

American Indian–Alaska Native Youth Health

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Objective.—To assess risk behaviors, health problems, worries and concerns, and resiliency-promoting factors among American Indian–Alaska Native adolescents.

Design.—Survey.

Setting.—Nonurban schools from eight Indian Health Service areas.

Participants.—A total of 13 454 seventh- through 12th-grade American Indian–Alaska Native youths.

Main Outcome Measures.—A revised version of the Adolescent Health Survey, a comprehensive, anonymous, self-report questionnaire with 162 items addressing 10 dimensions of health.

Results.—Poor physical health was reported by 2% of the study sample and was significantly correlated with social risk factors of physical and/or sexual abuse, suicide attempts, substance abuse, poor school performance, and nutritional inadequacies. Injury risk behaviors included never wearing seatbelts (44%), drinking and driving (37.9% of driving 10th through 12th graders), and riding with a driver who had been drinking (21.8%). Physical and sexual abuse prevalence was 10% and 13%, respectively, with 23.9% of females reporting physical abuse and 21.6% of females reporting sexual abuse by the 12th grade. Almost 6% of the entire sample endorsed signs of severe emotional distress. Eleven percent of the teens surveyed knew someone who had killed himself or herself, and 17% had attempted suicide themselves. Sixty-five percent of males and 56.8% of females reported having had intercourse by the 12th grade. Weekly or more frequent alcohol use rose from 8.2% of seventh graders to 14.1% by the 12th grade; for males, the survey noted an increase in regular alcohol use of 3% to 5% a year to 27.3% by the 12th grade. For each variable measured, rates are much higher for American Indian adolescents than those for rural white Minnesota youth, except for age at first intercourse and alcohol use.

Conclusions.—American Indian–Alaska Native adolescents reported high rates of health-compromising behaviors and risk factors related to unintentional injury, substance use, poor self-assessed health status, emotional distress, and suicide. Interventions must be culturally sensitive, acknowledge the heterogeneity of Indian populations, be grounded in cultural traditions that promote health, and be developed with full participation of the involved communities.

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THE RECENT attention directed at adolescent health problems and risk behaviors has emphasized the predominance of social origins.¹⁻⁴ The rising prevalence of violent death and injury, poverty, births to unwed mothers, mental distress, and suicide, coupled with the clustering of risk behaviors, suggests a widening and deepening of adolescent health risk. Local and national health surveys of adolescents have established the range of adolescent health concerns.⁵⁻⁷ Relatively little is known, however, about the health-compromising behaviors of a subgroup of adolescents at particularly high risk—American Indian youth. For example, data from a recent report by the Indian Health Service (IHS) indicate that American Indian children and youth are disproportionately represented in accident, homicide, and suicide rates. Recent reports prepared for the Office of Technology Assessment on American Indian adolescent mental and physical health and health services warn that these youth exhibit more serious problems than the US “all races” population in such areas as depression, suicide, anxiety, substance use, general health status, and school dropout (L. Bergeisen, unpublished data, November 12, 1989).⁸ In addition, many of the health-compromising behaviors and risk factors originating or exhibited in adolescence are related to the leading causes of death among American Indian adults, including unintentional injuries (particularly involving motor vehicles), chronic liver disease and cirrhosis, heart disease, homicide, and suicide. In each of these areas, rates for American Indians are higher than for all US races.⁹

The Office of Technology Assessment reports also describe the paucity of data

Table 1.—Population Estimates, Participation, and Survey Response Rates for Each Indian Health Service Area in Which Survey Activity Took Place

Service Area	Estimated Youth Population*	Estimated Populations in Service Units Surveyed†	Survey Sample Size‡	Participation Rates Based on Total Population, %§	Participation Rates Based on Populations in Service Units Surveyed, %	Survey Response Rates Based on Student Enrollment Population, %¶
Aberdeen, SD	12 651	3903	734	5.8	18.7	49.2
Alaska	12 809	7429	1534	12.0	20.6	58.1
Albuquerque, NM	9332	5931	238	2.6	4.0	86.7
Bemidji, Minn	8537	6113	1330	15.6	21.8	69.9
Billings, Mont	7142	4153	963	13.5	23.2	73.6
Nashville, Tenn	5274	831	377	7.2	45.4	95.3
Navajo, NM	29 032	29 032	7115	24.5	24.5	71.5
Phoenix, Ariz#	14 804	9394	1163	7.9	12.4	84.0

*Total estimated youth population of those Indian Health Service areas that participated in the survey. This is based on projections to 1986 from 1980 census data on American Indian-Alaska Native populations. The total possible samples (N=99 581) are less than the total estimated native population of adolescents (N=165 659) due to the fact that some service areas did not participate in the survey and some native youths live in urban areas. Youth population ages of 12 to 18 years were calculated to be approximately 20% of total population.

†Total estimated youth population living in service units in which any survey activity took place, ie, those youth who may have had an opportunity to participate in the survey.

‡Youth reporting their ethnic background as American Indian or Alaska Native who participated in the survey.

§Percentage of surveyed total youth population estimated to be living in the entire service area.

||Percentage of surveyed youth population estimated to be living in the service units within the service area in which any survey activity took place.

