 with an age adjusted rate of 4.8 per 100,000. Of particular concern is the high suicide rate among American Indian and Alaska Native youth between 15 and 24 years of age, with a 2002 age-adjusted rate of 17.9 compared to 6.8 for Hispanic, 11.4 for non-Hispanic White, 6.4 for Black, and 5.2 for Asian youth.[7] Alarmingly, while youth suicide rates have remained stable for the US population as a whole, the trend among American Indian children is less clear, with the highest suicide rate for those <20 years of age recorded in 2001 (5.5/100,000).[8]

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Often underlying the statistics for American Indians are assumptions about risk and protective factors based on research among the general population. These assumptions, however, may not generalize to American Indians and may not identify factors unique to Indian people. For example, more than for other populations, American Indian suicide disproportionately involves young males,[9,10] violent methods,[9–12] and alcohol.[10–13] Additionally, American Indian suicides, particularly among children, tend to occur in clusters.[10,12–14] Acculturation, traditionalism, cultural disruption, and historical trauma have disrupted families and communities

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intergenerationally and may be linked to the high rate of suicidal behaviors in some American Indian populations.[15–19]

American Indian/Alaska Native youth suicide has been of concern and a focus of study since the 1960s.[20,21] In recent years, studies using data from the 1990 Indian Adolescent Health Survey (IAHS) have substantially contributed to knowledge of American Indian and Alaska Native youth suicide and other health issues.[22] Conducted between 1988 and 1990, this survey included 13,454 American Indian youth from eight states. The IAHS-based research has identified rates of attempted suicide, related physical and mental health issues, risk and protective factors, and correlations between suicide and other behaviors.[23–26] Although much has been learned about risk and protective factors specific to Indian children from these studies and others, rates are still high, and few tribal health programs have developed effective, long-term preventive interventions.[12,27–29]

Many of these earlier studies looked primarily at individual risk behaviors, household characteristics, and peer interaction. Most did not specifically examine the role of the family, extended family, and community, although Grossman et al[23] found "extreme alienation from family and community" to be strongly associated with a history of suicide attempts.

In 2000, a new source of data became available with a survey of >10,000 New Mexico school children that included large subgroups of American Indian, Hispanic, and non-Hispanic White youth. More than 900 survey participants self-identified as American Indian. Further, the study contained variables relating to individual, peer, family, and community factors. These data formed the base of the present study, allowing researchers to examine known factors in greater depth and probe other issues such as community-level influences on youth suicide attempts. For the purpose of this study, the term "community factors" refers to those factors in the child's environment that exist outside the family.

We used data from the New Mexico school survey to examine correlates of suicide attempts among American Indian adolescents living on reservations in New Mexico. We hypothesized that risk factors would include feelings of sadness or purposelessness and exposure to alcohol and drugs, and that protective factors would include having family rules/structure; positive relationships with friends, family, neighbors, and other members of the tribal community; participation in structured activities; and positive attitudes and values.

METHODS

In 1998–1999, the New Mexico Department of Health elected to use the Search Institute Profiles of Student Life Attitudes and Behaviors survey in lieu of the Centers for Disease Control and Prevention Youth Risk Behavior Survey (YRBS) to identify developmental assets reported by New Mexico students in grades 6–12. This 156-item survey was self-administered, with most responses using ordinal scales with 5–10 categories. Participation by schools and by individual students was voluntary. No identifiers were recorded on the surveys, and data are presented only in the aggregate to protect confidentiality. Of 10,914 students responding, 690 self-identified as American Indian and also as living on an American Indian reservation. Information regarding tribal affiliation or type of school was not collected. The results below are based on this sample.

As our study used an existing dataset, we examined the survey questions to frame our hypotheses. Of the 156 survey items, we selected a subset of 42 questions related to individual student behaviors and family and community factors that would permit testing our hypotheses. Hypotheses were based on relationships identified in prior research and on the experiences of the authors. One question related to suicide attempt history, two collected demographic variables (age and sex), and 39 related to reported risk behaviors and hypothesized protective factors. Although other survey questions might have contributed additional information, we limited the number of variables examined to minimize the possibility of type 1 errors.

