

Developing a Prevention Plan for an American Indian Boarding School: Strengthening Positive Peer Culture

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In order to develop a comprehensive substance abuse prevention plan for a boarding school for American Indian middle school students, the students ($N = 66$) were surveyed at two time points and teacher reports and discipline records were collected. Factors most strongly related to substance use were affiliation with risk-taking peers, lower levels of assertiveness and self-esteem, and being female. Girls also had higher levels of distress, social anxiety, and association with risk-taking peers. Several recommendations for a prevention program are made, including the elimination of a separate “Honor Dorm” for well-behaved students, the creation of mentored friendship groups, and the training of peer leaders.

Substance abuse is of grave concern to educators of American Indian/Alaska Native (AI/AN) adolescents, and for good reason. In Minnesota, for example, American Indian youth have higher rates than any other Minnesota ethnic group of tobacco, alcohol, and marijuana use (Gruber, Diclemente, & Anderson, 1996; Neumark-Sztainer et al., 1996). In 1992, the Minnesota Student Survey of over 120,000 adolescents in the state revealed that 13% of the sixth grade American Indian boys used tobacco at least monthly, 11% used alcohol, and 7% used marijuana. By 12th grade, these figures rise to 45%, 52%, and 28% respectively. Rates for American Indian girls were virtually identical on tobacco and alcohol, and somewhat lower on marijuana (Neumark-Sztainer et al., 1996). Data from California (Unger et al., 2003) and other regions of the US (Beauvais, Jumper-Thurman, Helm, Plested, & Burnside, 2004; Moncher, Holden, & Trimble, 1997; Office of Applied Studies, 1998; US Congress Office of Technology Assessment [OTA], 1990) also show American Indian/Alaska Native youth to have the highest rates of tobacco and other drug use. Despite the urgent need for prevention evidenced by these data, the development and implementation of empirically validated school-based strategies to prevent substance abuse by

American Indian/Alaska Native children and adolescents has been inadequate (see Hawkins, Cummins, & Marlatt, 2004, for a review). Due to the focus in the literature on the severity of the problem among this group, there is also a gap in the knowledge base regarding the strengths and normal developmental processes of the many American Indian/Alaska Native youth who achieve healthy outcomes (Beauvais, 2000).

The purpose of the present study was to gather preliminary data to inform the design of a comprehensive substance abuse prevention plan for a boarding school serving American Indian middle school students. This goal also lends itself to other broader concerns, namely the prevalence and psychosocial correlates of substance use among American Indian/Alaska Native youth generally, the identification of protective factors, and the use of pre-intervention assessments to tailor prevention to the specific needs of a particular population.

One of the unique features in the development of many American Indian/Alaska Native youth is the boarding school experience. Originally created as a means of weakening Native cultures and forcibly assimilating Native youth to White, Christian society (Choney, Berryhill-Paapke, & Robbins, 1995), 56 tribal and Bureau of Indian Affairs (BIA) boarding schools remain in existence today and serve approximately 11,500 students (Office of Indian Education Programs, 2005). Although the mission of these schools has changed and now emphasizes serving the needs of American Indians/Alaska Natives and maintaining their cultures, many schools may still have a negative influence on the well-being of their students, due to several factors, including youth being away from home for long periods, poor supervision, and institutionalization.

Boarding schools also tend to enroll a high concentration of high risk or problem youth who create risk-taking peer networks (King, Beals, Manson, & Trimble, 1992). Many of the youth who enroll in these schools have “experienced considerable family chaos, violence, stress, and severe disruption in the formative years of their lives” (Robin, Rasmussen, & Gonzalez-Santin, 1999, p. 86). In their family and community environments, substance abuse is widely modeled as a means of coping with depression and anxiety (LaFromboise & Low, 1998). From these environments, many Indian youth learn socioemotional and behavioral survival skills, which turn out to be self-defeating in mainstream society. The greater incidence of behavioral and emotional problems among the student bodies of Native boarding schools contributes to a pathological social context which may maintain if not exacerbate the psychosocial problems of the youth they serve.

On the other hand, some conditions in Native boarding schools have potential to serve as protective factors in the lives of their at-risk students. One of the key factors determining whether the schools can realize this potential appears to be the peer culture. Schaps and Solomon (2003) concluded that the programs in the general population that were most likely to produce meaningful and lasting effects included comprehensive efforts to nurture social bonding and community affiliation. Such an approach would seem especially appropriate in a Native boarding school environment. Several historical accounts of the boarding

school experience conclude that friendships among students contributed to their resilience within often hostile environments (Davis, 2001). LaFromboise and Low (1998) reported that American Indian/Alaska Native youth preferred to talk with friends and parents about their problems rather than with school counselors or other personnel. Given the distance of parents from a boarding school, peers take on an even greater level of importance.

