



Perceived Environmental
Safety and Substance Use:
Texas School Students
in Grades 7-12

TCADA Research Brief



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Perceived Environmental Safety and Substance Use: Texas School Students in Grades 7-12

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Introduction

The State of Texas supports violence prevention activities in its schools and communities, but information about the extent to which adolescents perceive their surroundings to be safe and the impact of these perceptions on substance use behavior is limited. As substance use is related to a variety of risk and protective factors, the purpose of this study is to examine the relationship between perceptions of safety (at home, in the neighborhood, or at school) and substance use among Texas in-school students. The perceptions of safety measure the youths' general sense of safety and concern in their surroundings. Linking environmental perceptions to substance use behavior is important for closely assessing total individual well being. These findings could help identify specific substance use problems or safety issues among certain student populations and detect opportunities for improving prevention programs.

Since its inception in 1988, the Texas School Survey has been a biennial collaborative effort between the Texas Commission on Alcohol and Drug Abuse (TCADA) and the Public Policy Research Institute (PPRI) at Texas A&M University to provide timely information about

the extent and nature of alcohol, tobacco, and other drug use among young people enrolled in public schools. As described in detail elsewhere,¹ students surveyed were selected using a multi-stage stratified sampling design, which involved sampling districts, schools within districts, and classrooms within districts. A weighting scheme was also incorporated for data analyses to reflect the actual distribution of student populations.

This study used the 2002 Texas School Survey of Substance Use data to analyze the prevalence and odds ratios of substance use associated with perceived safety. Nearly five percent of the respondents from the 2002 sample were eliminated because secondary students reported impossibly high levels of substance use, claimed to use a non-existent drug, or failed to report both their age and grade level. A total of 149,220 students in grades seven through twelve from 77 independent school districts in Texas were included in the study. Of the total participants, 48 percent were males, 44 percent Anglos, 37 percent Hispanics, and 14 percent African Americans (Table 1).

The 2002 survey showed that over half of secondary students in Texas used some type of substance during the past school year, with 35

percent reporting past-month use of alcohol, 18 percent reporting past-month use of tobacco, and 16 percent reporting using marijuana and/or other illicit drugs in the past month.² Students who had used substance said they felt considerably less secure in their homes, neighborhoods, and schools than non-users, although the relative importance in perceptions of safety varied across different environments. After controlling for sociodemographic and geographic factors, students with unsafe perceptions of home were two to three times more likely than those with safe sense of home to use substances in the past month. This relationship held for neighborhood and school settings as well, with less impact on some substances. Further regression analyses revealed that adolescents’ perceived safety may be responsible for gender or age group differences in the likelihood of their own substance use.

**Table 1. Survey Participant Composition
(N = 149,220)**

	N	Weighted %
Gender		
Males	72,269	48.2%
Females	76,515	51.8%
Race/Ethnicity		
Anglos	51,246	44.1%
African Americans	12,754	14.0%
Hispanics	70,058	37.2%
Asian Americans	4,211	2.9%
Native Americans	1,176	0.3%
Others	7,466	1.5%
Grade Level		
Grade 7	28,596	17.9%
Grade 8	27,891	17.5%
Grade 9	28,738	20.7%
Grade 10	24,026	16.5%
Grade 11	21,088	14.6%
Grade 12	18,881	12.8%

Correlates of Perceptions of Safety

The students were surveyed regarding how safe they felt when they were in their home, out in their neighborhood, and at school. They were asked to rate each environment as “very safe,” “somewhat safe,” “not very safe,” or “not safe at all.” Only 2 percent of students in grades 7-12 said their homes were not very safe or not safe at all, while 11 percent felt unsafe in their neighborhood and 14 percent felt unsafe at school.

Demographic Characteristics

Boys and girls had quite different feelings on safety concerns (Figure 1). While girls (11 percent) were more likely than boys (10 percent) across grades to indicate they felt “not very safe” or “not safe at all” in their neighborhood, boys (15 percent) were more likely than girls (13 percent) to perceive a lack of safety at school. The difference in perceptions of safety at home between boys and girls was less significant.

In terms of ethnicity, African American and Hispanic students were more likely than Anglo students to perceive their surroundings as unsafe. This pattern was consistent with the national results of school crime and safety.³ In Texas, the largest group of students who felt unsafe in their neighborhood was Hispanics (16 percent), while African Americans (20 percent) represented the largest group of students who felt unsafe at school. Other ethnic groups of students (Asian Americans, Native Americans, and others) also reported 13 to 15 percent of

unsafe perceptions in their neighborhood and at school.

