

Regular Tobacco Use Among American Indian and Alaska Native Adolescents: An Examination of Protective Mechanisms

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SUMMARY. American Indian and Alaska Native (AIAN) adolescents use tobacco at earlier ages and in larger quantities compared to non-AIAN peers. Regular tobacco use was examined against five protective factors (peer networks supportive of not using drugs, college aspirations,

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team sports, playing music, and volunteerism). Participants consisted of 112 adolescents between the ages of 13 and 19 who participated in a study testing the efficacy of a life-skills program aimed at reducing substance-related consequences. Findings indicated that, with the exception of prosocial peer networks and volunteerism, each of the above factors was significantly associated with a reduced probability of being a regular tobacco user. Gender differences were notable. These results hold important treatment implications regarding the reduction and prevention of tobacco use among AIAN youth. doi:10.1300/J233v06n03_06 [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <<http://www.HaworthPress.com>> © 2007 by The Haworth Press. All rights reserved.]

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INTRODUCTION

Discussions of American Indian and Alaska Native (AIAN) substance misuse generally focus on the misuse of alcohol and marijuana. There is much less attention paid to AIAN adolescent tobacco use. This may be due, in part, to a certain caution among clinical providers of addressing this concept because tobacco, in many Native communities, is considered a sacrament and is used in spiritual/religious observances (Stratton, 1981; Underhill et al., 1997).

Indian youth begin tobacco use early. There are reports of cigarette smoking as early as fourth grade, smokeless tobacco use as early as age five, and most AIAN youth smoke their first cigarette before age eleven. (Beauvais, 1992; Eichner et al., 2005; Millar, 1991; Okwumabua & Duryea, 1987). Indian youth, both male and female, are more likely to begin smoking and at earlier ages than Caucasians (Hodge, Fredericks & Kipnis, 1996). In a comparison of youth comprised of 14 racial/ethnic populations, the CDC (2004) reported that AIAN youth have the greatest prevalence of cigarette smoking (28%) followed by non-Hispanic Whites (16%). Other research has also corroborated this prevalence rate for AIAN youth (Bachman, Wallace, O'Malley et al., 1991; Denny, Holtzman & Cobb, 2003; Rhoades et al., 2002).

Tobacco use is a significant public health concern and one of the major preventable causes of cardiovascular disease and cancer (CDC, 1998; Denny, Holtzman & Cobb, 2003; Rhoades et al., 2002; Welty, Lee, Yeh et al., 1995; Yu, Stiffman, & Freedenthal, 2005). For women from all races, deaths from lung cancer have soared by 600 percent in the past 50 years to rates exceeding deaths associated with breast cancer (CDC, 2001). These statistics are particularly troubling with respect to AIAN communities given their higher prevalence rates of tobacco use.

Existing studies have revealed that prosocial peer and family modeling, self-efficacy, and parental supervision are associated with a decreased likelihood of tobacco use among adolescents, including those of AIAN backgrounds (Bachman, Wallace, O'Malley et al., 1991; Cote, Godin, & Gagne, 2004; Kegler, McCormick, Crawford et al., 2002; Zitzow, 1990). In addition, AIAN youth with positive views of school, academic achievement, and future academic goals have also been reported as less likely to use tobacco (LeMaster, Connell, Mitchell, & Manson, 2002; Schulenberg, O'Malley, Bachman, & Johnston, 2003). Despite these findings, there is minimal research specifically addressing protective factors among AIAN youth. Moreover, the vast majority of research in the area of AIAN populations and tobacco use has focused on *risk* factors. Risk factor research, with its emphasis on youth problems, often fails to identify the prosocial behaviors and characteristics that are essential for promoting and fostering positive youth outcomes (Catalano et al., 2004). The current paper aims to fill this void by discussing prosocial peer networks, future aspirations, and extracurricular activities as protective factors against regular tobacco use.

METHODS

Procedure

The Journeys of the Circle project, a joint collaboration between the University of Washington and Seattle Indian Health Board (SIHB), was established in order to provide a culturally congruent life skills program for AIAN youth (LaMarr & Marlatt, 2005). The intervention was eight sessions conducted in group format and used a canoe journey metaphor in approaching life challenges.

Research assistants and outreach workers recruited youth in two phases. The first phase involved identifying Seattle public schools with a known enrollment of AIAN youth. With permission from the Seattle

Public School system, Indian youth were identified, and mailed permission forms and an invitation to learn more about the study. Youth were also recruited at AIAN club meetings. Interested youth signed up to participate. The second phase of recruitment was conducted at the Seattle Indian Health Board through outpatient clinics. Youth attending medical or dental services were screened on the CRAFFT (Knight et al., 1999) and recruited for the study regardless of their screening scores. Study information requesting passive parental consent was mailed to potential participants' homes. Follow-up calls were also made to confirm parental receipt of these materials. All procedures were approved by the university's human subjects committee. For additional details regarding these procedures see Cummins et al., 2003.

