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Social Contexts of Drug Offers Among American Indian Youth and Their Relationship to Substance Use: An Exploratory Study

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Abstract

In this exploratory study the authors examined the social contexts of American Indian youths' encounters with drug offers and their relationship to substance use. Using an inventory of drug use-related problem situations developed specifically for American Indian youth, questionnaires were completed by 71 American Indian youth at public middle schools in a Southwest metropolitan area. Regression analyses highlight the importance of situational and relational contexts in understanding substance use among the youth in this sample. Exposure to drug offers through parents, other adults, cousins, friends and other peers was associated with different types of substance use. Exposure through parents was particularly salient in predicting the drug use of female respondents. The study underscores the need for development of culturally grounded prevention programs in schools, reservations, and nonreservation communities.

Keywords

American Indians; youth; adolescence; substance use; drug offers

In this study we examined the relationship between the social ecology and drug use behaviors of American Indian youth. Using a recently developed survey focused on the ecosystemic context of drug and alcohol use of American Indian youth, The Problem Situations Inventory for American Indian Youth (Okamoto, LeCroy, Dustman, Hohmann-Marriott, & Kulis, 2004), we analyzed salient environmental characteristics in relation to substance-using behaviors. The purpose of this process was to identify the characteristics of the environment that exerted the most influence in the substance-using behavior of American Indian youth. These findings have implications for the development of culturally grounded prevention programs in schools, reservations, and nonreservation communities.

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Literature Review

The Social Context of Youth Substance Use

Although individual risk factors play an important role in youths' susceptibility to drug and alcohol use, researchers have also emphasized the relationship of youths' social context to their drug use behaviors. Moon, Jackson, and Hecht (2000), for example, found within a multiracial sample of youth that factors such as positive family relations, low parental permissiveness, and perceived neighborhood safety were related to lifetime use of fewer types of substances. The social context appears to have differential effects on drug use and drug resistance based on gender and ethnicity (Hecht, Trost, Bator, & MacKinnon, 2000; Moon, Hecht, Jackson, & Spellers, 1999; Moon et al., 2000). For example, Moon et al. (1999) found that Mexican American youth received more drug offers than African American and Caucasian youth, and that males were more at risk for offers and use at a younger age than females. Although in their research Hecht et al. emphasize that drug offers and use are situated within a social context and are mediated by gender and ethnicity, they did not elucidate the culturally specific factors that contribute to youth drug use. Further, their findings are limited to the drug use behaviors of youth from three specific cultural groups (Caucasians, African Americans, and Mexican Americans). In terms of future research directions, Hecht et al. (2000) state the pressing need for "more research on drug prevention that is sensitive to ethnic differences" (p. 1).

American Indian Youth and Substance Use

Research has shown that substance use among American Indian youth is a serious problem. For example, Mail (1995) found that nearly one third of all American Indian children have tried alcohol by age 11. Research has shown high-frequency use of marijuana (Novins & Mitchell, 1998) and tobacco (Moncher, Holden, & Trimble, 1990) by these youth. Compared with other ethnic populations, American Indian youth were found to have higher rates of drug and/or alcohol use when measured annually (Bachman et al., 1991; Gfellner & Hundelby, 1995) and over the lifetime (Herring, 1994) and tended to use drugs earlier (Schinke, Tepavac, & Cole, 2000). Regarding polysubstance use, Beauvais (1996) found that 20% of American Indian adolescents used one or more drugs several times a week.

Regional variations in drug use figure prominently in comparisons of American Indian youth to others, with American Indian youth reporting significantly higher lifetime use of some substances in certain regions, whereas non-American Indian youth have significantly higher use in other regions (Plunkett & Mitchell, 2000). Controlling for geographic region, drug use rates of American Indian youth are significantly higher than those of other groups for only three of seven substances—alcohol, marijuana, and cocaine (Plunkett & Mitchell, 2000). Other use patterns appear to be national, for example, inhalant use is less prevalent among urban than reservation Indian adolescents (Howard, Walker, Walker, Cottler, & Compton, 1999).

Stresses related to both acculturation and colonization have been cited as contributors to the social problems of American Indians, including the drug use of American Indian youth (Frank, Moore, & Ames, 2000; Beauvais, 1998). Caetano, Clark, and Tam (1998) indicate that colonization has led to the loss of traditional cultural values and norms and has been identified as promoting drug use among American Indians. Regarding acculturation, LaFromboise and Rowe (1983) and Schinke et al. (1988) suggested that minority youth may experience an increased amount of pressure in their attempt to fit within both their dominant and minority cultures, and substance use may serve as a coping response to this pressure. The impact of colonization and acculturation indicates the need to examine the unique cultural contexts that contribute to the substance use of American Indian youth. O'Neil and

Mitchell (1996) stated that this examination entails an investigation of the power relations among different social actors and how they continue to create an atmosphere conducive to the propagation of the problem.