The peer culture of the school can be a protective factor for an individual student, as Schaps and Solomon (2003) suggest, or it could be a strong risk factor. Herring (1994), for example, noted that a strong peer culture encouraging alcohol use is an important risk factor among American Indian/Alaska Native adolescents. Other studies have pointed to the negative influence of risk-taking peer networks (e.g. Barrera, Biglan, Ary, & Li, 2001; Duncan, Duncan, Biglan, & Ary, 1997; Fletcher, Darling, & Steinberg, 1995; Howard, Walker, Walker, Cottler, & Compton, 1999), but have also demonstrated that having friends who are less involved in substance use increases the likelihood of adolescents lowering their own level of use (Fletcher et al., 1995). Unger et al., (2003) found that the strongest predictor of smoking among a large American Indian/Alaska Native Indian sample of adolescents was their report that their friends smoked “a lot.” In a multi-ethnic sample, MacNeil, Kaufman, Dressler, & LeCroy (1999) calculated that substance use by friends increases the risk of substance use five-fold. This effect had the most impact on American Indians/Alaska Natives because they reported the highest number of substance-using family and friends, compared to Hispanics and Caucasians. Given these results, MacNeil and colleagues recommend targeting prevention on peer relationships and social networks.

Associating with risk-taking peers appears to be more likely when there is a low level of parental monitoring (Duncan et al., 1997), and this link between poor monitoring and association with risk-taking peers has been found to be stronger for American Indian/Alaska Native children than for Hispanics or Caucasians (Barrera et al., 2001). No studies have attempted to translate the construct of parental monitoring to the boarding school environment, but given the high student to staff ratio, monitoring is not likely to be maintained at a high level. Even if staff succeed in monitoring students as well as or better than parents would, it is not clear that this monitoring would have the same impact on the student as parental monitoring would.

In addition to factors in the social context, researchers typically also focus prevention studies on personal factors, such as self-management and social problem-solving skills and psychological well-being (Botvin, 1996; Botvin & Griffin, 2001). Among these, some of the specific constructs that have been shown by some studies to have a protective effect on substance use are assertiveness, self-esteem, and positive affect (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Griffin, Botvin, Scheier, Epstein, & Doyle, 2002); however, Botvin (2000) points out that not all studies including these variables have found significant prevention effects. The picture is further complicated by studies that

have shown a positive association between self-esteem and alcohol use (Scheier & Botvin, 2002) and between social skills and marijuana use (Fearnow-Kenney, Hansen, & McNeal, 2002). Two unambiguous risk factors with demonstrated links to substance use are life stress (King et al., 1992) and social anxiety (Botvin, Baker, Dusenbury et al., 1990).

Given these mixed results in the prevention literature on the general population and the unique cultural and social-contextual features of the Native boarding school population, it would seem that specific pre-intervention information and planning would be needed before attempting to design and implement a prevention approach for this population. A standard, published prevention curriculum could be an ineffective approach if it did not address the needs of the specific population, even if the program had been proven effective in other studies in other settings (see also Arthur & Blitz, 2000). Further, if such an approach is implemented by outside “experts” from a university, it risks alienating the school staff and poisoning their attitude toward intervention attempts in general (Moran & Reaman, 2002; Whitbeck, 2001). As Castro, Cota, and Vega (1999) conclude, a scholarly research-based program must be grounded in the context of the local community.

To learn more about the school community involved in the current study as a preliminary step to designing a preventive intervention, both potential protective factors (assertiveness, self-esteem, positive affect, social skills) and risk factors (distress, social anxiety, affiliation with risk-taking peers) were assessed, along with current alcohol, tobacco, and other drug (ATOD) use. The social structure of the school and its residential program were also examined. Finally, key stakeholders (principal, teachers, counselors, residential staff, and students) were consulted. The study did not attempt to test hypotheses but rather to describe the prevalence of risk and protective factors and ATOD use and to elucidate the relationships among them. This approach follows De Jong’s (1995) recommended framework for prevention research. Designed on the chaos paradigm, the approach treats individuals as actors who are nested within complex, interwoven systems. Thus, characteristics of both the actors and the relevant systems are studied.