The percentage of students who felt “very safe” in their home and neighborhood increased by grade level.⁴ Twelfth graders were most likely to say they felt “very safe” in their home (85 percent) and in their neighborhood (52 percent). However, students’ perceptions of safety at school were reported at the highest of 41 percent among seventh graders, and the lowest of 29 percent among ninth graders.

Students not living with both parents were more likely to feel unsafe in their surroundings (Figure 2). For example, 13 percent of students living in other than two-parent households indicated that they felt “not very safe” or “not safe at all” in their neighborhood, compared to 9 percent of those from two-parent families.

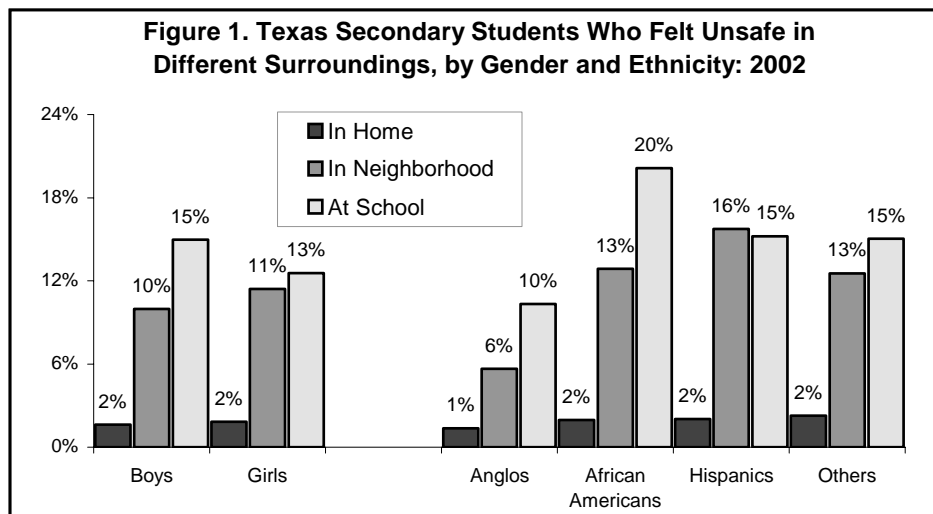
The perceptions of safety also differed on students’ employment status. Students who didn’t have jobs (12 percent) were more likely to feel insecure in their neighborhood than

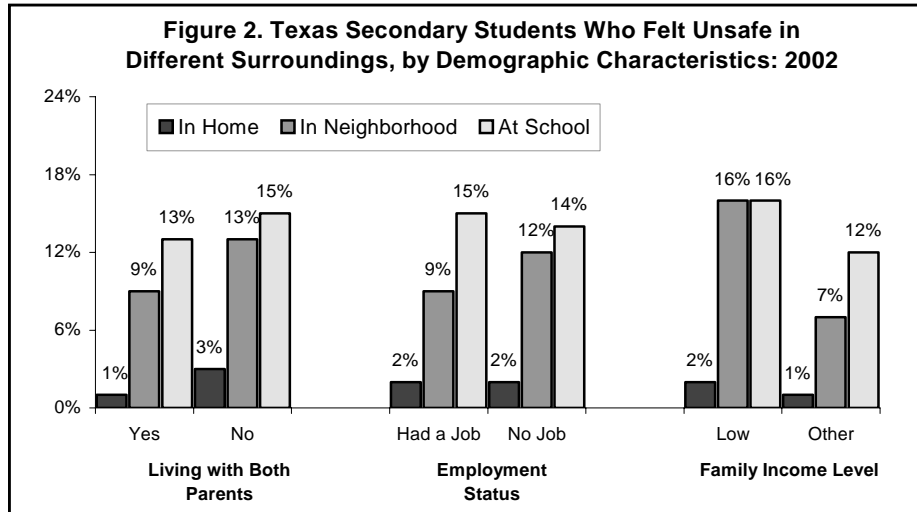
those who held jobs (9 percent). However, non-job holders (14 percent) were slightly less likely than job-holders (15 percent) to perceive a lack of safety at school.