¶The survey response rate based on the percentage of youth reported to be enrolled in those classrooms in which the survey was conducted. The denominator for this column excludes 31 schools and approximately 3500 youths for whom no enrollment information was available. The denominator does include some non-American Indian-Alaska Native youth since classroom enrollment totals included all youth enrolled. The numerator, however, includes only native youth survey participants; therefore, the calculated survey response rate is conservative since the numerator (the number of American Indian-Alaska Native youth participating in the survey) is more specific than the denominator.

#Survey totals for Phoenix include one boarding school in California.

on American Indian adolescent health as a basis for planning intervention and health promotion strategies. In 1989, a nationwide study of American Indian-Alaska Native teenagers was conducted. Students were surveyed about lifestyles, habits, personal attitudes, and critical events. The purpose of this article is to identify the key adolescent health risk behaviors and protective factors among American Indian-Alaska Native youths so that program planning, advocacy, and health promotion efforts can be grounded in a comprehensive assessment of adolescents' behaviors and attitudes as reported by the youths themselves.

METHODS

Data were obtained from questionnaires administered in the schools of reservation communities serviced by the IHS. The survey instrument was a variant of the Adolescent Health Survey, which had been used previously on more than 36 000 teenagers in Minnesota and 5500 youths in Alaska. The instrument and its application have been described elsewhere.¹⁰⁻¹² Prior to its use in this study, the Adolescent Health Survey was revised and subjected to the scrutiny of a national steering committee formed to ensure that the instrument was relevant and applicable to American Indian-Alaska Native students. It was then field tested on more than 1000 American Indian-Alaska Native teens prior to its full implementation. The final version of the Indian Adolescent Health Survey included 162 items addressing such areas as physical health status and practices, emotional health, family, school and peer relationships, substance use, dietary intake, disordered eating, sexual behavior and ori-

entation, antisocial and risk-taking behaviors, personal worries and concerns, health care utilization, and health history. It is a self-administered, anonymous questionnaire designed at the fifth-grade reading level, with a completion time of approximately 1 hour.

An estimated 165 659 students in grades seven through 12 in 33 states attend reservation or Bureau of Indian Affairs schools. Approximately 8.5% of these students participated in the survey. When the IHS areas and the service units in which no survey activity occurred are excluded, 20% of the potentially eligible population participated in the final implementation of the survey. The sample came from eight IHS service areas and 37 separate service units. (The term *service areas* refers to the geographic areas in which the IHS has responsibility, meaning on or near reservations. The term *service units* refers to the local administrative units of the IHS.⁹) Participating service areas included Aberdeen, SD, Albuquerque, NM, Bemidji, Minn, Billings, Mont, Nashville, Tenn, Navajo, NM, and Phoenix, Ariz (which included one boarding school in California) (Table 1). A number of IHS service areas that chose not to participate included Portland, Ore, Tucson, Ariz, Oklahoma, most of California, and all but the Choctaw tribe in the Nashville area. Since these schools are on reservations, these teens primarily live in rural settings. Schools with less than 50% American Indian students were not included for economic reasons.

In all service areas except Alaska (where active consent was required), passive parental consent was sought by a letter mailed to the student's home that informed parents of the survey. This gave them the opportunity to re-

view the questionnaire and withdraw their child from participating if they so desired. The overall response rate was 69.8%. Due to the anonymity of the consent process, it was not possible to compare respondents with nonrespondents along either demographic or risk behavior variables.

Prior to analysis, the data were subjected to cleaning and editing processes that were developed with the original Adolescent Health Survey.¹² Approximately 2% of surveys were deleted from the final data set for one or more of the following reasons: respondents failed to answer 50% or more of the questions, respondents endorsed use of a bogus drug item, or response set biases were evident across one or more scales. For example, those who endorsed daily use of all substances or who marked the same responses for an entire column even when items were reverse coded were eliminated from the final results. These editing procedures, supplementing the training of survey administrators designed to standardize questionnaire administration, increase the validity of self-report in this and other similar youth surveys.^{5,6,12}

Respondents were also removed from the data set if they failed to indicate that they were American Indian or Alaska Native. From the original sample of 15 685 students, a final sample of 13 454 youths was analyzed. Since all students did not answer every question, the exact number of respondents to each question varies slightly. Data are primarily reported as percentages and χ^2 . We will provide detailed tables on request.

RESULTS

Of the 13 454 youths surveyed, 49.3% were male and 50.7% were female.

