AMERICAN INDIAN YOUTHS’ PERCEPTIONS OF THEIR ENVIRONMENT AND THEIR REPORTS OF DEPRESSIVE SYMPTOMS AND ALCOHOL/MARIJUANA USE

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ABSTRACT

The role of neighborhood and school environments in adolescent development has been explored over the years, yet few have examined these relationships with an American Indian sample. The purpose of this study was to explore the role of American Indian adolescents’ sense of safety in their neighborhood and school environments and how this relates to their experience of depressive symptoms and alcohol/marijuana use. The data were drawn from a southwestern state’s dataset containing survey results of adolescent well-being. Responses from a total of 148 American Indian 8th, 10th, and 12th grade students were analyzed. The findings indicated that neighborhood safety, especially the presence of crime and drug sales, was the strongest predictor of depressive symptoms and alcohol/marijuana use. Implications for future research and work with this population are discussed.

Many American Indian youth are able to successfully navigate life and avoid problem behaviors (LaFromboise, Hoyt, Oliver, & Whitbeck, 2006). However, reservation youth experience many challenges, including adaptation to the changing demands of their native and mainstream American cultures (LaFromboise, Coleman, & Gerton, 1993). Reservation life frequently entails many risk factors for adolescent development. According to the U.S. Census (2000) around 13% of all American Indians live on reservations. Employment rates on most reservations are below 75% with per capita income estimated at around $3,000 to $4,000 leaving around 50% of American Indians living below the poverty level (U.S. Census, 2000). Beyond poverty, American Indian adolescents are frequently exposed to violence, alcohol and drug-use, and prejudice from surrounding communities (Oetting, Swaim,
Edwards, & Beauvais, 1989). Therefore, considering these characteristics, reservations as a context present many challenges to American Indian youth.

In explaining these findings, many scholars cite peer and family influence (e.g., Kulis, Okamoto, Rayle, & Sen, 2006), or historical wrongs (e.g., Beauvais, 1998), but few examine the neighborhoods and school environments on reservations as contextual factors. Context plays an important role in the development of children and youth (e.g., Bronfenbrenner & Morris, 2006; Leventhal & Brooks-Gunn, 2000). Boardman and Onge (2005) asserted that adolescence in particular is a period when contexts, such as neighborhoods and schools, become important for development. They emphasized the amount of time adolescents spend in these contexts as compared to children or adults. Therefore, experiences and information gleaned from the normative environments of their neighborhoods and schools have direct consequences for adolescent well-being.

Bronfenbrenner and Morris (2006) emphasized the individual's subjective experience of an environment stating, "Very few of the external influences significantly affecting human behavior and development can be described solely in objective physical conditions and events" (p. 797). A person's interaction with his or her world, which includes persons, objects, and symbols, is shaped by the characteristics of the environment and historical time period (Bronfenbrenner & Morris). They illustrated the environmental context as a series of nested systems that can either promote or thwart an individual's development. Based on their theory, it can be hypothesized that American Indian adolescents' perceptions of two microsystems, their neighborhood and school environments, will be influenced in their development. The adolescents' reports related to safety illustrate a characteristic of these environments, one that potentially inhibits important developmental interactions. Therefore, perceptions of unsafe environments can be related to adolescent developmentally dysfunctional behaviors such as depression or alcohol/marijuana abuse.

The Neighborhood Context

Stiffman et al. (1999) found that the perceived neighborhood environment significantly mediated the relation between measures of objective (e.g., census data) neighborhood environment and adolescent reports of depression and alcohol/drug use. In addition, they noted that exposure to violence increased this effect. With the goal of relating adolescent neighborhood perceptions to specific internalizing and externalizing behaviors, Aneshensel and Sucoff (1996) asked adolescents
to rate the ambient hazards present in their neighborhood, such as graffiti, drive-by shootings, gangs, drug use and dealing, police harassment, and general cleanliness. Using hierarchical regression analyses, they found that older and African American adolescents tended to rate their neighborhoods as more threatening. In addition, they found that female adolescents reported more depression symptoms than did male adolescents, and adolescents' reports of ambient hazards were significantly positively related to their reports of depressive symptoms.

The School Context

Students who live in violent neighborhoods frequently bring these behaviors into the school context (Mulvey & Cauffman, 2001). Sullivan, Farrell, and Kliewer (2006) noted that schools are a common site for peer aggression and victimization with male and minority students reporting the most incidents, and as a result, report feeling less safe at school. For instance, in a sample of African American 8th grade students they found that almost half reported being physically victimized and a third reported multiple incidents over the past month. Similarly, other researchers (e.g., Schwab-Stone et al., 1995) have found that older, ethnic, lower socioeconomic status adolescents were more likely to feel unsafe in middle school because of peer aggression, that males are more likely to witness or experience violence, but no more likely to report feeling unsafe at school than female students. Other researchers also have found that male students were more likely to report higher frequencies of physical victimization (e.g., Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Sullivan et al., 2006).