The one survey question on suicide was: "Have you ever tried to kill yourself?" with four possible responses: No; Yes – once; Yes – twice; Yes – more than two times. For all bivariate and multivariate analyses, responses were grouped dichotomously: never having attempted suicide versus ever having attempted suicide. Predictor variables, ie, measures of student assets and risk behaviors, were either recoded numerically based on the ordinal responses or, as with the suicide variable, were dichotomously coded into the presence or absence of an asset or behavior (eg, cocaine use – ever/never). A subset of predictor variables, ie, those significantly or nearly significantly related to the outcome variable, is presented in Table 1.

Statistical Methods

Relationships between binary predictor variables and suicide attempt used the chi-square test of proportions. Relationships involving ordinal predictor variables used the chi-square test for trend or logistic regression. A type 1 error rate of .05 was used to determine significance.

A multivariate model was created by using reverse stepwise logistic regression. All variables found to be significant ($P<.05$) or marginally significant ($P<.10$) in bivariate analyses were included in the original model. Variables were removed from the model by using criteria based on significance and goodness-of-fit-test results (using deviance residuals). The final model included all

Table 1. Factors related to suicide attempt history

Variables	Bivariate *P* value	Protective Factor (binary)	Prevalence of Protective Factor
Variables related to family structure/function			
Ever physically harmed/injured by household member	.0001	No family physical violence	68.8%
Lives in one-parent or two parent family	.032	Living with two parents	64.4%
Number times family eats dinner together per week	.024	Eating together 4+ times per week	64.2%
Talking to parents about topics such as sex, alcohol, drugs	.023	Willing to talk to parents	55.4%
Variables concerning relationships			
Frequency of violence victimization during past two years	.0001	No assaults in past two years	70.4%
Staying away from people who would get child in trouble	.0073	Avoiding such people	40.0%
Close friends get in trouble in school	.023	Few or no friends get into trouble	58.2%
Close friends do well in school	.036	Some or all friends do well in school	72.0%
Having many neighbors who care about child	.0032	Neighbors care	54.8%
Adults in community make child feel important	.0001	Feeling important	68.2%
Child feels like they matter to people in community	.026	Child feels he/she matters	57.5%
Neighbors tell parents about misbehavior	.068	Having neighbors who will tell	66.5%
Knowing adults who do things that are wrong or dangerous	.027	Not knowing any such adults	51.4%
Variables related to structured activities			
Frequency of spending evenings out with friends without anything in particular to do	.046	One or fewer nights/week	38.9%
Variables related to attitudes and feelings			
How often felt sad/depressed during the past month	.0001	No occurences of feeling sad/depressed	21.8%
Feeling like sometimes child's life has no purpose	.0001	Never feeling like life has no purpose	63.4%
Optimism about life as an adult	.0007	Belief that adult life will be good	92.7%
Control over the things that will happen in life	.063	Feeling some control over what happens	50.7%
Variables related to alcohol and drugs			
Frequency of cocaine use in past year	.0001	Never using cocaine	89.6%
Frequency of marijuana use in past year	.0001	Never using marijuana	52.5%
Frequency of inhalant use in past year	.0001	Never using inhalants	81.7%
Frequency of cigarette use in past year	.0001	Smoking two or fewer cigarettes	63.6%
Values about their own alcohol drinking as teenagers	.0009	Being against drinking	57.4%
Frequency of alcohol use in past year	.0002	Drinking on two or fewer occasions	60.2%
Number of close friends who drink alcohol weekly	.0013	Having no close friends who drink alcohol	40.9%
Number of close friends who have used drugs	.0001	Having no close friends who use drugs	36.4%
Frequency of attending parties where minors were drinking in past year	.0014	Attending no such parties	36.4%
Frequency of driving after drinking alcohol in past year	.0002	No occasions of drinking and driving	76.9%
Frequency of being a passenger in a vehicle whose driver had been drinking	.0086	Never being such a passenger	45.0%

variables found to be significant in the presence of other variables and variables whose removal substantially changed the results of the goodness-of-fit test.

RESULTS

Of 690 students included in the study, 24.2% indicated having attempted suicide one or more times in their lives: 14.3% reported one attempt, 3.8% reported two attempts, and 6.1% reported more than two attempts. Table 1 shows variables (other than demographic) found to be at least marginally significant in bivariate analyses and their statistical significance with respect to suicide attempt history. Also listed in Table 1 is the protective factor for each variable (ie, the response shown to be associated with a lower prevalence of suicide attempts) and its prevalence in the sample.