Figure 2 shows that students from low-income families (identified as survey respondents who qualified for a free or reduced-price school lunch) were more likely to report perceptions of unsafe environments than those from other families. These responses echo other research findings that family poverty as part of the social deprivation measure increases people’s concerns for neighborhood safety,⁵ and that prosperous people are less fearful of crime at home.⁶

Academic Performance and Length of Time in School District

Students with lower academic performance in school were more likely to perceive environment safety as a problem. In the 2002 survey, 3 percent of students making grades of C or lower indicated they felt unsafe in their home, compared to 1 percent of A and B





students. The same pattern was found in the neighborhood (16 percent versus 9 percent) and school (19 percent versus 12 percent) settings.

Students were also asked how long they had lived in their current school district. This question was intended as a measure of the relative stability of students' lives, as well as of the overall geographic mobility of families in the school district. Thirteen percent of students who had been in the district three or fewer years felt "not very safe" or "not safe at all" in their neighborhood, while 10 percent of students living in the district four years or more felt so. The pattern that mobility negatively affects adolescents' perceptions of safety was also common to the school and home environment.

Border vs. Non-Border Area

About 53,053 students (36 percent) in the survey were sampled from the border area, which was defined as the area comprised of twenty-eight counties located within 100 miles of the Texas-Mexico border.⁷ Non-border students were defined as those in schools in the

rest of Texas. While there was little difference between border and non-border students in their perceptions of home safety, border students were more likely than non-border students to feel unsafe in their neighborhood (16 percent vs. 10 percent) or at school (16 percent vs. 13 percent).

Relationship Between Perceptions of Safety and Substance Use

In the survey, students with lower levels of perceived safety in their surroundings were more likely to use tobacco, alcohol, marijuana, and other illicit drugs than their counterparts. Research literature⁸ has consistently emphasized the importance of differential perceptions of environmental risk by youths as a means of explaining the ultimate development of delinquent or drug use behaviors. One inner-city study,⁹ which involved youths from the same neighborhood, showed that users of both alcohol and marijuana perceived that they lived in an environment with much greater risk than did users of alcohol only, who, in turn, perceived that they lived in a higher risk environment than did nonusers. Even though all

of these youths lived in the same neighborhood, the more substances used by the youths was related to their increasing perceptions of an unsafe environment.

Prevalence Use of Substances

The strong relationship between perceptions of safety and substance use is shown in Table 2, which compares lifetime and past-month use of substances between students who felt safe (“very safe” or “somewhat safe”) and those who did not feel safe (“not very safe” or “not safe at all”) in their home, neighborhood, or school settings. The ratio presented in this table was computed by dividing the prevalence of use among students who did not feel safe by the prevalence of use among students who felt safe. All ratios were greater than 1.00, meaning that students who reported insecure perceptions of safety were more likely to use substances. For example, students who felt unsafe at home were 1.63 times more likely than those who felt safe at home to use tobacco in the past month (30 percent vs. 18 percent).

The impacts were more pronounced in prevalence use of marijuana and even more in other illicit drugs¹⁰ between adolescents with different perceptions of safety (Table 2). For example, students who did not feel safe at home were three times more likely than those who felt safe to use other illicit drugs in the past month (23 percent vs. 8 percent). Also, the relative differences in the use of substances varied across different environments, with the greatest impacts in home perception of safety.

These patterns consistently held when the student’s gender, ethnicity, grade level, family structure, academic performance, employment status, and geographic area were controlled. In other words, prevalence use of substances appeared to be driven, in part, by the subjective perceptions of safety by adolescents rather than by sociodemographic and geographic variables.

Figure 3 presents the adjusted odds ratios¹¹ for past-month use of substances among students who felt unsafe, compared to those who felt

Table 2. Percentage of Texas Secondary Students Who Had Used Tobacco, Alcohol, Marijuana, and Other Illicit Drugs, by Perceived Safety: 2002

	Lifetime Tobacco Use			Lifetime Alcohol Use			Lifetime Marijuana Use			Lifetime Other Illicit Drug Use		
	Unsafe	Safe	Ratio*	Unsafe	Safe	Ratio*	Unsafe	Safe	Ratio*	Unsafe	Safe	Ratio*
In Home	61.0%	44.6%	1.37	80.7%	70.9%	1.14	46.5%	32.0%	1.45	37.1%	16.5%	2.24
In Neighborhood	49.0%	44.6%	1.10	73.2%	71.0%	1.03	34.4%	32.1%	1.07	22.1%	16.5%	1.34
At School	49.0%	44.1%	1.11	75.8%	70.4%	1.08	37.3%	31.3%	1.19	22.0%	16.0%	1.37