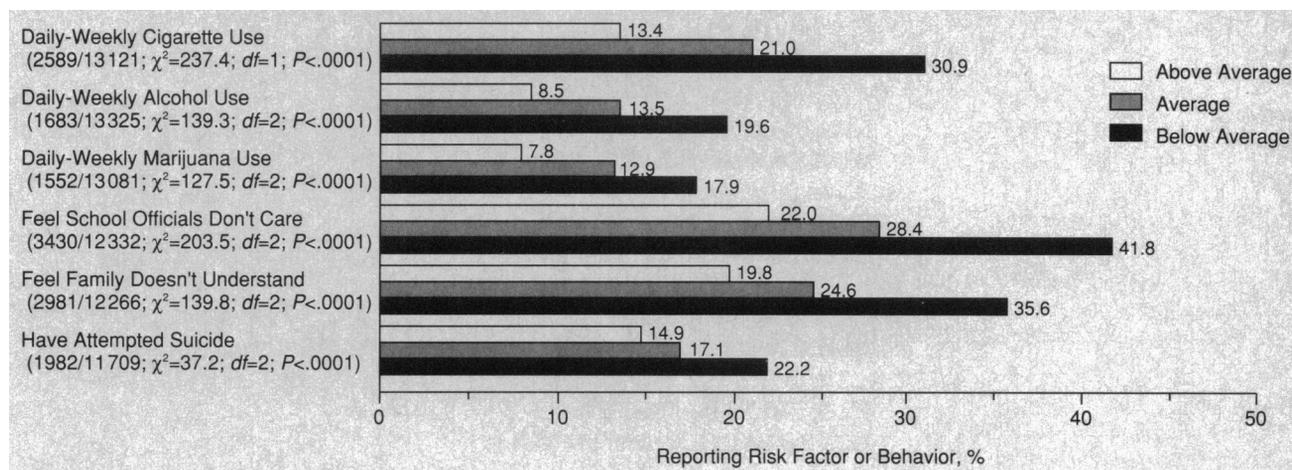


Fig 1.—American Indian–Alaska Native youths who reported risk factor or behavior, plotted by school performance.

Twenty-three percent were in the seventh grade, 20% in the eighth grade, and 17% in the ninth grade. Fifteen percent were sophomores in high school, 13% were juniors, and 11% were seniors. Forty-six percent live in two-parent homes, while 37% live with a single parent, 10% in a household headed by another relative, and 7% in settings headed by nonrelatives, including boarding schools. The average family size was 5.8 ± 2.0 persons. Eleven percent of students reported that one or both of their parents are dead.

School Environment

Since school is one of the most important areas of an adolescent's life, a number of questions were asked about attitudes toward school and school performance.

Of 13 349 respondents, 57.7% liked school a good deal, and an additional 27% liked school somewhat, while 15.4% reported that they hated it. Thirty-two percent of students (4260/13 325) described their school performance as above average, while 56.1% reported average school performance. Twelve percent of respondents indicated that their school performance was below average.

What was consistently evident is that self-reported poor school performance is strongly associated with almost every negative health and social outcome studied. In other words, there was a strong relationship between academic risk and multiple physical, social, and psychological risk indicators. Specifically, compared with those who reported doing above average in their school work, those who reported below-average school performance were more than twice as likely

to smoke cigarettes, drink alcohol, and use marijuana daily or weekly. Poor school achievers were one third as likely to have previously attempted suicide, and they were almost twice as likely to indicate that school officials do not care about them and that their family does not understand them (Fig 1).

Physical Health

Of 13 377 student respondents, the majority reported their health to be either good (53.8%) or excellent (24.3%); 20.1% described their health as fair, while 2.1% reported their health to be poor. Self-perceived health status showed a significant, consistent inverse relationship with important health and social risk factors. Students in reported poor health were over twice as likely to have been abused and were at least three times as likely to have reported a history of suicide attempts, use of three or more drugs at least monthly, and concern about being overweight. They were over four times as likely to report below-average school performance or poor body image than those who described their health as excellent (Fig 2).

When health care utilization was explored, approximately 54% of adolescents (6885/12 750) reported having a physical and a hearing examination within the last 2 years. Just under half (49.2%, 6242/12 681) had a dental examination in the last year, and two thirds (68.1%, 8618/12 652) had received an eye examination in the last 2 years. Those who reported their health as excellent were far more likely to have had a physical examination in the last 2 years (60.6%) compared with their peers who reported poor health (43.7%; $\chi^2 = 103.8$, $df = 3$, $P < .0001$).

Injuries

Motor vehicle–related injuries are the leading cause of death of youths in the United States. There are many behaviors assessed in this survey that predispose American Indian youths to such injuries. Nearly half reported that they rarely or never wear seatbelts (44.4%, 5141/11 590). Of those students in high school who drink, more than one third have driven after drinking (39.7%, 1190/2999). Likewise, more than one in five youths surveyed often or sometimes ride with a driver who has been drinking or using drugs (21.8%, 2844/13 060).

Perception of parental drinking strongly interrelated with teenagers' similar behaviors. Among teenagers who have seen their parents drink three or more drinks before driving, 49.4% (134/271) of those of driving age reported having done the same. Conversely, of the 72.5% (9132/12 598) who reported never seeing their parents drink and drive, 52.3% (4764/9113) said they never ride with a driver who has been drinking, and 69.3% (2704/3900) said they would never mix alcohol and driving.

Interpersonal violence is another form of injury experienced by significant numbers of American Indian–Alaska Native youths. Specifically, almost one fifth of students (19.1%, 2223/11 630) reported being knocked unconscious by another person once or twice, with just under 4% being so injured three or more times.