Adolescent Responses to Peer Aggression

Though male adolescents tend to experience more physical victimization, researchers have noted mixed findings related to gender differences in response to peer aggression. For example, some have reported that male adolescents are more likely to indicate lower levels of emotional distress than females (Farrell & Bruce, 1997), more avoidance coping strategies (McGee & Baker, 2002), increased drug and alcohol use (Sullivan et al., 2006), increased delinquent behaviors (McGee, 2003), or increased likelihood of carrying a weapon for protection (Jenkins & Bell, 1994), whereas, female adolescent victims of peer physical aggression were more likely to report increased depressive symptoms (Jenkins & Bell, 1994; McGee, 2003). In contrast, some researchers have not found significant gender differences in responses to peer aggression (Cooley-Quille et al., 2001; Kilpatrick, Acierno, Saunders, Resnick, Best, & Schmurr, 2000).
Given the negative outcomes of peer victimization, school environments are seen to be equally important as the neighborhood context in influencing adolescent development. For example, Teitler and Weiss (2000) found that the normative environment of the school played a larger role than neighborhood characteristics in predicting age of sexual debut. Similar to neighborhoods, social control and organization within a school environment is essential (Kitsantas, Ware, & Martines-Arias, 2004). Astor and Meyer (2001) concluded that large, impoverished, and disorganized schools were more likely to have high rates of peer violence.

**American Indian Adolescents**

According to the U.S. Department of Health and Human Services (2001), American Indian youth are more likely to report depressive symptoms and use alcohol and marijuana. They are also more likely to start using drugs and alcohol at earlier ages. Yu and Stiffman (2007) examined drug and alcohol abuse among reservation and urban American Indian youths ages 13 to 19 years old. They found that reservation youths start abusing alcohol and drugs on average 11 months earlier than urban youths (around 13 years old) and reported more lifetime use overall.

Few studies have been done on the influence of neighborhood and school characteristics, such as the presence of ambient hazards or threatening peers, and their effect on American Indian adolescent internalizing and externalizing behaviors. Some researchers have emphasized the importance of school attachment in lowering rates of alcohol and marijuana use among American Indian seventh graders (Napoli, Marsiglia, & Kulis, 2003), or in delaying sexual debut for male American Indian youth (Mitchell, Whitesell, Spicer, Beals, Kaufman, & The Pathways of Choice and Healthy Ways Project Team (2007), but have not addressed one of the factors that contributes to the sense of belonging, such as feeling safe at school or even in the neighborhood beyond school grounds.

Silmere and Stiffman (2006) focused on American Indian youths' perception of their neighborhood and school environments and how it related to seven indicators of success. Those indicators included good mental health, being drug free, a clean police record, an absence of serious misbehavior, good grades, positive behavior/emotions, and positive psychosocial emotions. They concluded that negative environments (e.g., fighting, drug use, and stabbings) had a detrimental effect on the American Indian youth and further research was needed to clarify this issue (Silmere & Stiffman). Stiffman et al., 2007) under-
scored the importance of environmental variables on adolescent youth manifestation of negative behaviors. In fact, the authors indicated that the environmental effects were often more influential than individual, family, and peer factors.

Whereas problem behaviors among American Indian youth have been the focus of many studies, few studies have specifically focused on the characteristics of the neighborhoods and schools. Even fewer have considered how American Indian youth perceive their neighborhoods and schools. Census data would suggest that reservations appear to offer numerous risk factors that encourage problem behavior, yet the focus needs to be placed on the subjective experience of American Indian youth. Therefore, this study examined how American Indian youths' feelings of safety and perception of their neighborhood and school environment is related to their reports of depressive symptoms and alcohol/marijuana use.

**METHOD**

*Data set.* Data were drawn from a southwestern state's dataset containing survey results of adolescent well-being. Adolescents responded to questions related to antisocial behavior and risk and protective factors at the community, family, school, and peer/individual levels. Principals and teachers were provided with instructions on how to administer the survey and a script that was read to the students instructing them to not write their names on the survey. Pretesting of the script and questions was done to ensure student comprehension and to decrease the possibility of error. To be included in the sample, adolescents had to be from American Indian reservation middle schools and high schools. This provided a 100% American Indian sample. Given the uniqueness of each tribe and reservation in the region, it was considered important to obtain and utilize a single Indian tribe sample for this study.