	Past-Month Tobacco Use			Past-Month Alcohol Use			Past-Month Marijuana Use			Past-Month Other Illicit Drug Use		
	Unsafe	Safe	Ratio*	Unsafe	Safe	Ratio*	Unsafe	Safe	Ratio*	Unsafe	Safe	Ratio*
In Home	29.6%	18.1%	1.63	49.8%	34.3%	1.45	24.5%	14.1%	1.73	23.0%	7.6%	3.04
In Neighborhood	19.6%	18.1%	1.08	37.8%	34.3%	1.10	14.8%	14.4%	1.03	10.7%	7.6%	1.40
At School	21.0%	17.7%	1.18	39.7%	33.8%	1.18	17.2%	13.7%	1.25	11.6%	7.2%	1.61

* Ratio = (% Students Who Felt Unsafe) / (% Students Who Felt Safe).

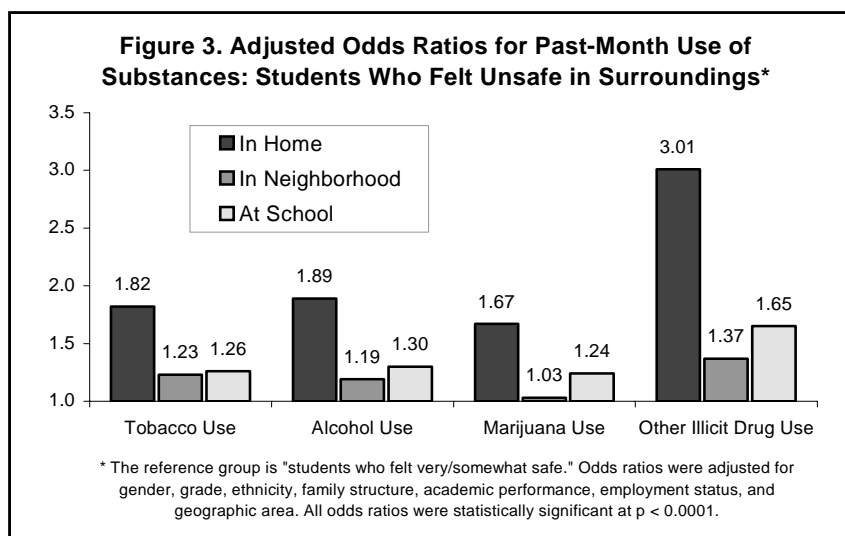
very or somewhat safe in their surroundings. All of the adjusted odds ratios were significantly greater than one, with adolescents' perceptions of home having the largest odds ratios. Secondary students who felt unsafe at home increased the odds of reporting past-month use of alcohol by 1.89 times, in comparison to students who felt safe at home. In other words, students were 1.89 times more likely to use alcohol in the past month if they indicated unsafe versus safe feelings in their home. The odds amplified to 3.01 when reporting the past-month use of illicit drugs other than marijuana.

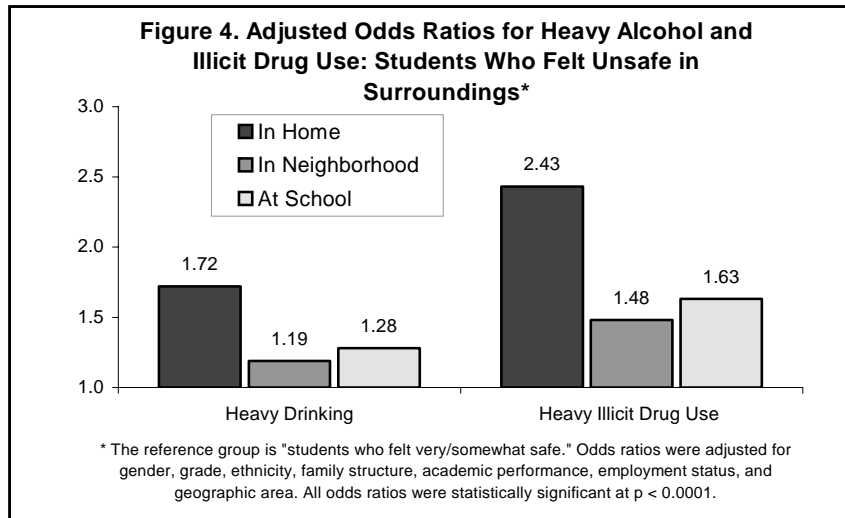
After controlling for sociodemographic and geographic effects, students with unsafe perceptions in their neighborhood were 1.03 to 1.37 times as likely as those with safe feelings to use tobacco, alcohol, marijuana, or other illicit drugs in the past month. Regarding perceptions at school, the adjusted odds ratios ranged from 1.24 to 1.65 (Figure 3).