Abuse

When students were asked whether they had ever experienced any form of abuse, 18% (2170/12 071) answered affirmatively. Overall, 10% reported sexual abuse, while 13.3% indicated that

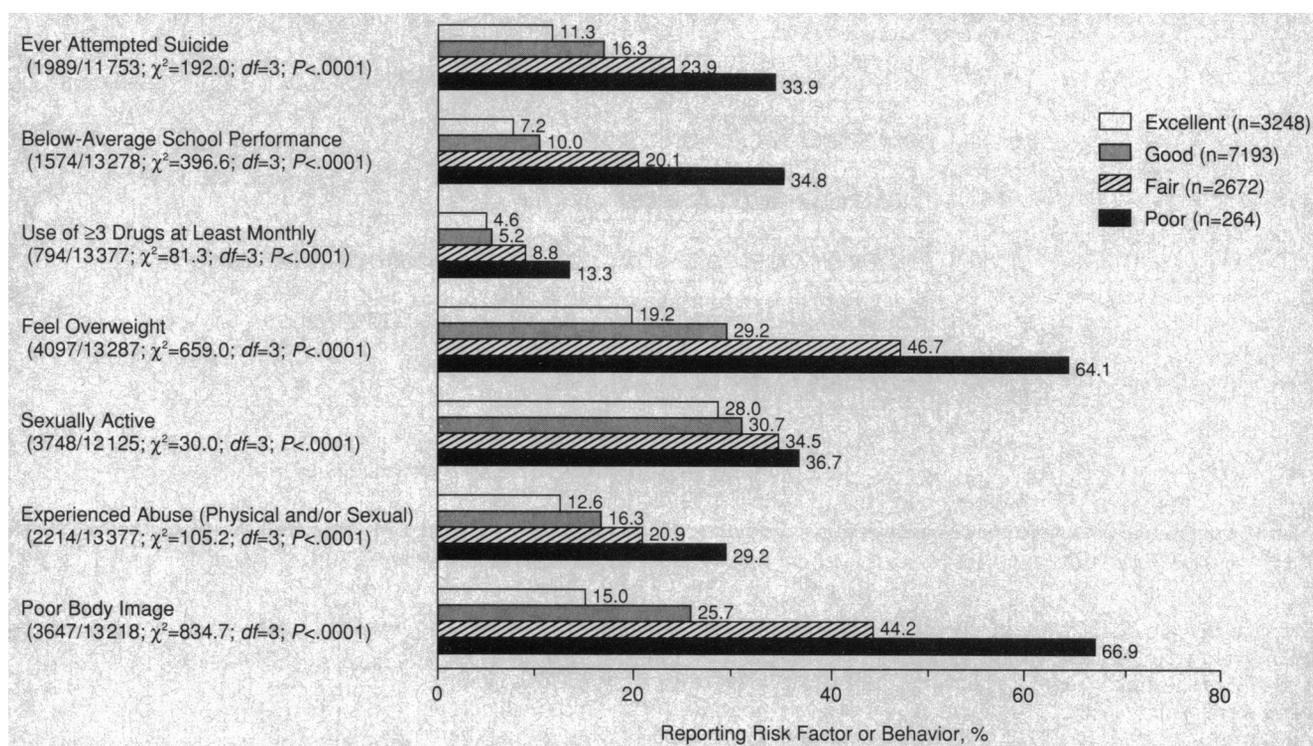


Fig 2.—American Indian–Alaska Native youths who reported risk factor or behavior, plotted by physical health status.

they had ever been physically abused. For females, it was 17% and 19%, respectively, for physical and sexual abuse. Nine percent of females (558/6229) reported experiencing both physical and sexual abuse. The reported prevalence of abuse increased with age: by the 12th grade, 23.9% of females reported having been physically abused, and 21.6% reported sexual abuse.

As can be anticipated, those students who were abused were significantly more likely to run away from home than were their peers and to run away more frequently. Among youth who reported physical abuse, two and a half times as many as nonabused peers ran away from home once or twice (18% vs 7.8%), and more than three times as many abused teens (11.1% vs 3.3%) ran away from home three or more times ($\chi^2=365.8$, $df=2$, $P<.0001$). Among those who reported a history of sexual abuse, at least twice as many as nonabused students indicated running away once or twice (15.3% vs 8.4%) or three or more times (8.6% vs 3.8%; $\chi^2=117.6$, $df=2$, $P<.0001$).

Emotional Health

The majority of American Indian–Alaska Native youth reported being in good emotional health; however, a significant minority reported substantial stress and depression. Over 14% of fe-

males (888/6268) and 8.3% of males (485/5825) reported feeling so sad and hopeless in the last month that they wondered if anything was worthwhile; 5.7% (763/13454) endorsed signs of severe emotional distress. (Severe emotional stress was indicated for adolescents who endorsed the most extreme response to two or more of the following items: being bothered by “nerves” or nervousness in the last month; feeling so sad, discouraged, or hopeless or having so many problems that you wondered if anything was worthwhile during the past month; feeling under strain, stress, or pressure during the past month; worrying about losing your mind or losing control over the way you act, talk, think, or feel, or losing control of your memory during the past month.¹²)

Such severely emotionally distressed youths (n = 750) have multiple concerns that distinguish them from their peers. When we look at the impact of stress on the lives of teens, we see a linear relationship such that as stress increases, so too do negative events and problem behaviors. Severely distressed teens were one and a half times as likely to feel disenfranchised from their family than those who reported some stress (44% vs 31.4%) and were twice as likely to feel that their family does not understand them than those who reported no stress (44% vs 21.7%). Compared with

those reporting no stress, severely distressed teens were nearly three times more likely to have been physically abused (31.7% vs 11.1%), two and a half times more likely to have been sexually abused (21.9% vs 8.5%), twice as likely to have caused or had a pregnancy (10.8% vs 5.3%), and more than three times more likely to have attempted suicide (44.6% vs 13.1%).