Method

Participants

The study was conducted in an off-reservation intertribal residential school for American Indian children in grades five through eight. The school is funded but not operated by the Bureau of Indian Affairs. A large proportion of the school’s student body (68%) has needs for designated special educational services, and the school provides several programs and services to address these needs. Invitations to participate were given to all students in the school, and consent forms were mailed to the students’ parents, who live primarily on reservations across a multi-state region. Assent forms were collected from the students in their classrooms. Out of the 150 students eligible, 66 participated; 37 were boys and

29 were girls. There were 11 fifth graders, 14 sixth graders, 16 seventh graders, and 25 eighth graders, proportions relatively close to the overall enrollment. For the sample, mean age was 12.9 years, $SD = 1.4$. The participants' self-reported tribal affiliation included 12 different tribal communities, with Sioux comprising the largest proportion (36.5%), followed by Chippewa (12.7%).

Residential Structure. The school campus includes three dormitory buildings in addition to instructional and administrative facilities. One of the dormitories is designated for boys, one is for girls, and one is a mixed-gender facility that includes a section for the close supervision of more challenging or delinquent students and another section dubbed the "Honor Dorm." Students who demonstrate good behavior in the regular dorms earn the right to move into the Honor Dorm, where there are televisions in each room and other amenities not found in the regular dorms. If Honor Dorm students misbehave, they are required to move back to the regular dorm. According to school counselors and administrators, the Honor Dorm serves two purposes. One is to provide an incentive for good behavior and a means of publicly recognizing those students who are doing well so that they can be seen as role models by the rest. The other purpose is to protect the well-behaved students from being "corrupted" by the less well-behaved by separating them. One counselor explained the need for sequestering the well-behaved students in a separate facility by describing the "culture of the crab pot" wherein the crabs at the bottom of the pot (regular dorm students) would attempt to pull down any crab who would attempt to crawl out (any student who attempts to follow the rules and do well).

In addition to residential staff members who lead extra-curricular activities and monitor student behavior and safety after school hours, the school also recently introduced case managers to meet with small groups of students and coordinate all aspects of the students' care. At the time of the current study, the case managers were experiencing some success in their surrogate parent role, but they were also struggling to find a focus and define the parameters of their role.

Measures

Life Skills Questionnaire (LSQ). During class time, participants completed self-report questionnaires once midway through the school year and once again at the end of the school year. By the time of the second wave, student relocation resulted in the loss of nine participants. Identification codes rather than names were printed on each questionnaire, and students were informed that their responses would not be made available to school personnel or their parents. Each participant was given a \$5 phone card at each time point as a token of appreciation. The LSQ included several scales designed to measure substance use behaviors and psychosocial variables hypothesized to be associated with substance use in adolescents. For each scale, Cronbach's alphas are reported below from the first wave of data. For psychosocial variables, only scales from published instruments with demonstrated validity were included.

Assertiveness was assessed with ten items adapted from the Assertion Inventory (Gambrill & Richey, 1975). Responses ranged from *never* to *almost always* on a five point scale ($\alpha = .72$). Items on this scale asked respondents how often they would engage in specific assertive behaviors, including asking someone a favor and saying no in various situations. Higher scores indicate greater assertiveness.

Social anxiety was assessed by six items derived from a scale by Richardson & Tasto (1976) and adapted by Botvin, Baker, Dusenbury, et al. (1990). Items asked how nervous the respondents would feel if they engaged in behaviors such as giving a speech and starting up a conversation with a stranger. Responses ranged from *not at all* to *very* on a five point scale ($\alpha = .68$).

To measure risk-taking peer affiliation, seven items adapted from the Personal Experience Inventory (Winters & Henly, 1989), were used. Statements on this scale included “some kids I hang around with smoke cigarettes” and “some of my friends have trouble with their parents.” Responses ranged from *strongly disagree* to *strongly agree* on a five point scale ($\alpha = .81$). Higher scores indicate greater affiliation with risk-taking peers.

The self-esteem scale ($\alpha = .65$) used the same response options and included five items taken from Rosenberg’s (1965) scale. Items included “On the whole I am satisfied with myself” and “at times I think I am no good at all” (reversed).

Affective functioning was assessed via two scales from the Mental Health Inventory (Veit & Ware, 1983; see also Griffin et al., 2002). Questions on these scales asked how often respondents could say they felt certain ways in the last month. Responses ranged from *none of the time* to *most of the time* on a five point scale. The well-being scale ($\alpha = .70$) included three items, one of which was “I felt cheerful and lighthearted”. The distress scale ($\alpha = .83$) also included three items, including “I felt anxious and worried.”

Substance use was measured by three items ($\alpha = .81$). Those items asked participants to indicate how often they smoked cigarettes or chewed tobacco, got drunk from using alcohol, and got high from huffing or sniffing chemicals. The last item, on use of inhalants, was included specifically to assess the extent of a perceived problem at this school with that particular form of substance use. Responses for each question ranged from *never* to *almost always* on a four point scale. The validity of self-reported ATOD use by adolescents on anonymous questionnaires has been shown to be superior to many other methods (Brener, Billy, & Grady, 2003). For example, there is strong agreement between self-reports and biochemical measures of tobacco use.