Drug and alcohol use among American Indian youth has been linked to a variety of other social and emotional problems. Moncher et al. (1990) found that the amount of drugs and alcohol used by these youth was associated with academic failure, delinquency, unemployment, and violent crimes. Compared with other ethnic groups, American Indian youth have been found to have more severe health, social, and economic consequences related to use of drugs or alcohol (Schinke et al., 2000). In a study conducted in the same area as that of the current research, Stiffman, Striley, Brown, Limb, and Ostmann (2003) found that 79% of American Indian youth ($N = 401$) had at least three or more symptoms of either alcohol abuse or dependence, drug abuse or dependence, depression, conduct disorder, posttraumatic stress disorder, or suicidality. Consistent with the results of Stiffman et al., Bachman (1992) found higher rates of suicide for American Indians than for other populations, with 90% of these deaths being alcohol related. Clearly, the consequences of drug and alcohol use for American Indian youth indicate the need for effective substance abuse prevention programs with this population.

The Social Context of American Indian Youths' Substance Use

Recently, the unique social contexts of substance use of American Indian youth has been elucidated by both quantitative and qualitative research. Overall, the results of this research suggest that there is a complex relationship between peers, family, and substance use. The distinction between peers and family is oftentimes blurred, which can intensify the impact of drug and alcohol use or resistance. For example, Hurdle, Okamoto, and Miles (2003) examined the drug resistance skills of American Indian adolescents using focus groups. They found that many of the youth identified cousins as being an influential factor in their decisions to use drugs and alcohol. Waller, Okamoto, Miles, and Hurdle (2003) suggested that this situation might occur because American Indian youth are exposed to their cousins in multiple environments. They went to school with many of them and saw them in their home communities. In this sense, cousins were more influential than peers in American Indian youths' decision to use drugs or alcohol, because they were exposed to them more frequently and were influenced by both peer pressure and familial ties. Further, the influence of peers and cousins appears to play a stronger role than those of parents or adult family members in American Indian youths' decisions to use drugs or alcohol (Okamoto et al., 2004).

The majority of this research has been focused on the attitudes or perceptions of American Indian youth related to drug and alcohol use. Very few researchers have examined the relative impact of social ecology on the drug use of these youth. In this study we explored this phenomenon more closely by examining the ecological characteristics (e.g., setting, location, peer group, family members, and others) of situations in which American Indian youth had opportunities to use alcohol, tobacco, and other drugs. Some substance abuse prevention researchers have differentiated between changes in knowledge or attitudes about drugs and changes in actual drug use behaviors (Tobler et al., 1998; Tobler & Stratton, 1997). With this distinction in mind, examining the culturally specific ecological contributors to drug use of American Indian youth becomes critical in designing and implementing effective prevention programs for these youth. In this study, we assessed the relationship between environmental factors and the substance use of American Indian youth using the Problem Situations Inventory for American Indian Youth (Okamoto et al., 2004).

Method

Instrument

The Problem Situations Inventory for American Indian Youth contains 62 items that are intended to measure the frequency of exposure to drug- and alcohol-related situations and the perceived difficulty in dealing with them (see Okamoto et al., 2004, for a complete version of the inventory and some of its psychometric properties). The items in the inventory were compiled from a series of 10 gender-specific focus groups. Participants included 12 male and 20 female American Indian students attending three public middle schools surrounding a large metropolitan area in the Southwest (see Hurdle et al., 2003). Students were asked to discuss situations in which they had encountered opportunities to use alcohol, tobacco, and other drugs and to detail their relationship to the offerer, the presence of others, the place, and time. Sixty-two distinct situations were extracted from transcripts of the focus group discussions, and short (one or two sentence) descriptions of each situation were developed. Table 1 contains a selection of representative problem situations. The descriptions of these situations were organized into a questionnaire format so that survey respondents could be asked about their experience of these situations in two dimensions, using 5-point Likert scales: (a) How often have you been in a situation like this? (1 = *never* to 5 = *more than 10 times*) and (b) How difficult would it be for you to deal with this situation if you wanted to refuse (the offer)? (1 = *very easy* to 5 = *very difficult*).