Demographic Variables

A history of suicide attempts was more common among female (29.6%) than male (17.6%) students (odds ratio [OR] 2.0, 95% confidence interval [CI] 1.3–2.9). Age was not significantly related to suicide attempts (P=.098), nor was a trend apparent with increasing age. Among 11- to 12-year-olds, 23.6% reported a suicide attempt; the rate among 18- to 19-year-olds was 22.8%.

Family Structure/Function

Six questions concerned family structure and function; four were significantly associated with suicide attempts. Of these, the strongest risk factor was being a victim of physical violence at home. Among adolescents who reported ever being assaulted by someone in their family or someone living with them (31.2%), one third (34.9%) had attempted suicide, contrasted with 19.2% among children who never experienced this type of violence (OR 2.2, 95% CI 1.5–3.3). Being from a single-parent family was also a risk factor, with suicide attempts reported more frequently by children of one-parent (29.3%) than two-parent families (21.7%) (OR 1.5, 95% CI 1.03–2.2).

Eating together as a family was a significant protective factor. Suicide attempts were 52% less likely among children who reported eating together four or more times per week than among children who ate together with their family less frequently (OR .66, 95% CI .46–.96). Additionally, adolescents who said they would talk to their parents about important concerns such as sex and substance use were less likely to report attempting suicide (20.9%) than students who would not talk to their parents about such topics (29.2%) (OR .64, 95% CI .43–.96). Two other hypothesized protective factors: ''having family rules guiding behavior'' and ''parental attention to how adolescents spend their time'' were not significantly associated with suicide attempts.

Interpersonal Relationships

Fifteen questions from the survey related to interpersonal relationships and risk for suicide attempts. Of this group of questions, two hypothesized risk factors and six protective factors were significantly related to suicide attempts. One additional protective factor was marginally significant. The number of times the respondent reported being injured by physical violence in the previous two years was a significant risk factor for suicide attempts (chi-square test for trend $P=.0001$). More than half (55.9%) of adolescents who reported having been assaulted at least four times had attempted suicide, resulting in a suicide attempt likelihood that was six times that of youth who reported no such assaults (OR 6.0, 95% CI 2.8–12.9).

Three of the 15 questions addressed interactions with peers. Avoiding people in general who might get them in trouble was protective for adolescents (OR .56, 95% CI .36–.88), as was having few friends who got into trouble at school (OR .67, 95% CI .46–.96). Having friends who did well in school was protective for suicide attempts. Suicide rates were lower among children who reported that some, most, or all of their friends did well in school (22.2%) than children who had no or few friends who did well (29.8%) (OR .67, 95% CI .45–.99).

Six of the 15 questions were specific to relationships with neighbors and adults in the community. Adolescents who felt that a lot of people in their neighborhoods cared about them were significantly less likely to report suicide attempts (18.3%) than those who did not feel cared about (30.8%) (OR .50, 95% CI .31–.82). Similarly, youth who reported that adults in their community made them feel important (OR .33, 95% CI .20–.55) or that they mattered to people in their community (OR .58, 95% CI .34–.97) had lower rates of suicide attempts than other children. Students who thought that neighbors would report their misbehaviors to their parents were somewhat less likely to report suicide attempts than other respondents (OR .68, 95% CI .44–1.05). Suicide rates were not related to students' perceptions of whether adults cared about individuals in their age group in general. Suicide attempts were also unrelated to whether respondents felt they had chances to help make their community a better place to live.

Additionally, five questions asked students how many adults in general they had known for two or more years with various characteristics. Only one variable in this group was significant: knowing one or more adults who do things that are wrong or dangerous was associated with higher rates of suicide attempts (27.9%) than not knowing any such adults (20.7%) (OR 1.5, 95% CI 1.03–2.2). Knowing adults who spend a lot of time helping others was non-significantly protective relative to knowing only one or no such adults (OR .78, 95% CI .54–1.1). Suicide attempts were not related to the number of adults students looked forward to spending time with, who gave them encouragement, or who talked with them at least monthly.