Suicide is a common phenomenon in American Indian–Alaska Native communities, with 11% of teenagers reporting having known someone who has killed himself or herself. Overall, 16.9% of survey participants (1997/11789), with 21.6% of females and 11.8% of males, reported that they had ever attempted suicide. Two thirds of these teens had tried to kill themselves within the past year.

The association between family suicide attempts and that of teens is strong. Of those who came from families with no history of suicide, 13.2% (1182) had made a suicide attempt, while 30.3% (769) of those from families with a suicide history had tried to kill themselves ($\chi^2=13.3$, $df=1$, $P<.00001$).

While suicide attempts reflect severe distress, another warning is suicidal ideation. Suicidal ideation is far more common among adolescents than suicide attempts. Of the 11380 youths who responded to this section of the survey,

Table 2.—How Do Those at High and Low Risk for Suicide Differ?

	High Risk, % (n)	Low Risk, % (n)
Associated behaviors (No. of respondents)		
Heavy drinking (13 454) ($\chi^2 = 200.4$; $df = 1$; $P < .00001$)	30.6 (665)	17.4 (1968)
Marijuana use weekly or daily (13 180) ($\chi^2 = 167.2$; $df = 1$; $P < .00001$)	20.1 (431)	10.2 (1130)
Had sexual intercourse (12 160) ($\chi^2 = 186.6$; $df = 1$; $P < .00001$)	44.0 (864)	28.4 (2894)
Caused-had pregnancy (10 677) ($\chi^2 = 60.5$; $df = 1$; $P < .00001$)	10.2 (179)	5.3 (475)
Been physically abused (12 287) ($\chi^2 = 356.1$; $df = 1$; $P < .0001$)	26.5 (530)	10.8 (1109)
Been sexually abused (12 144) $\chi^2 = 256.0$; $df = 1$; $P < .00001$)	20.1 (396)	8.2 (834)
Induced vomiting weekly (12 244) $\chi^2 = 82.3$; $df = 1$; $P < .00001$)	7.5 (147)	3.2 (324)
Support systems factors (No. of respondents)		
Believe family doesn't understand (12 350) ($\chi^2 = 306.7$; $df = 1$; $P < .00001$)	39.3 (832)	21.3 (2181)
Believe adults don't care (12 498) ($\chi^2 = 167.1$; $df = 1$; $P < .0001$)	26.6 (567)	15.0 (1558)
Friend completed suicide (11 809) ($\chi^2 = 251.3$; $df = 1$; $P < .00001$)	18.9 (402)	7.6 (740)
Family member tried suicide (11 803) ($\chi^2 = 312.4$; $df = 1$; $P < .00001$)	36.4 (778)	18.8 (1821)

17.9% reported that they had had thoughts of suicide but would not act on them; an additional 5.3% responded that they would like to kill themselves, and 3.9% reported that they would kill themselves if given the chance.

Who are the youths at high risk for suicide? (High risk was defined as a suicide attempt in the past year and current thoughts of suicide or multiple suicide attempts even if the last attempt was more than a year ago.¹²) Compared with those at low risk for suicide, those in the high-risk group were nearly twice as likely to have abused chemicals, had or caused a pregnancy, self-induced vomiting weekly, believed that family doesn't care, and experienced death by suicide among both friends and family. The high-risk group was nearly three times as likely as their low-risk peers to have experienced physical and/or sexual abuse (Table 2).

Sexual Behaviors

Among the youths who were surveyed, 65% of males (427/657) and 56.8% of females (399/702) reported having had intercourse by the time they were in the 12th grade. For females who were sexually active, the average age of first intercourse was reported to be 14.2 years; for males it was 13.6 years. For nearly half of both sexually experienced males and females (45.3% and 49.1%, respectively), sexual intercourse was not frequently experienced (a few times a year or less).

Adolescents who reported emotional distress were more likely to have had intercourse than those who were not distressed (39.9% vs 29.0%; $\chi^2 = 94.2$, $df = 1$, $P < .0001$). Similarly, the propor-

tion of adolescents who had had sexual intercourse was higher among those who reported a history of physical abuse (49.3% vs 28.1%; $\chi^2 = 287.7$, $df = 1$, $P < .0001$) or sexual abuse (50.3% vs 28.7%; $\chi^2 = 234.3$, $df = 1$, $P < .0001$). Conversely, those who responded that they are spiritual or religious were less likely to have had intercourse than those who indicated that they are somewhat or not at all religious (25.3% vs 33.2%; $\chi^2 = 62.4$, $df = 2$, $P < .0001$).