Survey Participants

The inventory was administered to a sample of 71 American Indian youth within three public middle schools in a large metropolitan area of the Southwest. Two of these schools were different than those included in the focus group phase, and only one student in the sample participated in both phases of the research. Students were recruited in collaboration with school-based liaisons (such as school counselors), who assisted the researchers in identifying American Indian students willing to participate in the study and in obtaining active parental consent from the youth. The schools serve both reservation and nonreservation youth and have majorities of non-Native American students. Sixty-three percent of the participants were female, and their mean age was 14 years (see descriptive statistics in Table 2). In terms of grade levels, 46% of the participants were in the seventh grade, 38% were in the eighth grade, and 16% were in the ninth grade. Most of the participants (73%) qualified for either free or reduced cost lunch through the Federal school lunch program. A large majority of the sample (78%) indicated that they lived on a reservation. The sample included students from 11 tribal backgrounds, including many with mixed tribal heritage. No tribal affiliations were dominant. The two tribes most commonly represented in the sample accounted for 25% and 11% of the total, respectively. One third of the sample reported an affiliation with more than two tribes.

Measures

The main independent variables were additive scales created from groups of items describing similar drug offer situations. Initially, items were grouped together conceptually on the basis of a prior qualitative analysis of the focus group data, in which a set of repeated patterns involving similar relationships between the respondent and the person offering drugs was noted. The sorting of items by relationship of respondent to offerer was subsequently checked independently by three raters for face validity. Empirically, the clusters were examined through a reliability analysis (Cronbach's alpha) that confirmed the stability of associations among the items within each cluster. These clusters included situations in which substances were offered by friends (20 items; $\alpha = .93$), other peers (12 items, $\alpha = .90$), cousins (12 items; $\alpha = .88$), parents (5 items; $\alpha = .86$), and other adult family members (6 items; $\alpha = .78$). Seven items in the inventory were not used in the current

analysis, including those involving offerers who were boyfriends or girlfriends, neighbors, adult strangers, or family members of unspecified age other than cousins. Different methods for combining information across the items in these clusters were tested in analysis, such as calculating the mean frequency of exposure across items and counting the number of different situations for which any exposure was reported. Exploratory analysis using the latter method produced better fitting multivariate regression models and avoided multicollinearity. The measures we used, then, are simple counts of the number of different situations in which the respondent was exposed to drug offers from a particular category of person within their social network.

A set of scales measuring the perceived difficulty of refusing drug offers in these situations also was developed through exploratory analysis. Again, the items were grouped according to the relationship between respondent and offerer in categories that matched those of the exposure scales described above. The difficulty items did not cohere, however, until item responses were transformed such that respondents who had and had not been exposed to the situation were distinguished. Those who reported that they had never experienced the situation were reassigned the lowest perceived difficulty even if they had reported a hypothetical degree of difficulty. Those reporting some degree of exposure to the situation were assigned the level of difficulty they reported. After these transformations, a mean difficulty score was computed within each category of offerers. In essence, the resulting difficulty scales tap perceived difficulty in refusing or avoiding drug use among those who had such offers.

A third approach in which measures of frequency and difficulty were combined by weighting the frequency of exposure to a given situation by the perceived difficulty in handling it, was not fruitful. In analysis, these measures failed to predict the outcomes in the study in a consistent way, and the few statistically significant results reproduced more faintly those that appeared using the counts of number of situations that the respondent had been exposed to.

The key dependent variables in this study are self-reports of substance use in the last 4 weeks: the frequency with which the respondent “drank alcohol (beer or liquor),” “smoked cigarettes,” “smoked marijuana,” or “used hard drugs (such as crack, cocaine, speed, crank, ecstasy, or sniffing glue or paint).” Responses ranged across a Likert scale from *never, only once, a few times, and once a week to almost every day*. These variables were analyzed individually to assess the salience of offer situations to use of specific substances, as well as through a composite measure that was used in a final set of regressions and a summary graphical treatment of the results. The composite measure of recent substance use was computed by converting responses to each of the four substance use items (alcohol, cigarettes, marijuana, and “hard drugs”) into an estimated number of times the substances were used in the last 4 weeks (e.g., once a week = 4) and summing across the items.

Variables entered as covariates in multivariate analyses included self-reported gender, age, grade in school, participation in the Federal school lunch program (a proxy for socioeconomic status), family structure (two parent household vs. all other arrangements), and reservation or nonreservation residence. Some models include a measure of other risk behaviors besides substance use, a count of the number of the following eight self-reported behaviors over the prior 4 weeks: stealing, gang member activity, fighting, skipping school, school suspension, “tagging” or damaging property, using or carrying a weapon, and having problems with the police.

Analysis

Descriptive, bivariate, and multivariate analyses are reported. A series of ordinary least-squares multiple regression analyses were conducted to explore connections between offers of substances from various members of the respondents' social networks (e.g., friends, other peers, cousins, parents, and other adults in the family) and the drug use behaviors of the respondents. These included models with controls for other risk behaviors besides substance use, as well as models that were used to test for interaction effects between gender and exposure to drug offers from different parts of the respondent's social network.