Structured Activities

Participation in structured activities was hypothesized to be protective with respect to suicide attempts. Of three questions related to how adolescents spent their time, only one was significant: spending unstructured time with friends in the evening ($P=.046$). Students who, on average, spent two or more evenings per week out with friends just ''hanging out'' were 45% more likely to report suicide attempts than those who spent less unstructured time with friends at night (OR 1.45, 95% CI .99–2.1). Spending time in team sports or other structured activities such as music lessons and drama were not significantly related to a history of attempting suicide.

Attitudes and Feelings

Four survey questions concerned students' attitudes and feelings related to depression, optimism about the future, and their ability to control their lives. Three of these questions were strongly and significantly correlated with a history of suicide attempts. The relationship between a history of suicide attempts and the frequency of feeling sad or depressed in the previous month was approximately linear (chi-square test for trend $P<.0001$). Approximately

half (50.4%) of youth who felt sad/depressed all or most of the time in the preceding month had attempted suicide one or more times; among those who reported not feeling sad or depressed at all during the preceding month, less than 1 in 10 (9.3%) reported one or more suicide attempts (OR 9.9, 95% CI 4.9–20.3). Feeling that sometimes life has no purpose was the strongest of all risk and protective factors. Approximately half of adolescents who agreed with the statement (48.6%) reported having attempted suicide; among those who did not agree with the statement, only 7.2% had a history of one or more suicide attempts (OR 12.3, 95% CI 7.2–21.2). Optimism about the future was strongly protective; children who felt sure they would have good lives as adults had less than one third the likelihood of a prior suicide attempt as children who did not feel such optimism (OR .31, 95% CI .15–.67). Students who felt they had control over what happened to them were less likely to report suicide attempts (20.2%) than students who did not feel this way (27.3%), but the relationship was only marginally significant (OR .67, 95% CI .44–1.04).

Variables Related to Alcohol and Drug Use and Exposure

Of 11 questions concerning alcohol and drugs, only one was not strongly and significantly associated with suicide attempt history. The most powerful predictors of suicide attempts were adolescents' own reported substance use. Youths who reported using cocaine during the previous year were nearly three times as likely to report one or more suicide attempts (44.4%) as youths who did not report cocaine use (21.8%) (OR 2.9, 95% CI 1.7–4.9). Any marijuana use in the preceding 12 months increased the likelihood of suicide attempt by more than 100% (OR 2.4, 95% CI 1.6–3.4). Inhalant use showed a dose-response effect, with increasing frequency of use in the prior year associated with increasing suicide attempt prevalence (chi-square test for trend $P<.0001$). More than two thirds (68.8%) of children reporting use of inhalants $\geq$10 times in the preceding year had attempted suicide, contrasted with 19.7% of children reporting no inhalant use (OR 9.0, 95% CI 2.8–33.5). Cigarette smoking was also associated with suicide attempts; adolescents who had smoked three or more cigarettes in the past year had three times the likelihood of one or more suicide attempts (38.0%) than students who smoked less (16.5%) (OR 3.1, 95% CI 2.1–4.5).

Adolescents' values regarding drinking as a teenager, personal use of alcohol, and number of friends who use alcohol or drugs were each associated with suicide attempts. Students who reported values against drinking as teens had half the likelihood of suicide attempts as children with contrasting values (OR .49, 95% CI .31–.76). Similarly, reported use of alcohol three or more times in the prior year nearly doubled the likelihood of a history of suicide attempts (OR 1.9, 95% CI 1.3–2.8). Having close friends who drank alcohol at least once a week was a risk factor for suicide attempts. Of youth who reported that some, most, or all of their friends drank alcohol weekly, 31.0% reported a suicide attempt, while those with few or no such friends were less likely to report an attempt (25.2% and 18.4%, respectively) (chi-square test for trend $P=.0013$). Similarly, children who reported that some, most, or all of their friends had used drugs at some point were more likely to report a suicide attempt (32.8%) than those reporting that few or none of their friends used drugs (24.3% and 15.3%, respectively) (chi-square test for trend $P=.0001$).