Teacher questionnaire. Three scales from the Behavioral Assessment System for Children-Teacher Rating Scales, adolescent form (BASC-TRS-A; Reynolds & Kamphaus, 1998) were completed on each participant by their regular classroom teachers near the end of the school year. Responses for all items ranged from *never* to *almost always* on a four point scale. The social skills scale ($\alpha = .93$) included 11 items focusing on interpersonal aspects of social

adaptation. For example, two items are “admits mistakes,” and “offers help to other children.” The leadership scale ($\alpha = .87$) included nine items which assess skills related to community and school adaptation, such as “joins clubs or groups,” and “gives good suggestions for solving problems.” These two scales were highly correlated ($r = .85$), so they were combined into one social skills/leadership scale ($\alpha = .94$). The conduct problems scale included nine items measuring socially risk-taking and disruptive behaviors, including stealing, truancy, and cheating. Three other items intended for this scale address substance use. They are “uses illegal drugs,” “drinks alcoholic beverages,” and “smokes or chews tobacco.” These items were averaged to create a teacher-reported scale of alcohol, tobacco, and other drug (ATOD) use ($\alpha = .92$). To create a measure of conduct problems that did not include ATOD use, the conduct problems scale was computed without these three items. The internal consistency (α) of this scale was .88. Validity of the BASC-TRS has been demonstrated by Reynolds & Kamphaus (1998); in addition, Duffy (2002) reported the instrument to be particularly appropriate in evaluating adolescent substance abusers.

Discipline records. The school provided access to discipline records on each participant, which included documentation of each time the student was disciplined throughout the school year. For the current study, three variables from these records were used. One measured the number of times the student was disciplined for possession or use of marijuana or a “huffable” chemical substance (i.e. inhalant). Another measured the number of times the student was disciplined for possession or use of cigarettes. A third variable was computed as the sum of all a student’s disciplinary infractions across all categories. There were no alcohol infractions recorded in these records. The validity of these records could not be determined a priori, but was inferred from checking their association with teacher reports as shown below.

Results

Stability of Self-Report

To assess the stability of self-reported variables over the three month interval from the first LSQ administration to the second, stability coefficients (Pearson correlations) were computed, and all were statistically significant ($p < .01$). Risk-taking peer affiliation was the most stable ($r = .77$), followed by ATOD use ($r = .75$). Among the three ATOD items, tobacco use showed more stability ($r = .84$) than alcohol ($r = .54$) or inhalants ($r = .59$). Stability for the remaining psychosocial scales ranged from a low of .39 for social anxiety to a high of .57 for self-esteem. Changes in mean level were assessed by means of paired samples t-tests. There were no significant changes in mean levels of ATOD use. Among the psychosocial variables, only distress showed a significant change, decreasing from 2.61 (SD = 1.12) to 2.20 (SD = 1.00), $t(53) = 2.80, p < .01$.

Given the overall high degree of stability across the two waves of the LSQ, the two waves were collapsed for all further analyses. For each scale, the mean

from the two waves was computed. For students who only had one wave of data, just that wave was used. This data reduction method results in a more reliable measurement and decreases the number of statistical tests to be performed.

Cross-informant Agreement

Information on substance use was collected from three sources: the student, the teacher, and discipline records. Distributions of teacher responses and discipline records on substance use were highly skewed, and thus nonparametric correlation coefficients (Spearman's rho) were computed for corresponding variables across different sources. Most of the correlations were nonsignificant (see Table 1). Correlations between student self-reports and teacher reports reached only a marginal level of significance ($p < .10$) on alcohol use, smoking, and overall ATOD use. Teacher reports were significantly correlated with discipline records on use of illegal drugs. No infractions for alcohol use were recorded in the discipline files. Student self-reports on inhalant use were not correlated with either teacher reports of illegal drug use or discipline records of drug use or possession. Further, discipline records of tobacco use were not correlated with student or teacher reports of tobacco use. Because of the nonexistent to weak relationships among these three sources of information, all three were retained as separate indicators of student ATOD use.

Table 1
Nonparametric Correlations Among ATOD Variables From Different Sources

Variable	LSQ - TQ	LSQ - Discipline	TQ - Discipline
Alcohol	.29	NA	NA
Smoking	.31	.18	-.01
Illegal drugs/inhalants	-.01	.15	.32*
ATOD	.30	.13	.25

Note. Alcohol use was not reported in discipline records (NA = Not Applicable). ATOD = Alcohol, tobacco, or drug use (just tobacco or drug use for discipline records). LSQ = Life Skills Questionnaire. TQ = Teacher Questionnaire. "Illegal drugs" were asked about on the TQ versus inhalants ("huffing") on the LSQ. Cell values are Spearman's rho.* $p < .05$.