Results

Descriptive statistics in Table 2 show that the typical respondent reported substance use rates that fell between no use in the last 4 weeks and use only once. Marijuana and alcohol use were considerably more frequent than either cigarette or hard drug use. The percentage reporting any recent use of substances were as follows: 15% for hard drugs, 23% for cigarettes, 35% for marijuana, and 42% for alcohol. The mean number of situations of exposure to drug offers from different sources varied somewhat as a function of the number of situations included in the scale, but the means in Table 1 correspond to other salient measures of relative exposure, such as the percentage of respondents reporting exposure to any of the situations with a particular type of offerer. Offers (at least one) from friends were most common, reported by 66% of respondents, followed by offers from cousins (63%), other age peers (59%), adult family members besides parents (54%), and parents (29%). In contrast with the scarcer reports of substance use, the number of other risk behaviors reported in the last 4 weeks was high. Over half (55%) of respondents reported they were involved in three or more of the eight behaviors, whereas only 18% reported they had engaged in none of them.

Multiple regression analysis results predicting the frequency of recent substance use are reported in Table 3. Three models are presented for each of the four types of substances. The first model includes as predictors the number of different situations in which the respondent was exposed to drugs through parents, other adult family members, friends, other peers, and cousins, along with a series of other potential covariates as controls. The second model adds to these predictors a count of the number of eight other risk behaviors that the respondent had engaged in recently. The third model shows gender interactions with drug exposure through parents, indicating the degree to which such exposure had an impact on substance use that differed for boys compared with girls. Gender interactions with the other drug exposure variables (friends, other peers, cousins, and other family adults) were tested but were not found to be significant predictors of any of the substance use outcomes; these results are not presented in tables.

The regression results demonstrated that students who reported exposure to more drug use opportunities through their parents reported more frequent recent personal use of alcohol and cigarettes, that exposure to drugs through cousins predicted more frequent use of marijuana, and that exposure to drugs through friends was associated with more frequent use of hard drugs. Controlling for the number of other recent risk behaviors reduced to a nonsignificant level the effect of exposure to drugs through parents on the respondent's alcohol use, but not for cigarette use. Controlling for these other risk behaviors had a negligible impact on the effects of drug exposure through cousins and through friends on marijuana and hard drug use. The level of engagement in other risk behaviors was associated with more frequent use of alcohol, cigarettes, and marijuana but was not significantly related to hard drug use.

The gender interactions formed a very consistent pattern of effects. The degree of exposure to drugs through parents predicted a higher frequency of recent substance use by the child more strongly for girls than for boys. In fact, separate analyses of the boys and girls (not presented) suggested that more parent-related exposure to drugs was a risk factor for their daughters but not their sons. Significant differences between girls and boys in the impact of parental drug exposure appeared for use of alcohol, cigarettes, and marijuana with a nonsignificant difference in the same direction for hard drugs.

The significant gender interactions contrasted with consistent findings of no significant main effects of gender in predicting substance use. Among the other potential covariates examined, the free or reduced price school lunch proxy for socioeconomic status showed that lower income students reported less frequent use of hard drugs, and those in two-parent households reported less frequent marijuana use. Age, grade level, and residence (reservation vs. nonreservation) were not significant predictors of any form of substance use. When these latter three covariates were removed from the equations, the pattern, direction, and general magnitude of the other effects remained the same (results not presented).

The regression equations for the basic model with drug exposure measures and demographic controls accounted for a very substantial proportion of variance in frequency of reported substance use, ranging from 23% to 50%. The inclusion of other risk behaviors as predictors added markedly to explanatory power only in the case of alcohol, whereas gender interactions with parental exposure contributed most to explaining cigarette use. Viewing all the regression analyses collectively, the risk of Type I error involving multiple comparisons appears small given the number of significant effects, their level of significance, and their nonrandom patterning.

Regression analysis of recent substance use frequency using measures of the perceived difficulty of refusing drug offers from different categories of family, friends, and peers indicated that exposure to drugs through parents held the most salience. These results are depicted in Table 4, in which an overall measure of recent substance use—the estimated frequency of use of alcohol, cigarettes, marijuana, or hard drugs over the last 4 weeks—is used. In addition, the number of other risk behaviors reported in the last 4 weeks is presented as an outcome. The results for both outcomes indicate that children who reported a greater perceived difficulty in handling situations in which parents had exposed them to drugs were themselves more likely to report frequent substance use and a larger array of other risk behaviors.