Sample

Participants included 112 AIAN adolescents between the ages of 13 and 19 years consenting to participate in a life skills intervention program in Seattle (53% female; 70% urban; *M* age = 15 years, *SD* = 6.12). Sixty-seven (60%) youth identified themselves as Native American, American Indian, or Alaskan Native (NA/AI/AN), whereas remaining participants identified as NA/AI/AN and another ethnic group. Among the latter group, 17 (15.2%) identified as Native American and Hispanic, 13 (11.6%) identified as Native American and Caucasian, 6 (5.4%) identified as Native American and African American, 6 (5.4%) identified as Multiethnic, 2 (1.8) identified as Native American and Asian, and the remaining participant (.9%) identified as Native American and Filipino. Of the 112 participants, 81% reported identifying with one or more Indian tribes, with over 40 tribes represented. Data from the two recruitment sites showed no significant differences on demographic (age, gender, ethnicity, SES; see Cummins et al., 2003), independent, and dependent variables. Therefore, the two samples were combined for the purposes of this paper.

Measures

During the baseline assessment, youth were interviewed using the Comprehensive Adolescent Severity Inventory (CASI; Meyers et al., 1995). The CASI instrument assesses predictors and associated symptoms for alcohol and drug use across multiple domains. Preliminary examinations of validity and internal consistency have been encouraging (Meyers et al., 1995). CASI protective factor scales were assessed at

baseline, and the predictors included in these analyses were as follows: peer networks (being around peers that supported not using substances in the past year), having college plans in the future, playing team sports, playing music, and volunteering. Extracurricular activities variables (sports, music, and volunteering) were coded into five categories by frequency and were assessed in the past year (never, less than monthly, monthly, 2-4 times a week, and daily).

The dependent variable drawn from the CASI consisted of regular tobacco use. Interviewers asked youth if they have ever used tobacco regularly and if so, the age in they first used regularly. Regular use was defined to youth as using tobacco three or more times a week or two smoking binges a week. Regular tobacco use was measured against the five independent variables.

RESULTS

Demographics

Overall, 64 (58.2%) youth reported using tobacco in their lifetime, and significantly more users were female (64% female; $\chi^2(1) = 6.69$, $p < .01$). Approximately 95% of those with lifetime tobacco use reported smoking as their route of administration. Average age of initiation was 10.38 years ($SD = 2.74$), and regular smoking began at an average age of 12.67 years ($SD = 2.43$). Fifty (45%) youth reported using tobacco regularly in their life and this differed as a function of gender and age, with more females and older youth reporting regular use ($\chi^2(1) = 5.635$, $p < .05$; $F(1) = 7.242$, $p < .01$, respectively). Gender and age were therefore controlled in all subsequent analyses. Table 1 provides correlations between demographic and outcome measures.

Regular Tobacco Use

Logistic regression was used to predict the relationship between each of the protective factors and regular smoking. Age and gender were entered in the first step, with each of the protective factors entered in the second step. Table 2 presents a logistic regression model predicting regular tobacco use based on baseline variables. Betas (β), Wald statistics, exponentiated beta weights ($\text{Exp}(\beta)$), and odds ratios (the inverse of $\text{Exp}(\beta)$) are presented. To facilitate interpretation, $\text{Exp}(\beta)$'s were

TABLE 1. Bivariate Intercorrelations Between Demographic and Outcome Measures

	Regular Smoking
Gender	.226*
Age	.251**
Peer Networks	.220
College Aspirations	-.258**
Team Sports	-.314**
Music	-.212*
Volunteering	-.093

* $p < .05$; ** $p < .01$.

TABLE 2. Logistic Regression Results for the Prediction of Regular Smoking

	β	S.E.	Wald	Exp(β)	Exp(β) ⁻¹
Peer Networks	.937	.807	1.348	2.55	0.39
College Aspirations	-1.36***	0.47	8.37	0.26	3.85
Played team sports	-0.40**	0.14	7.82	0.67	1.49
Played music	-0.30*	0.15	3.98	0.74	1.35
Volunteerism	-0.24	0.21	1.34	0.78	1.28

Note. For college aspirations, model $\chi^2(3, N = 110) = 21.44, p < .001$; for played team sports, model $\chi^2(3, N = 109) = 20.20, p < .001$; for played music, model $\chi^2(3, N = 110) = 16.52, p < .01$.