On the other behavioral variables, there was a greater degree of cross-informant agreement. Teacher-reported conduct problems was correlated with the students' total number of disciplinary infractions, $r = .63$, $p < .001$. Conduct problems was also positively correlated with students' self-reported ATOD use, $r = .36$, $p < .05$, despite the fact that the narrower teacher measure of ATOD use was not significantly correlated with self-reports (Table 1). Among the psychosocial scales, social skills and leadership as reported by the teacher was significantly correlated with the student's self-reported self-esteem, $r = .39$, $p < .05$, but not with assertiveness or social anxiety.

Prevalence of ATOD Use and Gender and Age Differences

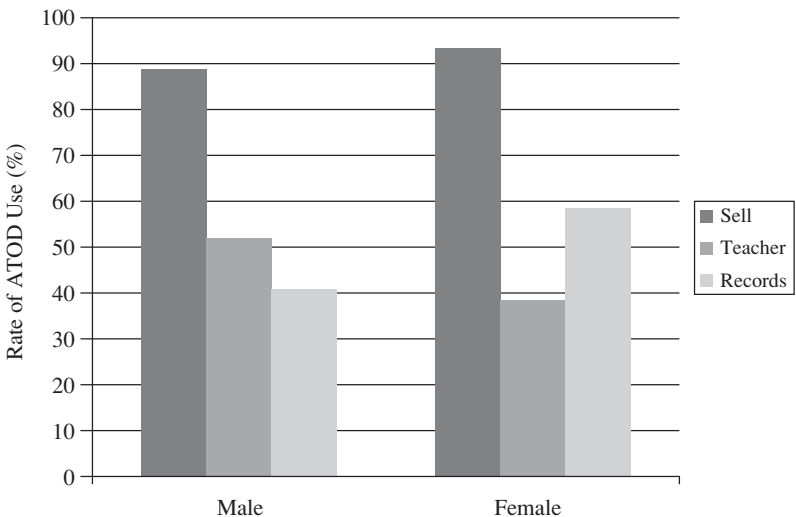
Prevalence rates from each of the separate indicators of student ATOD use are presented in Table 2. The overall rates of use of any substance are shown in Figure 1. Student self-reports reflected the highest level of substance use, with roughly 90% of the sample indicating some level of use of at least one substance. Over three-quarters of the sample indicated some alcohol or tobacco use and over 40% indicated use of inhalants. Teacher reports and discipline records came closest to student self-reports in the category of drug use. A greater proportion of girls than boys reported using tobacco and other drugs, and this difference was also reflected in discipline records but not teacher reports.

Table 2
Prevalence Rates of Any Level of Substance Use As Determined by Different Sources

Source	Alcohol			Tobacco			Other Drugs		
	M	F	Both	M	F	Both	M	F	Both
Student Self-Report	76.7	75.0	75.9	73.3	83.3	77.8	30.0	58.3	42.6
Teacher Report	40.7	38.5	40.0	30.8	23.1	28.2	42.9	30.8	39.0
Discipline Record	NA	NA	NA	18.2	25.0	21.1	30.3	41.7	35.1

Note. Cell values are percentages. Rates for student and teacher reports reflect percentage responding with a 2, 3, or 4 (sometimes, often, or almost always). Rates for discipline records reflect percentage disciplined once or more for possession of the substance. M = Male. F = Female.

Figure 1. Prevalence Rates of ATOD by Gender and Source of Information. Rates for student and teacher reports reflect percentage responding with a 2, 3, or 4 (sometimes, often, or almost always) on use of any substance. Rates for discipline records reflect percentage disciplined once or more for possession of any substance.



As Table 3 shows, when frequency of use was treated as a continuous scale, girls reported a higher prevalence of ATOD use than boys. Follow-up analyses showed that this difference extended to the individual items on tobacco, $t(62) = 2.13$, $p < .05$ and on inhalants, $t(62) = 2.22$, $p < .05$. Significant gender differences were not found in discipline records or teacher reports of ATOD use. On the self-report scales, girls were also found to report more distress, social anxiety, and affiliation with risk-taking peers compared to boys. On the other hand, teachers rated the girls as having significantly greater social skills and leadership than boys.