The size and direction of some of the effects revealed in the regression analyses are illustrated in Figure 1. With use of the estimated number of times that different types of substances were used in the last 4 weeks, the figure shows the average number of uses indicated by respondents who had different levels of exposure to drug use opportunities through parents, other family adults, friends, other peers, and cousins. The results show a consistent pattern that more exposure to drug use opportunities from any part of the social network is associated with higher levels of actual substance use, but that differences in level of parental exposure produce the largest contrasts in substance use. There were significant mean differences ($p < .01$) in drug use between those exposed versus not exposed to drug offers for all four substances and for all categories of offerers.

Discussion

In this study, we investigated the relationship between social environmental factors and the drug use behaviors of American Indian youth. We sought to identify drug offer situations within specific parts of the youths' social networks that were most strongly associated with

their use of alcohol, tobacco, and other drugs. Results suggest that of social and familial relationships have an impact on the substance use behaviors of American Indian youth and that these relationships may either foster or discourage decisions to use substances. Participants in this study were asked to reflect upon situations in which they had been exposed to offers of drugs, and their responses were examined in association with their self-reports of drug use within the last 4 weeks. Results indicate that these Native youths' actual use of marijuana and alcohol is considerably more frequent than their use of either cigarettes or hard drugs. This finding is congruent with past research revealing that American Indian youth are apt to have tried alcohol before the age of 11 (Novins & Mitchell, 1998) and that American Indian youth report a relatively high usage of marijuana (Moncher et al., 1990).

In addition, the youth reported that offers of drugs (at least one) from friends were most common in their lives, followed by offers from cousins, other age peers, adult family members besides parents, and parents. Differences in the number of reported offers originating from adults versus friends and youth their own age may be due to parents and adult family members being less permissive concerning drug use than the youths' friends, cousins, or other peers. Other researchers have suggested that parents play an important role in positively influencing American Indian youths *not* to use drugs (Hurdle et al., 2003; Sanders, 2000). Okamoto et al. (2004) reported that American Indian youths' decisions to use drugs were influenced by their friends and cousins much more than by parents and other adults. Alcohol and drug use occurred primarily with friends or cousins at their homes, situations in which culturally sanctioned indirect ways of avoiding drug use (e.g., walking away) may be difficult. The same researchers concluded that substance use for American Indian youth may have more to do with *who* is using the substances than with the types of substances being offered or where they are being used.

Similarly, the results of the current study suggest that decisions by American Indian youth to use substances are strongly influenced by situational opportunities to obtain drugs and by *whom* they are offered. When arising from certain members of their social networks, both the number of drug offer situations encountered and the perceived difficulty in handling them were factors in the youths' own drug use. The youth reported that they received more actual drug offers and may actually use drugs more often, when they are with persons their own age with whom they want to "fit in" with and "belong." This desire to belong to peer social groups during adolescence has been found in numerous studies with racial minority adolescents (Chubb & Fertman, 1992; Herring, 1997; Kroger, 1996; Noam, 1999; Pugh & Hart, 1999). In the case of American Indian youth, a sense of belonging often involves familial ties, as drug offers from cousins were shown to influence drug use behaviors of the respondents.

Regression results also indicated that youth who received more exposure to drug use through their parents reported more frequent usage of alcohol and cigarettes. Moreover, the importance of drug use opportunities with parents emerged in analyses of the impact of the perceived difficulty of refusing drug offers from the different categories of family, friends, and peers. Youth engaged in more frequent recent substance use as well as other risk behaviors when they reported a higher degree of difficulty in dealing with drug offers from parents, but not when they had difficulty dealing with offers from other members of the social network (other adults, cousins, friends, and peers). Although these findings appear to contradict prior research indicating that family influence and parental influence in particular is generally a protective factor against youth substance use (Sanders, 2000), the salience of perceived difficulty in refusing parental drug offers is clearly in line with past research indicating that family influence plays an important role in explaining drug use among Native American youth (Swaim, Oetting, Thurman, Deauvais, & Edwards, 1993). Findings from this study suggest both the relative strength of parental influence and its potential to

influence the drug use of American Indian youth both positively and negatively. In an assessment of the impact of exposure to drug offers from parents, one needs to take into consideration that such exposure was not typical—reported by less than one third of the youth—and that the role of protective parental relationships was not systematically included in the analyses. Nevertheless, the results showed that for the minority of youth faced with drug use opportunities from their parents, usually within the home environment, such exposure is a potent predictor of substance use by the youth. The nature of this influence deserves closer examination to determine the degree to which it reflects less strict parental monitoring, parental modeling of drug use as the norm, greater availability of substances in the home, and parental sanctioning or pressure to use substances.