Condoms were the most popular contraceptive for the sexually active American Indian-Alaska Native youths, reportedly used by 48.7% of males and 23.6% of females. Oral contraception was the second most popular birth control device used by teenage females (18.3%), and nearly a 10th of sexually active teens predominantly relied on the withdrawal method, which, surprisingly, was used more commonly by older teenagers. Even when in high school, one quarter (25.1%) of sexually active males and more than one third (38.6%) of sexually active females reported never using contraception. Reasons for not using birth control included the following: sex was unexpected (28.8%), they didn't think about birth control (26.3%), were not worried about pregnancy (8.9%), were embarrassed about getting birth control (7.3%), were worried about birth control side effects (6.5%), and partner did not want to use contraception (3.8%).

When gender comparisons were made for reasons not to use contraception, some unexpected findings were evident. Sexually active males were more likely to believe that their female partners did not want to use contraception (6%, 59/986) than were females to believe that of

their male partners (3.7%, 35/939). High school females were twice as likely to want to become pregnant (5.6%, 34/612) than were males to want to cause a pregnancy (2.7%, 16/592). There was equal indifference to the possibility of pregnancy between males and females; specifically, 8.8% of both sexes said they didn't worry about pregnancy.

Substance Use and Abuse

For every grade level after the seventh, females were more likely to be daily cigarette smokers than males, rising from 8.9% (358/4005) in junior high school to 17.8% (476/2673) in high school; the range for males was 8.1% and 15.0%, respectively. On the other hand, daily use of smokeless tobacco was consistently higher for males than females, with 12.2% (480/3930) using smokeless tobacco in junior high school, rising to more than one in six by high school. For females, there was little variation, with 7.8% (311/4010) using in junior high school and 7.8% (209/2671) in high school. These rates of female use are nonetheless high in comparison with other racial and ethnic groups.^{6,7,9}

Weekly or more frequent use of alcohol started at a young age for both males and females. For females, the increase was from 8.9% of junior high school students to 13.3% of high school students. For males, the annual increase in heavy use of alcohol was between 3% and 5%, rising to 27.3% of 12th-grade males.

Other than alcohol, the most prevalent use of other substances included marijuana, peyote, and inhalants. There was little gender variation in use of each. Comparing seventh through ninth graders with 10th through 12th graders, the percentage of students using marijuana ranged from 31.2% in the younger grades to 50.1% in high school students. Peyote, a drug used in religious ceremonies in many Native communities, was reported as having been used by 22.3% of teens (2884/12918). Inhalant use declined markedly with age, from 13.8% of seventh through ninth graders (1093/7906) to 7% of high school students (362/5156).

Before focusing on what was found regarding potential problem drinkers, it is important to note that the majority of youths surveyed reported that either they never drink (59.8%, 8042/13 454) or drink only occasionally (20.7%). Just over 10% (1386) of those surveyed can be considered potential problem drinkers based on at least weekly drinking, with an average consumption of three or more drinks each time.

Potential problem drinkers were compared with other adolescents categorized

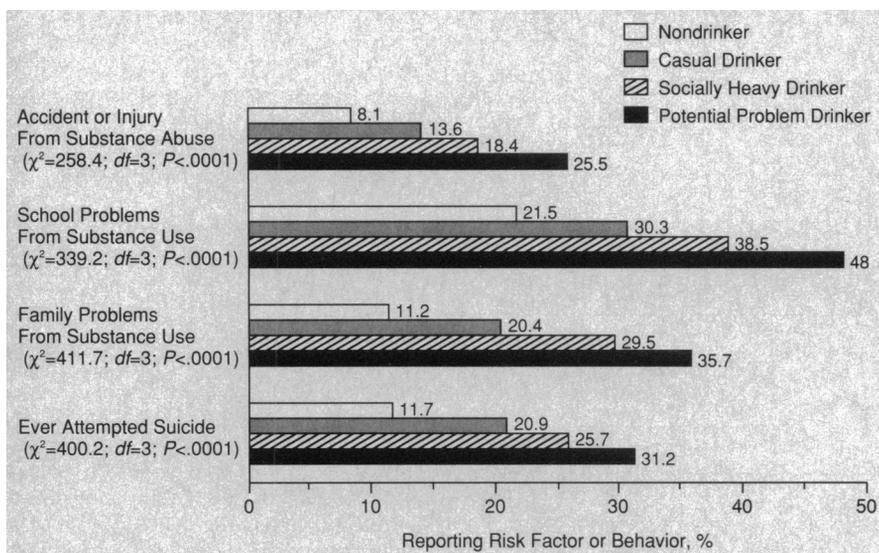


Fig 3.—American Indian–Alaska Native youths who reported risk factor or behavior, plotted by alcohol use.

along a continuum based on self-reported level of alcohol consumption. This range included nondrinkers, nonproblem (casual) drinkers (those who drink less frequently than once a week and rarely more than two or three drinks at one sitting), socially heavy drinkers (those who usually drink no more than once a month but consume ≥ 5 drinks at one sitting), and potential problem drinkers (respondents who drink at least weekly and usually >3 drinks each time) (Fig 3). A linear increase in adverse correlates was evident along the continuum, with problem drinkers most likely to have sustained an alcohol-related or drug use injury, experienced school problems or had family problems associated with substance use, or ever have attempted suicide.