There were a total of 148 participants. The Indian adolescents' characteristics were: (a) 41.9% male and 58.1% female; (b) 97.3% were American Indian, 0.7% White, 0.7% Hispanic, and 1.4% reported "Other"; (c) 14% were 13 years of age, 22.7% 14, 20.7% 15, 20% 16, 10.7% were 17, and 12% were 18; (d) 38% were in 8th grade, 40% in 10th grade, and 22% in 12th grade.

*Measures*

*Safety in school.* Sense of safety at school was measured using five items. Students were asked to respond to the statement "I feel safe at
school" by circling one of four answers (NO! no, yes, YES!). The other four items measured the frequency of threat at school during the past month or past 12 months. The events include how many times someone threatened or injured you with a weapon such as a gun, knife, or club on school property; how many times you were in a physical fight on school property; how many times you do not go to school because you felt you would be unsafe at school or on the way to or from school; and how many times you have been picked on or bullied by a student on school property.

Safety in neighborhood. Sense of safety in the neighborhood was measured using five items. Students responded to these items by circling one of four answers (NO! no, yes, YES!). Students were asked how safe they feel in their neighborhood, how much crime and/or drug selling or fights occurs. Also, students were asked to report the amount of graffiti and empty or abandoned buildings characterized their neighborhood.

Depression. Depressive symptoms were measured using four items. Students were asked to answer three statements and one question by circling one of four answers (NO! no, yes, YES!); “Sometimes I think that life is not worth it,” “At times I think I am no good at all,” “All in all, I am inclined to think I am a failure,” and “In the past year have you felt depressed or sad MOST days, even if you felt OK sometimes?”

Alcohol and marijuana use. Frequency of alcohol and marijuana use was measured using two items. Students were asked the number of occasions (0 through 40) if at all during the past 30 days they have used marijuana or alcohol. Alcohol/marijuana use over the past 30 days (use = 1) were re-coded into dummy variables (both average scores were .33).

The school safety (Mean: 8.92, range 5.00 to 21.00), neighborhood safety (Mean: 12.22, range 5.00 to 20.00), and depressive symptoms (Mean: 9.17, range 4.00 to 16.00) items were summed and the combined scores were used in regression analyses.

RESULTS

Analyses. The scores from the neighborhood, school, and depression items were summed and the combined score for each variable use over the past 30 days (use = 1) were re-coded into dummy variables. With regard to externalizing behaviors, logistic regressions were run with neighborhood and school safety as predictors in univariate analyses with the dichotomous outcome variables of alcohol and marijuana use over the past 30 days (see Table 2 and 3).
Neighborhood safety was the only significant predictor of depressive symptoms in every model where it was included (see Table 1). In contrast, sense of safety in school was not a significant predictor and appears to be unrelated to reports of depressive symptoms. Gender and age were also not significant predictors of depressive symptoms.

As seen in Tables 2 and 3, in relation to alcohol use over the past 30 days, the model that included neighborhood safety was significant with a chi-square of 6.55 ($p = .01$) and 67.9% of the sample was correctly classified as having consumed alcohol over the past 30 days. Thus, for every one point increase in neighborhood safety score (or feeling less safe), the American Indian adolescent is 1.18 times more likely to have used alcohol over the past month. Similar results were found regarding marijuana use with both univariate models reaching significance with 73% of the sample correctly classified as having used marijuana over the past 30 days (neighborhood safety chi-square = 6.18, $p = .01$; school safety chi-square = 4.46, $p = .04$). Therefore, for every one point increase in neighborhood or school safety score, the American Indian adolescent is respectively 1.19 or 1.14 times more likely to use marijuana over the past month. Finally, chi-square analysis revealed no significant differences by gender or grade in the alcohol/marijuana use, reports of depressive symptoms or perception of neighborhood and school safety.