Results also suggested a patterning to the types of substances that American Indian youth access as a result of exposure to drugs from different parts of their social networks. Youth reported more frequent marijuana use in connection to exposure to drugs through their cousins, more frequent use of hard drugs when exposed to drugs through their friends, and more frequent alcohol and cigarette use when exposed to drugs through parents. With regard to American Indian youths' drug use with cousins, Hurdle et al. (2003) also reported that American Indian adolescents identified cousins as being influential in their decisions to use alcohol and drugs such as marijuana. One possible distinguishing factor in relationships with cousins is that family connections may allow youth to cross age or cohort barriers to access drugs supplied typically by those older than themselves, (e.g., through an older cousin). In addition, regarding the higher frequency of the use of hard drugs with friends, it is possible that it reflects the youths' need to belong with their friends and other peer groups (Herring, 1997). Our findings suggest familiar patterns in past research with American Indian youth and reveal that cousins and friends may be considered “safer” than parents or other adult family members for use of illegal substances such as marijuana and/or hard drugs, whereas parents can be sources of access to adult legal substances for adults such as alcohol and cigarettes.

The participation in risk behaviors other than substance use is also important to note among this sample. Most of the youth reported that they were involved in three or more of the eight risk behaviors measured in the study, including involvement with stealing, fighting, damaging property, skipping school, gangs, weapons, school suspension, and problems with the police. When other risk behaviors that respondents had participated in recently were controlled, regression analyses indicated that the impact of exposure to parental drug offers on youths' alcohol use diminished to nonsignificance, although it did not change its impact on their use of cigarettes. The possible intervening role of involvement in these other risk behaviors many reflect relatively low parental monitoring, with less time spent with parents and more time away from them in unsupervised risky situations. On the other hand, participation in these other risk behaviors did not account for the significant effect of drug use exposure through cousins and friends on the youths' use of marijuana and hard drugs.

Finally, regression analyses revealed patterns of effects for the gender interactions. We found that female American Indian youth reported a higher frequency of use of drugs through parents versus their male counterparts. The more time the girls spend with their parents appears to affect negatively their drug use behaviors, whereas the time boys spend with their parents does not appear to affect their drug use as strongly. These findings support previous research that adult relatives, such as parents, aunts, or uncles, can influence American Indian female adolescents to use drugs by their modeling of such behaviors and by directly offering substances to their children (Okamoto et al., 2004). Prior research also indicates that American Indian females have been socialized to believe that relationships are of primary importance in their lives (Portman, 2001), suggesting that girls may develop stronger relationships with parents and thus spend more time with them, which may enhance

their exposure and vulnerability to drugs and alcohol through parental contact. These gender differences could be explored through qualitative studies to further our understanding of the experience of being male or female in American Indian homes and how relationship development and time spent with parents affect drug usage.

In interpreting the findings from the current study, it is important to note its exploratory nature and certain limitations of measurement, model specification, causal interpretation, and generalizability. Measures of exposure to drug offers from different informal social network sources reflected actual situations reported by focus groups of Native American youth from the same area as the survey respondents, not a priori conceptual categories designed to produce parallel scenarios. The number of situations, the mix of substances offered, and their settings and complexities varied somewhat across the different categories of people offering substances to the youth. These variations may account to some degree for the reports of more exposure to offers from cousins and friends than from parents and other adult family members. In addition, certain outcome measures were imprecisely defined (e.g., hard drugs), leaving open the possibility that youth may have interpreted their meaning in various ways. Regardless of the accuracy of the measures of comparative exposure to drug offers, however, the findings suggest that the influence of drug-using parents, adult family members, cousins, and friends is a significant factor in the youths' use of different types of substances.

As an exploratory study, with these analyses we examined the differential impact of exposure to drug offers from various network sources but did not assess their role in the etiology of American Indian youth substance use relative to many other salient, and potentially related, factors such as the degree of peer influence and parental monitoring. Further, although it might be inferred that opportunities for use must precede substance use, with cross-sectional data, causal connections cannot be assumed between the measures of drug offer exposure and actual drug use. The measures of youth substance use were not defined in such a way that they could be linked to particular drug offer situations. Finally, it is important to note that, because of the small sample size, the data are preliminary in nature and should be interpreted with caution until further data become available.

The generalizability of the study findings is difficult to establish, as the sample was drawn from a population of American Indian youth in public middle schools with non-Native American majorities in a large metropolitan area of the Southwest and included youth living both on and off tribal reservation lands. Nationally, there are 562 federally recognized tribal nations (Bureau of Indian Affairs, 2003), with significant tribal and regional differences, such as residential patterns, degree of Indian ancestry or blood quantum, and cultural affiliation, identity, and participation (Hawkins, Cummins, & Marlatt, 2004). The findings from this study may not reflect these differences.