Regional Variation

The aggregation of findings across IHS service areas does not presume homogeneity of characteristics or risk behaviors of American Indian youths. As an example, select findings were compared between Alaskan youths and all other study participants in light of the unique geographic and cultural characteristics of Alaska Natives. Alaskan adolescents were almost one and a half times more likely to have ever attempted suicide (23.1% vs 16.1%) and more than one and a half times more likely to report ever experiencing abuse (25.7% vs 15.3%). They were almost twice as likely to report daily cigarette use (20.5% vs 10.6%). On the other hand, no such differences were evident in regard to self-perceived health status, number of drugs

used, pregnancy history, body image, or experience with sexual intercourse.

Native Youth in a National Context

Compared with other racial-ethnic groups in the United States, where an average 9% of populations are in the second decade of life, 12% of Native populations, on average, are 10 to 19 years old.⁹ Compared with other ethnic groups, fewer Native teens will graduate from high school (55.4% vs 66.5%), fewer still will complete college (7.4% vs. 16.2%), and nearly twice as many will live in poverty (28.2% vs 12.4%).⁹

Regarding mortality, American Indian–Alaska Native youths have nearly twice the death rate compared with teens from other US ethnic groups.⁹ For males, the differential is nearly threefold. As with other teen groups, however, violent deaths (eg, unintentional injuries, homicide, and suicide) account for 75% of all mortality in the second decade. National data suggest that American Indian–Alaska Native males aged 15 to 24 years are nearly twice as likely to sustain motor vehicle injuries (92.6 per 100 000 persons) compared with 58.2 per 100 000 persons for all other ethnic groups.⁹

Since national comparative data are not available for many of the dimensions of adolescent health reported herein, for purposes of comparison, American Indian–Alaska Native data are contrasted with a group of rural white youths in Minnesota ($n = 6184$) who were part of a larger youth health survey completed in 1987 and who answered many parallel questions.^{11,12}

Compared with rural Minnesota teens, American Indian–Alaska Native youth were half as likely to live in dual-parent homes (87.4% vs 44.0%). Extended family households were far more common among American Indian–Alaska Native youths. Many lived with grandparents (11.0% vs 1.6%) and cousins, aunts, and other relatives (9.7% vs 1.6%). American Indian–Alaska Native youth were more than twice as likely to have experienced the death of a parent than rural white teens in Minnesota (11% vs 5%).

Significantly fewer American Indian–Alaska Native youths assessed their health as excellent (24.0% vs 42.2%), and nearly three times as many rated their health as fair to poor (21.9%), compared with rural Minnesota teens (7.4%). A lower proportion indicated that they had visited a physician for preventive health care within the last 2 years (54.0% vs 77.8%), visited a dentist in the last year (49.3% vs 74%), or had an eye examination within the past year (50.7% vs 56.7%).

Suicide deaths among American Indian–Alaska Native youth are more than two times more prevalent (26.3 per 100 000) than for other groups the same age in the United States (12.4 per 100 000).^{8,9} This statistic was underscored in the present study by the 11% of respondents who indicated that they had a friend who had committed suicide. Compared with rural Minnesota youth, American Indian–Alaska Native teens are twice as likely to report having ever attempted suicide (eg, for males, 11.8% vs 5.6%). Physical abuse is nearly twice as prevalent for both American Indian–Alaska Native males (6.0% vs 3.1%) and females (9.7% vs 5.0%).

While there are many significant differences between rural Minnesota youths and American Indian–Alaska Native teenagers, there are also some notable similarities. For example, patterns of sexual intercourse are not remarkably different, with 24.3% of the rural Minnesota females reporting having initiated intercourse and 27.0% of American Indian–Alaska Native females having done likewise. It is important to note, however, that American Indian–Alaska Native teens who are sexually active are only half as likely to always use contraception as are their rural peers in Minnesota (26.9% vs 55.1%).

Finally, while alcohol abuse is a well-recognized health problem among American Indian–Alaska Native populations nationally, comparable data between rural Minnesota and American Indian–Alaska Native youths showed that, on average, more rural white teens in Minnesota drink alcohol daily or weekly than do American Indian–Alaska Native

youth nationally. This relationship held true for both males (17.1% vs 14.1%) and females (15.8% vs 10.2%). While this was true across the teenage years, the pattern of heavy drinking among Native males by the 12th grade was in excess of rural Minnesota youth. Likewise, for every other abused drug, American Indian–Alaska Native teens were markedly heavier abusers than their white rural counterparts.

COMMENT

As is true for most teenagers throughout the United States, the majority of American Indian youths are not faced with significant health risks. Most are physically healthy (78%); the majority surveyed like school a good deal or somewhat (85%); 79% never ride with a driver who has been drinking; more than 80% report never having experienced any form of abuse; the majority are emotionally stable, ie, have never thought about suicide; and even among 12th-grade males, the group of heaviest drug users surveyed, nearly 75% show no evidence of being problem drinkers.