Table 1: Regression models on neighborhood and school safety and depressive symptoms

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>t</td>
<td>$\beta$</td>
<td>t</td>
</tr>
<tr>
<td>Intercept</td>
<td>9.77</td>
<td>17.23</td>
<td>6.25</td>
<td>4.74</td>
</tr>
<tr>
<td>Gender</td>
<td>-.56</td>
<td>-.86</td>
<td>-.42</td>
<td>-.67</td>
</tr>
<tr>
<td>Grade</td>
<td>-.91</td>
<td>-1.42</td>
<td>-.74</td>
<td>-1.2</td>
</tr>
<tr>
<td>Neigh.</td>
<td>.27</td>
<td>2.93*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School</td>
<td></td>
<td></td>
<td>-.02</td>
<td>-.22</td>
</tr>
</tbody>
</table>

* $p < .01$
Table 2: Univariate analyses for neighborhood and school safety predictors of alcohol use over the past 30 days

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \beta )</th>
<th>SE</th>
<th>Wald</th>
<th>p-value</th>
<th>Odds ratio</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neigh.</td>
<td>.169</td>
<td>.069</td>
<td>5.95</td>
<td>.015</td>
<td>1.18</td>
<td>1.03-</td>
</tr>
<tr>
<td>School</td>
<td>.086</td>
<td>.060</td>
<td>2.03</td>
<td>.155</td>
<td>1.09</td>
<td>.968-</td>
</tr>
</tbody>
</table>

Note: Bolded values indicate \( p < .05 \)

Table 3: Univariate analyses for neighborhood and school safety predictors of marijuana use over the past 30 days

<table>
<thead>
<tr>
<th>Variable</th>
<th>( \beta )</th>
<th>SE</th>
<th>Wald</th>
<th>p-value</th>
<th>Odds ratio</th>
<th>95%CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neigh.</td>
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<td>.074</td>
<td>5.63</td>
<td>.018</td>
<td>1.19</td>
<td>1.03-</td>
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<tr>
<td>School</td>
<td>.133</td>
<td>.064</td>
<td>4.40</td>
<td>.036</td>
<td>1.14</td>
<td>1.01-</td>
</tr>
</tbody>
</table>

Note: Bolded values indicate \( p < .05 \)

DISCUSSION

Bronfenbrenner and Morris (2006) emphasized the individual's subjective experience of an environment as being beneficial or detrimental to an individual's development. The neighborhood as an important microsystem for adolescent development was supported by the present study's findings. For American Indian adolescents, neighborhood characteristics were significantly related to depressive symptoms and alcohol-marijuana use. American Indian adolescents who reported feeling less safe and a higher level of ambient hazards in their neighborhoods...
were more likely to report depressive symptoms and alcohol or marijuana use over the past month. These findings coincide with previous research which found that neighborhood environments are influential in the development of American Indian adolescent problem and success behaviors (Silmere & Stiffman, 2006; Stiffman et al., 2007).

In contrast, significant gender or age differences in perception of neighborhood safety were not found. Yabiku and colleagues (2007) found that American Indian males from impoverished neighborhoods reported more marijuana use than did American Indian females from similar neighborhoods. Similarly, Silmere and Stiffman (2006) found that negative neighborhood and school environments were negatively related to indicators of success, but that American Indian females fared better in overall successful functioning scores. Yet many studies with non-American Indian samples have reported mixed results related to gender and age differences (e.g., Aneshensel & Sucoff, 1996; Cooley-Quille et al., 2001; Kilpatrick, Acierno, Saunders, Resnick, Best, & Schmurr, 2000; Schwab-Stone et al., 1995). A larger sample size might have helped detect any significant differences by gender or grade in perception of neighborhood safety.

Researchers have found that adolescents who feel unsafe, and witness and experience violence are more likely to report increased alcohol and drug use and depression (Cooley-Quille et al., 2001; Kilpatrick, Acierno, Saunders, Resnick, Best, & Schmurr, 2000). The items that were included, as part of the school safety variable, were concerned with the adolescents’ fear of physical aggression from peers in the school context. For American Indian adolescents, sense of safety at school was significant only in relation to marijuana use over the past month. American Indian adolescents who reported feeling less safe and higher frequencies of peer aggression at school were more likely to have used marijuana over the past month.

Unlike previous studies, school safety was unrelated to alcohol use. With 60-70% of the adolescents reporting that they had not been threatened or victimized at school, the explanation for the lack of significance may be the little variability in responses to the three items related to peer aggression. Similarly, the three items related to frequency of threat may not fully capture the experience of adolescents and are limited to physical acts, excluding behaviors such as teasing or spreading rumors (i.e., relational victimization). Weiner, Pentz, Skara, Li, Chou, and Dwyer (2003) emphasized that the relationship between peer victimization and drug use is complex. They found gateway drug use, such as alcohol and marijuana, was predicted by adolescents’ experience of relational victimization. Therefore, the limited nature of the school safety measure along with the limited sample size may explain the lack of significant findings.
On the other hand, among the American Indian adolescent population, schools may be perceived as a safe place unlike the surrounding neighborhoods. Resse, Vera, Thompson, and Reyes (2001) found that African American low-income middle school students see school as a safer context than other community areas where gang activities and drug dealing are not regulated. Peer aggression may be more likely to occur after school similar to findings related to contexts of American Indian adolescent drug and alcohol use (Kulis et al., 2006). Given the complex interactions between peer violence and drug use (Weiner et al., 2003) more research is needed to examine this relationship among American Indian adolescents.