Conclusions

Despite these limitations, findings from this study have implications for understanding risk and protective factors for American Indian youth and the development of culturally grounded prevention programs in schools, reservation, and nonreservation communities. Results of this study suggest possible differences in drug use patterns based on gender and type of offerer, which could be used to inform these programs. For professionals to help Native American youth learn the possible short-term and long-term consequences of their choices of drug use or help them differentiate between healthy relationships versus nonhealthy social influences, they must first understand the situational contexts of the daily lives of these youth that place them at greater risk of substance use. Future researchers might

explore these phenomena, as well as examine other culturally specific aspects of risk and resiliency within this population of youth.

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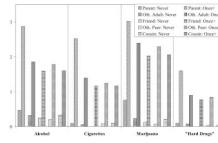


FIGURE 1. Mean number of times respondents used substances in the last 4 weeks, by social network exposure to drug offers.

TABLE 1**Representative Problem Situations**

Situation 56:	You go home after school and your mom and dad are at home with a couple of friends and they have been drinking and are pretty messed up. They give you some liquor and say you need to learn how to hold your own.
Situation 24:	Your aunt and uncle have an extra pack of cigarettes and they offer it to you.
Situation 31:	All the cousins are together and one of the older ones passes a joint of marijuana around the group, calling everyone names who doesn't want to take a hit.
Situation 48:	You've been driving around with your friend and now you're parked out in the middle of nowhere. Your friend pulls out some hard drugs from behind the seat and asks you if you want some.
Situation 44:	It's Saturday night and you are at a party with some friends. There is a lot of music and many people of all ages are drinking and smoking. Your friend comes over to you with this person you don't know, who offers you a joint of marijuana.

TABLE 2

Descriptive Statistics

	N	Mean	Standard Deviation	Percent Non-zero [*]
Alcohol (frequency last 4 weeks)	71	1.75	1.07	42%
Cigarettes (frequency last 4 weeks)	71	1.45	0.97	23%
Marijuana (frequency last 4 weeks)	71	1.77	1.23	35%
Hard drugs (frequency last 4 weeks)	71	1.30	0.8	15%
# of Parent situations (drug exposure)	70	0.71	1.36	29%
# Other adult family situations (drug exposure)	71	1.32	1.71	54%
# Friend situations (drug exposure)	71	4.82	5.27	66%
# Other peer situations (drug exposure)	71	2.85	3.44	59%
# Cousin situations (drug exposure)	71	3.37	3.6	63%
Gender (F = 0, M = 1)	70	0.36	0.48	36%
Age	70	13.56	0.97	
Grade	68	7.71	0.73	
Federal lunch participation (N = 0, Y = 1)	70	0.73	0.45	73%
Two-parent household (N = 0, Y = 1)	71	0.49	0.5	49%
On reservation (N = 0, Y = 1)	71	0.77	0.42	77%
# Other risk behaviors last 4 weeks	71	2.87	2.22	82%

* Percentages represent those reporting any level of the behavior in the last 4 weeks; for dummy variables it is the percentage coded '1' rather than '0.'