Heavy Drinking and Heavy Illicit Drug Use

Heavy alcohol use or binge drinking, which is defined as drinking five or more drinks (beer, wine coolers, wine, or liquor) at one time is always of concern, especially when done by young people. About 26 percent of all secondary students in the 2002 survey reported heavy consumption of alcohol. Similar to the pattern of prevalence use, adolescents who felt unsafe in their surroundings were more likely to drink heavily compared to those who did not have these safety concerns. As shown in Figure 4, secondary students who felt unsafe in their home increased the odds of reporting heavy drinking by 1.72 times in comparison to those with safe perceptions of home.

Heavy use of marijuana and/or other illicit drugs, which is defined as daily or weekly use, was reported by 7 percent of all secondary students in 2002. Significant relationships were also identified between insecure feelings and heavy illicit drug use. After controlling for





demographic and geographic variables, students who felt unsafe while at home, in the neighborhood, or at school were 1.48 to 2.43 times more likely to report heavy drug use than those who felt safe in their surroundings (Figure 4).

Multivariate Analyses

The school survey has shown that adolescents' prevalence use of substances is related to their demographic characteristics.¹² Given the potential risk effect of perceived safety that was addressed in previous sections, differential perceptions of safety may help explain the gender and age group differences in substance use. Multivariate logistic regression analyses were used to examine the impact of perceived safety and other correlates on illicit drug use, and to investigate the existence of an interaction between gender/age and perceptions of safety. Odds ratios were estimated from the regression coefficients.

A series of dummy variables were employed in the regressions to enable comparisons of adolescents' illicit drug use (Table 3). Model I

(without interaction effects) shows that, upon controlling for other variables, students who felt unsafe at home had an odds of using illicit drugs in the past month that was 1.97 times the odds for those who felt safe at home.

Three 2-way interaction variables were added to Model II and III, respectively. Significant interactions in regressions imply that perceived environmental safety has different effects on illicit drug use among boys versus girls (Model II) and among younger students in grades 7-8 versus older students in grades 9-12 (Model III). For example, girls (OR=2.13) had a greater likelihood of using illicit drugs in the past month than boys (OR=1.78) while they felt unsafe at home. On the other hand, girls who felt unsafe in the neighborhood had a negative effect (OR=0.92) on illicit drug use; however, boys who felt unsafe in their neighborhood were 1.23 times more likely to use illicit drugs in the past month than boys with safe perceptions of neighborhood.

Regression results also showed that the likelihood of using illicit drugs remained

significantly higher among middle school students (grades 7-8) than high school students (grades 9-12) when feeling unsafe at home, in the neighborhood, or at school. For example, among students in grades 9-12, the odds of using illicit drugs was 1.72 times greater for those who felt unsafe at home than those who felt safe at home. This odds ratio increased to 2.37 among students in grades 7-8. Apparently, perceptions of surrounding safety have a larger impact on illicit drug use among middle school students than among their counterparts in high schools.

Conclusions

The present study reinforces the significance of safe environments on adolescent substance use.

Based on large statewide representative sample of students in grades 7-12, lower levels of perceived safety at home, in the neighborhood, or at school were found to be positively related to substance use. After controlling for sociodemographic and geographic effects, youths who felt unsafe at home were two to three times as likely as those with safe perceptions of home to report past-month use of tobacco, alcohol, marijuana, and/or other illicit drugs. Regarding perceptions in the neighborhood or at school, the odds of reporting substance use ranged from 1.03 to 1.65. Similar to the pattern of prevalence use, youths who felt unsafe in their surroundings were more likely to report heavy drinking and heavy drug use than those who did not have

Table 3. Results of Logistic Regression Models Examining the Impact of Perceived Safety on Gender and Age Differences in Past-Month Illicit Drug Use