No significant gender or grade differences in American Indian youth’s response to peer aggression were found. Previous researchers have reported significant differences by gender and age in experience and response to peer aggression. For instance, older ethnic male adolescents are more likely to be physically victimized and feel less safe at school (Cooley-Quille, Boyd, Frantz, & Walsh, 2001; Farrell & Bruce, 1997; Sullivan et al., 2006). In response to peer aggression, some researchers have found that male adolescents report lower levels of emotional distress (Farrell & Bruce, 1997) but increased alcohol and marijuana use (Sullivan et al., 2006), whereas, female victims are more likely to report increased depressive symptoms (Farrell & Bruce, 1997; Jenkins & Bell, 1994; McGee & Baker, 2002; McGee, 2003). Related to this population it is, yet again, difficult to speculate about the meaning of these results given the issues related to the sample size and the limitations of the school safety measure.

Very few researchers have examined gender and age differences in response to negative neighborhood and school environments within an American Indian sample. Given the limited number of studies focused on American Indian adolescents or even studies limited to one tribal group, this study adds to the neighborhood and school effects literature. Whitesell, Beals, Mitchell, Kean, Spicer, Turner, and The AI-SUPERPFP Team (2007) argued that it was important to not combine different tribes into one American Indian category. Based on tribal practices or reservation normative environments, American Indians are a heterogeneous population. Combining individual tribes would ignore important differences.

Limitations

Regarding this study’s findings, several limitations need to be discussed. As previously mentioned, the sample size was limited to about 150 American Indian adolescents. Many adolescents selectively re-
responded to questions leaving missing data, which resulted in an even more reduced sample size for analysis.

A secondary data set was used so this analysis was limited to the items and measures used during the original data collection. In relation to neighborhood characteristics, adolescents were asked to rate such factors as level of crime, drugs, and graffiti; whereas, school characteristics were limited to items related to peer aggression. As a result, parallel measures of neighborhood and school safety could not be attained.

Furthermore, gang activities are prevalent on these reservations. The variables of neighborhood and school safety could be tapping the results of gang activity in a community, such as crime, graffiti, and peer aggression. Therefore, the lack of items related to gangs as a community factor is another limitation of this study. More research is needed on gang activity and the consequences for American Indian adolescent success and problem behaviors.

Another important limitation is since this was a cross-sectional study, causal links and direction of effects cannot be determined. Neighborhood and school environments could be related to depression and alcohol/marijuana use in a bidirectional manner. Adolescents who are depressed or use alcohol/marijuana may be more likely to view their neighborhood and school environments as less safe than did their counterparts. Those who use alcohol and marijuana may be introduced to other peers and adults who support deviant or criminal behavior. Their experience of neighborhoods and schools may change as a result. Future research should be longitudinal in nature and include behavior trajectories that track the change in patterns and predictors of sense of safety, depressive symptoms, and alcohol/marijuana use. Also, future studies should include parent or peer reports as a way of cross-checking adolescents’ reports.

Implications

Despite limitations, this study demonstrates support for the importance of individual perception of neighborhoods and schools in shaping development among American Indian adolescents. Neighborhood characteristics alone are important even without the inclusion of sense of belonging or community cohesion. The amount of crime and drug sales in a neighborhood especially affects American Indian adolescents’ sense of safety and partially explains why they experience depressive symptoms or use alcohol and marijuana.

Similarly, schools are an important location for key interactions that can be beneficial or detrimental for adolescent development. If norma-
tive neighborhood and school environments encourage peer aggression, American Indian adolescents' opportunities for positive developmental interactions are reduced. As a result, problematic responses to the victimization, such as marijuana use, flourish.

These findings have important implications for American Indian tribal leaders. Unlike many other factors, tribal leaders have some control over these aspects of reservation life and are influential in shaping the reservation. With the level of poverty, funding for additional community services may be difficult. However, the benefits of improved neighborhood conditions for adolescent outcomes have been demonstrated (Stiffman et al., 2007). Regardless of individual or family factors, neighborhoods and schools are vital in explaining American Indian adolescent success and problem behaviors. Therefore, steps need to be taken to reduce the number of American Indian adolescents who are diverted from successful paths because of negative neighborhood and school environments.

REFERENCES