Table 3
Gender Differences on all Scales and Correlations of Scales with Age

Scale	Boys		Girls		T	r with age
	M	SD	M	SD		
ATOD (LSQ)	1.69	0.62	2.10	0.73	2.41*	.32*
ATOD (TQ)	0.51	0.67	0.41	0.65	0.46	.19
Disciplined for Tobacco	0.27	0.67	0.46	1.02	0.83	.26*
Disciplined for Drugs	0.30	0.47	0.58	0.78	1.70	-.03
Assertiveness	3.37	0.71	3.40	0.55	0.19	-.42**
Well-being	3.26	1.09	3.03	0.56	1.08	-.16
Distress	2.05	0.77	2.85	0.96	3.70***	.01
Risk-taking Peer Affiliation	2.86	0.72	3.58	0.65	4.16***	.36**
Social Anxiety	2.37	0.67	3.02	0.61	4.02***	-.20
Self-Esteem	3.75	0.69	3.57	0.61	1.14	-.01
Conduct Problems	0.73	0.55	0.73	0.52	0.02	.17
Social Skills/Leadership	0.96	0.49	1.40	0.55	2.61*	.02

Note. ATOD = Alcohol, tobacco, or other drug use. LSQ = Life Skills Questionnaire. TQ = Teacher Questionnaire.

* $p < .05$. ** $p < .01$ *** $p < .001$

Self-reported ATOD use was positively correlated with age, as shown on Table 3. Discipline records for tobacco use also increased with age. No significant correlations with age were found for discipline records for drug use or for teacher-reported ATOD use. Assertiveness was negatively correlated with age, whereas affiliation with risk-taking peers increased with age.

Factors Related to ATOD Use

To determine which psychosocial variables were related to ATOD use, regression analyses were conducted with each of the three indicators of ATOD use as dependent variables. In each analysis, gender (male) and age were entered first, followed by a set of six psychosocial variables (well-being, distress, self-esteem, assertiveness, social anxiety, and risk-taking peer affiliation). Teacher-reported social skills and leadership was not entered because of its collinearity with self-esteem, and teacher-reported conduct problems was not entered because of its association with risk-taking peer affiliation, $r = .36$, $p < .05$. Results for the final equations are shown in Table 4. In the linear regression predicting self-reported

ATOD use on the LSQ, age was a negative predictor and being male was a positive predictor of ATOD when these two variables were entered alone. However, both of these factors became nonsignificant when the other variables were added. In the final equation, only affiliation with risk-taking peers and (lack of) assertiveness were significantly predictive of self-reported ATOD use. In the analyses of teacher-reports and discipline records of ATOD use, each of these variables was dichotomized into “use” vs. “no use” and logistic regression was used to determine factors related to ATOD use. For teacher-reported ATOD use, high self-esteem was negatively associated with use and affiliation with risk-taking peers was positively associated. There were no other significant factors. Results in the equation predicting whether a student was disciplined for tobacco or drug use revealed that none of the independent variables were significant.

Table 4
Regression Analyses Predicting ATOD Reports

Independent Variable	Self-Reported ATOD	Teacher-Reported ATOD	Disciplined for Tobacco or Drugs
Male	-0.25	3.4	0.40
Age	-0.02	0.03	0.10
Well-being	0.11	0.46	-0.47
Self-esteem	-0.01	-3.1*	-0.25
Assertiveness	-0.49***	1.0	-1.0
Social Anxiety	0.09	0.68	0.53
Distress	-0.16	-1.3	0.41
Risk-taking Peer Affiliation	0.40**	3.4*	-0.36

Note. ATOD = Alcohol, Tobacco, or Other Drug use. Self-Report column lists unstandardized betas from linear regression. Teacher-report and Discipline variables are dichotomous and those columns list unstandardized betas from logistic regression. * $p < .05$. ** $p < .01$. *** $p < .001$

Discussion

In this study, prevalence of substance use and potential intervention targets (i.e. risk and protective factors) was assessed in an American Indian boarding school. The findings most informative in designing a prevention program to fit this population are: 1) affiliation with risk-taking peers emerged as a strong correlate of substance use; 2) assertiveness and self-esteem were related to less substance use; 3) girls had higher prevalence rates of substance use than boys and higher levels of distress, social anxiety, and association with risk-taking peers. Another crucial factor emerging from this study is the potential role of the residential structure of the school in promoting the affiliation of risk-taking peers with each other.