Other variables related to alcohol were also significantly related to suicide attempts. Frequency of attending parties where minors were drinking alcohol was positively correlated with a history of suicide attempts (chi-square test for trend $P=.0014$). Driving after drinking showed a binary association with suicide attempts; among those who had ever driven a motor vehicle after consuming alcohol, 35.2% reported one or more suicide attempts, but of those who had not driven after drinking, 20.8% had attempted suicide (OR 2.1, 95% CI 1.4–3.1). Children who had been a passenger in a vehicle whose driver was drunk were more likely to report suicide attempts (28.0%) than other children (19.4%) (OR 1.6, 95% CI 1.1–2.4). Finally, students were asked to imagine how their parents would respond if they came home from a party and had been drinking, with choices ranging from not at all upset to extremely upset. Although reported suicide rates decreased slightly with increasing levels of anticipated levels of parental upset, the relationship was not significant.

Multivariate Model

As noted above, a multivariate model was constructed to determine variables correlated with suicide attempts while controlling for other variables. The initial model included all variables found to be marginal or significant in bivariate analyses.

In the final model (see Table 2 below), variables are listed in order of significance. All predictor variables had parameter estimates in the expected direction. The greatest effect sizes were associated with feeling that life has no purpose and violent victimization. Controlling for other variables, adolescents who disagreed with the statement that sometimes they felt their lives had no purpose were only 7% as likely to report a suicide attempt as youth who agreed with the statement, and those who were unsure had only 36% the odds of an attempt as those who sometimes felt their lives had no purpose. Adolescents who smoked at least three cigarettes in the prior year had three times the odds of a suicide attempt as children who did not smoke or smoked only 1–2 cigarettes in

Table 2. Factors related to suicide attempt history

		R^2: 26.1%					
	Variable Group	**Coef**	**Std. Error**	**Partial R**	***P* value**	**OR (95% CI)**	**Interpretation**
Constant	-	−1.34	.338	−.175	<.0001	.26 (.14–.51)	-
Life has no purpose: disagree	Attitudes and Feelings	−2.62	.349	−.348	<.0001	.073 (.037–.14)	Compared to adolescents who feel that life has no purpose, adolescents who do not feel that way have 7% the odds of suicide attempt, and youth who are not sure how they feel have 36% the odds of an attempt.
Life has no purpose: not sure		−1.01	.333	−.127	.0025	.36 (.19–.70)	
Cigarette use: ≥3 in past year	Alcohol and Drugs	1.085	.282	.169	.0001	3.0 (1.7–5.1)	Smoking three or more cigarettes in the preceding year increases the odds of suicide by 200% relative to adolescents who do not smoke or smoke less often.
Victim of violence past two years (ordinal)	Relationships	.414	.114	.157	.0003	1.5 (1.2–1.9)	Each increasing episode of violence experienced by adolescents raises the odds of suicide by 50% for this ordinal variable (0, 1, 2, 3, 4+).
Neighbors care: disagree	Relationships	.310	.282	0	.27	1.4 (.78–2.4)	Feeling that not a lot of neighbors care increases the odds of suicide by 40%.

the prior year. Being injured by any physical violence (without specifying the relationship of the perpetrator) in the preceding two years had an OR of 1.5, indicating that each increase in violence frequency (ordinal variable from 1 to 5) was associated with a 50% increase in the odds of a suicide attempt. Finally, feeling not many people care in their neighborhoods was associated with a 40% increase in the likelihood of a suicide attempt. Although not significant, this variable had a great effect on the model's log likelihood and thus remained in the model as a control variable.

DISCUSSION

This study builds on the previous work of Grossman et al[23] and many others, identifying well-known and lesser known risk and protective factors for suicide attempts among American Indian youth. While many previous studies have focused on well-known suicide risk factors such as drug use, this dataset provided an opportunity to ask an expanded set of questions and go beyond factors relating primarily to the individual children, their peer group, and their immediate family. Additionally, this study identifies numerous student assets, or protective factors, while other studies have concentrated primarily on risk factors for suicide.

Several risk factors were identified in this study. The most important finding of our study relates to the variable "feeling like life has no purpose," which was both prevalent among adolescents and also had the largest effect size among all factors analyzed. Additionally, self-reported sadness or depression was strongly correlated to a history of suicide attempts. Even though these risk factors relate to the individual, the community has a critical role in identifying children who may be at risk for suicide. Drug and alcohol use and being the victim of physical violence were also powerful risk factors identified in this study. The relationship between an individual's substance use and suicidal behavior was expected. However, use of drugs and alcohol and related behaviors by peers were also predictors of suicide attempts. This relationship, in conjunction with the finding that suicide attempts are more common among youths who regularly spend unstructured evenings with their friends, indicates that parents and community members should be attentive to how and with whom adolescents spend their time.