TABLE 3

Regression Analyses Predicting Substance Use Frequency in Last Four Weeks

Predictors	Alcohol		Cigarettes		Marijuana		"Hard Drugs"					
	b	b	b	b	b	b	b	b				
# Parent situations	.245*	.103	.275*	.386***	.315**	.397***	.180	.056	.168	.052	-.003	.069
	(.120)	(.117)	(.108)	(.093)	(.095)	(.098)	(.128)	(.129)	(.132)	(.095)	(.100)	(.104)
# Other adult family situations	.166	.021	-.051	.117	.045	.011	.103	-.025	-.071	.121	.065	.035
	(.113)	(.110)	(.097)	(.086)	(.090)	(.088)	(.120)	(.122)	(.119)	(.089)	(.094)	(.093)
# Friend situations	.101	.086	.096 [†]	.024	.016	.021	-.011	-.024	-.017	.106*	.100*	.105*
	(.063)	(.057)	(.049)	(.048)	(.047)	(.045)	(.067)	(.063)	(.061)	(.049)	(.049)	(.047)
# Other peer situations	-.110	-.085	-.059	.035	.048	.060	-.064	-.042	-.025	-.044	-.034	-.023
	(.088)	(.081)	(.070)	(.068)	(.066)	(.063)	(.094)	(.088)	(.086)	(.069)	(.069)	(.067)
# Cousin situations	.021	.025	.023	-.028	-.026	-.027	.184*	.187**	.185**	-.093 [†]	-.092 [†]	-.093 [†]
	(.066)	(.602)	(.052)	(.051)	(.050)	(.047)	(.070)	(.066)	(.064)	(.052)	(.051)	(.050)
Gender (F = 0, M = 1)	.252	-.199	.245	.072	-.152	.059	.026	-.370	-.082	-.191	-.365	-.180
	(.264)	(.271)	(.254)	(.202)	(.222)	(.232)	(.280)	(.299)	(.312)	(.208)	(.233)	(.247)
Age	-.083	-.013	.094	-.123	-.089	-.038	.054	.115	.185	.041	.068	.113
	(.212)	(.194)	(.169)	(.163)	(.159)	(.154)	(.226)	(.214)	(.207)	(.167)	(.166)	(.164)
Grade	-.144	-.026	-.105	-.120	-.061	-.098	.149	.253	.202	-.228	-.182	-.215
	(.257)	(.236)	(.204)	(.197)	(.193)	(.187)	(.274)	(.260)	(.251)	(.203)	(.202)	(.198)
Federal lunch (N = 0, Y = 1)	-.265	-.261	-.308	-.107	-.105	-.127	-.024	-.020	-.051	-.484*	-.482*	-.502*
	(.262)	(.239)	(.206)	(.202)	(.195)	(.188)	(.279)	(.263)	(.253)	(.207)	(.204)	(.200)
Two-parent household (N = 0, Y = 1)	.217	.121	-.016	-.049	-.096	-.161	-.618*	-.703**	-.792**	-.136	-.173	-.230
	(.243)	(.223)	(.194)	(.187)	(.182)	(.177)	(.259)	(.245)	(.239)	(.192)	(.191)	(.189)
On reservation (N = 0, Y = 1)	.117	-.062	.006	-.093	-.182	-.150	-.161	-.319	-.275	.207	.138	.166
	(.277)	(.257)	(.222)	(.213)	(.211)	(.203)	(.295)	(.284)	(.273)	(.219)	(.221)	(.216)
# Other risk behaviors	.237***	.206***	.206***	.117*	.103 [†]	.103 [†]	.208**	.188*	.188*	.092	.092	.079
	(.669)	(.658)	(.658)	(.055)	(.053)	(.053)	(.074)	(.071)	(.071)	(.057)	(.057)	(.056)
Parent situations × gender (interaction)			-.722***		-.342*	-.342*		-.469*				-.302 [†]
			(.162)		(.148)	(.148)		(.199)				(.158)

Predictors	Alcohol		Cigarettes		Marijuana		"Hard Drugs"					
	b	b	b	b	b	b	b	b				
Intercept	3.304 [†]	1.391	.502	3.677*	2.727 [†]	2.306 [†]	-.292	-1.98	-2.56	2.575 [†]	1.835	1.463
	(1.80)	(1.72)	(1.50)	(1.38)	(1.41)	(1.37)	(1.91)	(1.90)	(1.84)	(1.42)	(1.48)	(1.45)
N	66	66	66	66	66	66	66	66	66	66	66	66
Adjusted R ²	.297	.418	.568	.502	.533	.567	.400	.467	.509	.229	.250	.285

Note. Standard errors reported in parentheses.

[†] $p < .10$.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

TABLE 4

Regression Analyses Predicting Substance Use Frequency and Other Risk Behaviors in Last Four Weeks

Predictors	Number of Times Used Alcohol, Cigarettes, Marijuana or "Hard Drugs" b	Number of Other Risk Behaviors Reported b
Perceived difficulty: Parent situations	3.444*** (1.125)	.996*** (.322)
Perceived difficulty: Other adult family situations	-.188 (1.045)	.213 (.299)
Perceived difficulty: Friend situations	.186 (1.275)	.031 (.364)
Perceived difficulty: Other peer situations	.794 (1.000)	.381 (.286)
Perceived difficulty: Cousin situations	-.615 (1.434)	-.364 (.410)
Gender (F = 0, M = 1)	-2.197 (1.948)	1.695** (.557)
Age	.939 (1.504)	.052 (.430)
Grade	.580 (1.979)	-.238 (.566)
Federal lunch (N = 0, Y = 1)	-1.056 (2.036)	.363 (.582)
2-Parent household (N = 0, Y = 1)	-4.570* (1.782)	-.760 (.509)
On reservation (N = 0, Y = 1)	-1.077 (2.167)	.497 (.619)
Intercept	-13.975 (12.68)	1.187 (3.62)
N	67	67
Adjusted R ²	.159	.225

Note. Standard errors reported in parentheses.

* $p < .05$.

** $p < .01$.

*** $p < .001$.