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

inversed to reflect likelihood of being protected from regular tobacco use. Higher odds ratios indicate the predictor increases the likelihood of being protected from regular tobacco use. For example, youth with higher college aspirations were 3.85 times more likely to be protected from regular tobacco use ($\beta = -1.36, p < .001$). Playing team sports also predicted a greater likelihood of not using tobacco regularly ($\beta = -.40, p < .01$). The odds ratio or Exp(β)⁻¹ for this predictor indicates that youth that played team sports more frequently were 1.5 times more likely to not use tobacco regularly. Finally, youth that played music more frequently

also were approximately 1.35 times more likely to not use tobacco regularly compared to you that played music less frequently ($\beta = .30$, $p < .05$). Having college aspirations was the most robust predictor of not using tobacco regularly, followed by sports, and music participation.

DISCUSSION

The data indicate that a number of key protective factors were associated with a reduced likelihood of regular tobacco use among this sample of AIAN youth. Specifically, youth that did not use tobacco regularly were more likely to have college aspirations, sports involvement, and participation in musical activities. Having college aspirations was the most robust protective factor against regular tobacco use.

Protective findings regarding extracurricular activities were consistent with prior research suggesting that adolescents who engaged in activities that substituted for substance use reinforcers had a reduced likelihood of smoking progression (McGovern et al., 2005). Unsupervised time (e.g., after-school) may be a high-risk time for tobacco use, and the utilization of alternative activities during this time may have contributed to this finding. A majority of students in this sample played sports, and just over half played music, indicating many youth in this urban AIAN sample engaged in prosocial extracurricular activities.

Surprisingly, associating with peers that supported not using drugs did not protect from regular tobacco use. Due to measurement limitation in this study, it is possible that a non-dichotomous question that specifically asks about relationships with non-tobacco (instead of non-"drug") using peers may clarify this relationship (e.g., Wills, Resko, Ainette, & Mendoza, 2004). Previous research has shown that youth were less likely to use cigarettes themselves if they disapproved of their peers' usage (Simons, Haynie, Crump, Eitel, & Saylor, 2001). Volunteering was also not related to regular use of tobacco. There was a low rate of affirmative responses to this question, and perhaps a question assessing a larger range of after-school activities may have accounted for volunteering in a broader context (e.g., babysitting, visiting an elder, community service for their tribe, etc.).

Gender differences were notable in this sample, with significantly more females describing themselves as regular tobacco users. In fact, 68 percent of youth that used daily in the past month were female. While these findings are in contrast with some studies reporting no gender

differences in cigarette smoking among AIAN youth (e.g., Lemaster et al., 2002; SAMHSA, 2002), other research has shown that AIAN females have higher rates of cigarette smoking and that this trend may be due to shifts in the majority culture where cigarettes are equally shared across genders (Schinke, Tepavac, & Cole, 2000). With the rise in premature deaths attributed to lung and other smoking-related cancers and respiratory disease, increased tobacco prevalence among AIAN female youth poses a large public health concern. Women who smoke also have increased risks for conception delay, infertility, and birth complications as compared to women who do not smoke during pregnancy (CDC, 2001). Education and early intervention programs that are culturally appropriate for female AIAN youth are needed (e.g., Navarro, Wilson, Berger & Taylor, 1997).

There are several limitations that should be considered in interpreting these findings. First, this sample was relatively small and was comprised of over 40 tribes. This sample was heterogeneous, and research suggests that tobacco and other substance use differ greatly by tribal association and geographic region (Blum et al., 1992; Hawkins, Cummins, & Marlatt, 2004; Henderson, Jacobsen, & Beals, 2005; SAMHSA, 2003). Protective mechanisms may also vary as a function of tribe and region, and such variability cannot be assessed in the current study. In addition, the current study was limited by the use of cross-sectional and self-report data, as well as limitations regarding both the breadth and depth of protective factor measurement. Longitudinal studies are needed in order to examine the causal relationships of factors encompassing multiple domains of functioning (e.g., individual, family, peers, school, and community), and including those that pertain to cultural identity and practices, to AIAN tobacco initiation and use. Studies comparing AIAN adolescents and youth of other ethnicities are also needed to assess the differentiated effect of these protective factors by ethnicity.

Despite these limitations, the current findings hold important implications for the development of services for AIAN youth. Programs creating a supportive environment for youth, particularly those which guide youth to explore future school aspirations, and support involvement in supervised extracurricular activities incompatible with tobacco use may be highly influential. Additionally, helping AIAN youth to excel in school and continue on to college may hold the key to altering the dangerous course toward becoming a regular tobacco user. Additional research examining these protective factors for AIAN youth is a promising area of research especially in the application of these variables to prevention and intervention programs.

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