The most important finding of our study relates to the variable "feeling like life has no purpose," which was both prevalent among adolescents and also had the largest effect size among all factors analyzed.

This study also identified several protective factors in variables such as relationships with peers, family, and other community members. American Indian adolescents less likely to report a suicide attempt were those who indicated they got along with their parents, felt like neighbors cared about them, and felt like they mattered to their community. This finding suggests that relationships beyond the immediate family can be important in healthy adolescent development. Such relationships may be particularly important to

youth who do not enjoy the protective environment of a two-parent home.

Examining the prevalence of certain protective factors suggests areas of family and community involvement in youth suicide prevention. Many of these factors can be addressed without financial resources that may be unavailable to tribes. For example, a third of the children did not have the protective factor of adults who make them feel important. Although community members may care about tribal youth and believe that they make a contribution to the community, they may not communicate these values sufficiently. Further, not smoking cigarettes is highly protective, but a third of children in our sample report that they smoke. Since cigarettes are a known ''gateway drug'' and are also strongly associated with suicide attempts, anti-smoking efforts could prevent an array of physical and behavioral health issues.

The findings support the study's hypothesis that, among Indian youth living on reservations, a strong connection to the community is an important factor in suicide prevention. This finding is not surprising given the close-knit, extended family structure of many tribal communities. In tribal populations, family, extended family, and community have traditionally guided youth and provided a frame of reference for their futures. This fact suggests that current strategies for prevention, which focus primarily on individual attitudes and behaviors, may exclude factors that could prevent suicide among American Indian youth. Family and community factors clearly affect American Indian and Alaska Native youth suicide prevention and need to be explored further.

Most tribal groups had a long history of communal childrearing that was disrupted by forced assimilation, federal boarding schools, and other programs that undermined the familial and cultural practices that supported positive identity, connections, and social support.[30–32] As tribes increasingly reaffirm sovereignty and traditional practices, they increasingly focus on the role of the family in promoting social change.[33] Future research and even community-level health assessments should consider asking questions about the involvement of parents, neighbors, teachers, community leaders, and other adults in the community in the lives of the community's children. Although the instrument contained only one question related to suicidal behaviors, a great deal was learned about this one outcome through the myriad questions about friends, family, neighbors, and community.

The present study was limited in several ways. The sample did not include children in nonparticipating schools, children who were not in school on the day of the survey, children who chose to not complete the survey, and children outside New Mexico. The data did not include information about tribal affiliation for American Indian students. New Mexico American Indians and Alaska Natives come from 27 culturally diverse tribal groups in New Mexico as well as from tribes across the country. While earlier research has found differences with regard to suicide completion between New Mexico's many tribal communities,[13] this study was unable to address this issue. The data were not validated and were not collected over time. Further, the response rate to the race/ethnicity question was low, which can introduce classification bias. Finally, some variables were dichotomized based on patterns in the distribution of data. Subsequent studies should confirm these groupings. Despite these limitations, this study identifies new avenues for suicide prevention.

CONCLUSION

One-fourth of American Indian youth living on reservations in New Mexico have attempted suicide, in contrast with 17% of children in other ethnic/racial groups (unpublished data from the same database). Such disparities in health indicators are not unusual among American Indians. The 2003 US Commission on Civil Rights report *A Quiet Crisis* stated that American Indians lag 20–25 years behind the general population in health status and that unmet healthcare needs are among the most severe of any group in the United States.[4] The disproportionate involvement of Indian youth in suicide statistics, however, merits particular attention.

In American Indian communities, relationships and connections usually extend beyond the immediate family to extended family, clan, and tribe. These spheres of influence have not been well studied in relation to suicide. Questions about family and community relationships in future studies can continue to shed light on protective factors within tribal communities. With limited federal resources, future suicide prevention activities in tribal communities may benefit from incorporating community-specific assets such as those identified in this study.

ACKNOWLEDGMENTS

This project was partially funded by the New Mexico Department of Health and the Centers for Disease Control and Prevention. We thank Karen Gaylord and Betty Caponera, without whom this research would not have been possible.

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