The current results on the link between risk-taking peer affiliation and substance use are consistent with findings from a large number of studies, reviewed earlier, involving both American Indian/Alaska Native and other samples. In the

current study, the direction of causality was not established; as Dishion and Owen (2002) concluded, the influence between friendships and substance use is likely to be bidirectional. Becoming friends with risk-taking peers leads an adolescent to start or increase in substance use, just as substance use leads an adolescent to acquire risk-taking friends. Either way, what is important is the development of a risk-taking peer culture within which substance use becomes normative. In this peer culture, substance use may be seen as a way to gain popularity and social status, and thus to fulfill adolescent needs for competence and belonging (Cook, Anson, & Walchli, 1993). The fluid social environment of a boarding school, where every year many students come together who have never before been acquainted with each other, would be fertile ground for this process to take root. Evidence on the iatrogenic effects of congregating high-risk early adolescents suggests that once started, risk-taking peer networks may be a causal factor in the worsening of risk-taking behavior (Dishion, Poulin, & Burraston, 2001).

The residential structure of the particular school in the current study may actually encourage the creation of risk-taking peer networks. Rather than nurturing a strong positive peer culture within which new students are carefully integrated, the school sequesters those students who contribute to a positive peer culture, thus in effect also creating its inverse in the regular dorms, a risk-taking peer culture. Classic studies on the role of propinquity in friendship formation (e.g. Festinger, Schachter, & Back, 1950) lead to the expectation that friendships are more likely among children who live near each other. The removal of well-behaved students to a different building effectively diminishes the chances that they will become friends with anyone other than each other, and increases the chances that risk-taking peers will befriend each other. The separation of these two peer cultures is maintained through policies such as keeping the Honor Dorm locked and allowing only a small number of guests to visit. In the regular dorms, the lack of positive peer role models may lead children who might otherwise be malleable, or “on the fence,” toward following popular peers who gained their notoriety through deviance. This would be consistent with the finding by Poulin, Dishion, & Burraston (2001) that adolescents with low levels of delinquency were the most negatively influenced by a risk-taking peer group.

Another damaging effect of the residential policies at the school in the current study stems from the frequent moves that students make throughout the year. Depending on their behavior, students move from the regular dorm to the Honor Dorm and back again, and if their behavior worsens, to the locked “therapeutic” section. As a result, nascent friendships between students with different levels of risk are disrupted. Students learn that any peer relationship may necessarily be temporary, and they fail to develop a strong network of social support. This comes at a developmental time (pre- and early adolescence) when close friendships are particularly important for social-emotional development (Sullivan, 1953). Indeed, in order to preserve their friendships, at least two students in the current study decided to stay in or move back to the regular dorm despite qualifying for the Honor Dorm.

The lack of close friends may be more of a risk factor for girls than boys, and may help explain the higher prevalence of substance use, social anxiety, and distress among girls in the current study. Freshman and Leinwand (2001), for example, reported little difference in the rates of alcohol and drug use among 8th grade girls and boys participating in the National Institute on Drug Abuse Monitoring the Future Survey, with girls having higher rates of inhalant use. A lack of close female friendships was listed as a risk factor for girls that contributed to substance use, anxiety, low self-esteem, and depression. Similarly, Amaro, Blake, Schwartz, and Flinchbaugh (2001) concluded that the historical gender gap in substance use has diminished greatly or disappeared in recent years. Girls were more likely than boys to use substances to improve their self-image and obtain social approval. Peers' use of substances had a stronger influence on girls than on boys. One study of American Indian adolescents showed no gender difference in drug use (James & Moore, 1997), whereas a more recent study corroborated the current findings in showing that American Indian girls had higher rates of inhalant use than males (Chen & Edwards, 2004). Other ethnic groups (Anglos, African Americans, and Mexican Americans) in that study showed boys having higher rates or no significant gender gap.

The role of the individual student's acculturative status (Choney et al., 1995), or identification with American Indian culture and with the majority Euro-American culture, was not measured in this study. This is a serious limitation, although observations of and conversations with students and school personnel did provide some clues. Several aspects of the school's program and environment do appear to encourage the students to embrace their native cultural identity. Two days a week, the student body assembles in the gym and a drum group opens the day with traditional songs and prayers. Occasionally, the students can also participate in a sweat lodge ceremony. There is a cultural activity center where students can work on making their own regalia and traditional crafts. The library contains a large number of books by and about American Indians/Alaska Natives. Students also attend and participate in regional pow-wows several times each year. Despite all of these opportunities, attendance and participation are not widespread and are not well-documented. One aspect of culture that is not emphasized by the school is the teaching of the students' native languages. Fewer than 5% of the students understand their native language, and the school does not teach any native languages. Still, a "Cultural Pride and Alienation Scale" administered by the school showed that students reported feeling a high level of pride that they and their families were members of their tribe (averaging over 3.5 on a 4 point scale).