While the majority of youths do not experience significant risks, a sizable minority do, and it is a larger minority than for other groups of teenagers in the United States. The present study shows that American Indian teens access preventive health care services with less frequency than a comparable sample of rural youths in Minnesota. This discrepancy is all the more dramatic considering that health services are available without financial barriers on all the reservation communities surveyed. While it is beyond the scope of this study to have investigated barriers to health care services perceived by adolescents, this would appear to be an important area of inquiry. It is even more important when one realizes that the American Indian sample reported herein was three times more likely to rate their health as poor than white teens.

Poor health and failure to utilize health services are highly intercorrelated. So too are poor physical health and suicide attempts, physical and sexual abuse, polydrug use, body image distortion, and nutritional inadequacies. As has been seen with other populations of teens,¹³ poor health is the general perception American Indian teens have when many aspects of their life are not going well.

Beyond poor health, another set of measures reflecting distress are the emotional health questions, and as with physical health, American Indian youth have significantly greater emotional distress than their white peers. While the high suicide rates among American Indian youths have been previously docu-

mented,¹⁴⁻¹⁶ what has not been shown is the high prevalence of loss through death experienced by American Indian teens. In the present study, 11% of respondents reported at least one parent to be dead, in contrast to 5% of a comparable sample of Minnesota white teens. Likewise, 11% of the American Indian sample had a friend who had committed suicide. Previous reports have shown great variation in suicide rates between tribes^{17,18}; given the variation we have seen between American Indian and Alaska Native rates of reported adolescent suicide attempts, we would anticipate regional variations as well.

From the present study there is also little doubt that even among the young who are the most successful—those in this study who have remained in school—there appears to be a sense of hopelessness. Among males, for example, this feeling is reflected in the dramatic rise in heavy drinking that triples between the seventh and 12th grades to 27.3%. And while the aggregated patterns of heavy drinking were not dramatically different from rural Minnesota white adolescents, the high use at young ages and the consistent rise through high school distinguish American Indian teens' patterns of use from their white peers. Second, for every other abused drug, the surveyed American Indian teens used these drugs far more heavily than their white rural counterparts. In addition, as Kandel et al¹⁹ have shown, white youths' alcohol and drug use begin to diminish after approximately 22 years of age; for American Indian young adults, there is no evidence of a comparable decline.

For American Indian female adolescents, hopelessness is reflected in the progressive increase of self-injurious behaviors from seventh to 12th grade. Use of contraceptives at half the rate of their sexually active white peers and a desire early on to have children may reflect, at least in part, a sense that few alternatives to child rearing will be available to them. As Luker²⁰ has noted, contraception is like putting money in the bank—it is an investment in oneself for the future. For a significant minority of American Indian youth in the present study, there is no such sense of future.

While the present survey provides a compelling portrait of American Indian–Alaska Native youth as a population at risk, the generalizability of findings are narrowed by the sampling limitations. Since a school-based setting was used to administer the survey, those youths not enrolled in school or who are chronically absent are likely to be underrepresented. Such bias is especially evident in the smaller distribution of students in

the 11th and 12th grades, where significant numbers of youth have dropped out. Youth from urban areas are not included; neither are those who attend schools in rural areas where less than 50% of the school's students are American Indians. In addition, there are certain groups that are overrepresented in the sample, especially Navajo teenagers and American Indian youths attending boarding schools. In light of these limitations, the sample cannot be regarded as statistically representative of all American Indian youths or of rural American Indian youths. It is essentially a large-scale convenience sample of American Indian youth from nonurban areas serviced by the IHS. However, there is little reason to believe that a representative sample of school-based rural American Indian youths would yield findings substantively different from those presented herein. What is particularly important is that the underrepresentation of youths at highest risk suggests that the data are in fact conservative estimates of the prevalence of high-risk behaviors. The data presented herein are based on self-report, and while checks for internal consistency and response set bias minimize reporting errors, they are not eliminated.

Despite these limitations, the results of the American Indian–Alaska Native Adolescent Health Survey pose a number of significant challenges to both Native communities and the nation as a whole in terms of the future health and well-being of a group of young people who are disproportionately represented in the numerous social morbidities of youth. Clearly, poverty and social isolation are contributing factors; so, too, are social change, social disintegration, and biologic predilection placing some youth at increased risk over others.

The unique historical legacy of dislocation for American Indian–Alaska Native peoples, coupled with the intensity of contemporary threats to the physical, social, and economic vitality of their communities, accentuate the importance of health promotion efforts that are culturally appropriate and nested in a community development context.²¹ *Culturally appropriate* not only refers to cultural considerations that emanate from Indian-white differences, but also variations in health concerns and health promotion strategies at the tribal level.

Strategies that build on the strengths of community identity and culture are more likely to succeed than those imposed externally. There are many examples of such programs that work (L. Bergeison, unpublished data, November 12, 1989). Programs that promote

role models of accomplishment increase the likelihood of challenging the often prevailing sense of hopelessness, and programs that tap the exuberance, inherent optimism, and resilience of young people themselves as program planners and leaders have repeatedly been shown to be effective in analogous settings.²² It

is hoped that this survey²³ will enhance the capacity of American Indian and Alaska Native communities to respond to what they see to be the most pressing needs of young people in their region and to provide those white and Native leaders alike committed to improving the health of American Indian-Alaska

Native youths the information they need to develop and fund the programs, which, with long term commitment, can reverse the trends reported herein.

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