It is less clear how competent or comfortable these students feel in the majority Euro-American culture. Those who are able to achieve a bicultural identity, embracing both cultures and moving between them smoothly, are likely to develop the most healthy lifestyles (LaFromboise & Rowe, 1983; Oetting & Beauvais, 1990-1991). This conclusion appears to be compatible with the current results that those adolescents maintaining high levels of assertiveness and self-

esteem, traits valued in the majority culture, have lower levels of substance use. Developing and maintaining a bicultural identity can be stressful (OTA, 1990; Robbins, 1991), however, and this stress has been offered by several researchers as one explanation for American Indian/Alaska Native substance use and other problems (see Choney et al., 1995, for a review). One intervention that attempted explicitly to train American Indian adolescents in bicultural competence achieved a reduction in self-reported substance use (Schinke et al., 1988).

Given these considerations, several components of an intervention program tailored to the needs of the school population in the current study can now be proposed. First, the Honor Dorm should be eliminated and the well-behaved students should be integrated into the general population. This would stabilize living arrangements and help promote a sense of community, since students would no longer be moving to different rooms during the year. In order for this plan to work, the school would have to replace the Honor Dorm with other incentives for good behavior, such as creating "Honor Rooms." Any student's room could be designated an honor room, with an extra bonus incentive if both roommates in the room qualify and if the whole wing of the dorm qualifies.

In the space where the Honor Dorm was, the school could create a separate dorm for fifth graders. Because assertiveness declines and affiliation with risk-taking peers increases with age, there is a need to establish a positive foundation in these areas with less influence from older students. If a positive peer network were established among the fifth graders, those who returned each year would have a greater sense of continuity and community, and new students arriving each year would find a positive network to be dominant, within which they could be integrated.

Changes such as these would be an important component in sustaining the effects of an intervention, but changes in the residential structure alone will not spontaneously lead to the establishment of positive peer networks. There is still the risk that the previously well-behaved students would be corrupted, because they are outnumbered by the students with more problems. In order for positive social relationships to become the norm, an active intervention component recommended here is the deliberate formation of friendship groups, mentored by the adult case managers. These groups would have a stable membership from a cluster of dorm rooms. They would meet twice a week and work on promoting positive peer relationships. New students enrolling at the beginning of a year or at anytime throughout the year would be inserted into a stable group of peers who live together and do all activities together.

During group meetings, the group would work through a curriculum designed specifically for promoting adolescent development among American Indians/Alaska Natives. In the Life Skills Development curriculum (LaFromboise, 1995), they would work on skills such as working together, dealing with feelings, communication, and social problem solving. This curriculum is a culturally specific adaptation of Botvin's Life Skills Training, a prevention curriculum with proven effectiveness (e.g. Botvin, Baker, Filazzola, & Botvin, 1990; Botvin,

1996;). Some life skills are currently covered in a school class, but we believe they would be learned more effectively in the context of the residential case-manager group. This plan would provide a focus for the case managers' role and strengthen their status as the students' parents away from home. The case managers would also continue to coordinate all of the students' school services and track their progress. Procedures need to be worked out with every other school department which establish the function of the case managers in accessing and monitoring the services of that department with regard to the children in their group.

To ensure the success of the case manager's role, the links among the residential staff, school counseling and teaching staff, and the case managers need to be strengthened. Currently each group plays a role for one part of the day, or with one part of the child, but often one group doesn't know what the other is doing. They do not integrate their schedules or programming and this causes overlap, turf issues, and large chunks of unstructured time for many students. Structured, coordinated residential programming must be implemented to productively occupy students in prosocial activities during non-academic hours. The students' case manager, as the one person who knows about all of his or her students' needs, is in the ideal role to coordinate the different residential, academic, and therapeutic activities and services into a coherent program. In addition to internal program coordination, the role of the case manager should also include coordinating with agencies in each student's local community to smooth the transitions as the student enters and eventually leaves the school. Obviously, the persons hired for the case manager positions will need to be highly knowledgeable of early adolescent development. In-service training should also be provided to the current residential staff so that they all use consistent approaches to promoting positive discipline.

Finally, it is recommended that the well-behaved students be trained to be peer mentors. This would further strengthen their position as role models and shapers of the school's peer culture. Several studies have documented success in using trained peer leaders as part of a comprehensive intervention approach (e.g. Botvin et al., 1990; Botvin, 1996; Cowen, Hightower, Pedro-Carroll, Work, & Wyman, 1996; Hektner, August, & Realmuto, 2003; Rollin, Anderson, & Buncher, 1999).

These recommendations form a comprehensive plan that is based on the qualitative and quantitative data presented here and on evidence-based practices proven effective in other settings. The current dataset both informed the design of the plan and will serve as a baseline against which to measure future progress after the plan is implemented. Ideally, the implementation of these recommendations would not only reduce substance use among the students at this boarding school, but would also contribute to their positive growth and well-being.

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