Predictor #	Model I	Model II	Model III
	OR (95% C.I.)	OR (95% C.I.)	OR (95% C.I.)
Boy	1.30 (1.26, 1.34)	1.27 (1.22, 1.31)	1.29 (1.25, 1.34)
Young: Grade 7-8	0.40 (0.39, 0.42)	0.40 (0.39, 0.42)	0.37 (0.35, 0.39)
Hispanic	1.17 (1.12, 1.22)	1.17 (1.12, 1.22)	1.17 (1.12, 1.22)
African American	0.55 (0.51, 0.58)	0.54 (0.51, 0.58)	0.55 (0.51, 0.58)
Other Ethnicity	0.71 (0.66, 0.76)	0.71 (0.66, 0.75)	0.71 (0.67, 0.76)
Lived With Both Parents	0.60 (0.58, 0.62)	0.60 (0.58, 0.62)	0.60 (0.58, 0.62)
Grade Point Average: A's/B's	0.44 (0.42, 0.45)	0.44 (0.42, 0.45)	0.44 (0.42, 0.45)
Had a Job	1.55 (1.50, 1.61)	1.55 (1.50, 1.61)	1.55 (1.49, 1.60)
Lived in Border Area	0.90 (0.87, 0.94)	0.91 (0.87, 0.94)	0.90 (0.87, 0.94)
Felt Unsafe in Home	1.97 (1.78, 2.17)	2.13 (1.86, 2.45)	1.72 (1.51, 1.96)
Felt Unsafe in Neighborhood	1.06 (1.01, 1.12)	0.92 (0.86, 0.99)	0.99 (0.93, 1.05) ^{NS}
Felt Unsafe at School	1.30 (1.25, 1.35)	1.33 (1.25, 1.41)	1.25 (1.19, 1.31)
<u>Interaction Effects</u>			
Boy x Home		0.84 (0.69, 1.02)	
Boy x Neighborhood		1.33 (1.21, 1.46)	
Boy x School		0.96 (0.88, 1.04) ^{NS}	
Young x Home			1.38 (1.13, 1.68)
Young x Neighborhood			1.25 (1.12, 1.38)
Young x School			1.18 (1.07, 1.29)

The reference group coded as "0" for the predictors: gender (girl), age (older students in grades 9-12), ethnicity (Anglo), family structure (not lived with both parents), GPA (C's or lower), employment status (no job), geographic area (lived in non-border area), and perceived safety (felt very/somewhat safe in each surrounding). OR: Odds Ratio; C.I.: Confidence Interval; and, NS: Not statistically significant.

unsafe feelings.

Further regression analyses that explored the impact of perceived safety on illicit drug use demonstrated significant differences across gender and age groups. Perceptions of safety in all surroundings had more of an impact on the drug use among middle school students than high school students. Girls' perceived safety at home did affect their use of illicit drugs in a greater way, while perceptions of neighborhood safety had a greater impact on illicit drug use among boys.

With the findings that perceived environmental safety has a strong link to adolescents' substance use behavior, implementing prevention programs that provide support for parent inclusive-, school-, and community-based activities to reduce unsafe environments as well as alcohol and other drug use is a priority in Texas. Substance use prevention plans should foster safety in school cultures, provide counseling and similar intervention programs as needed, and encourage collaboration among schools, community organizations, and state agencies. In addition, parents should be included in prevention activities and should consider the risk of youth involvement in substance use when they live in unsafe homes and neighborhoods. The findings indicate that different impacts by gender and age groups may also help practitioners who develop prevention programs to adapt their efforts to meet these differing needs.

A number of tested and effective model substance abuse prevention programs are cited

in CSAP's *Science-Based Prevention Programs and Principles*¹³, which presents a state-of-the-science review of substance abuse prevention theory and practice. Several model programs are school- or community-based and designed for a universal population of students in middle and high schools. These programs provide both violence and substance use prevention by incorporating components that address risk and protective factors that are related to both issues. In order to select the best model program, an assessment of the youths is needed that identifies risk and protective factors and directs prevention providers to select the program that is most relevant to meet their needs.

Finally, results of this study point to a need for prevention programs with broader applicability for use. This study seems to indicate that prevention programs should not only target youths in schools, but also youths in their communities and homes. Importantly, these programs should be conducted within a larger social context and include efforts to improve the total environment of youths.

Endnotes

¹ Liu, L. Y. *Texas School Survey of Substance Use Among Students: Grades 7-12 2002*. Austin, TX: Texas Commission on Alcohol and Drug Abuse, May 2003. <http://www.tcada.state.tx.us/research/schoolsurveys.html>

² Refer to Liu (2003).

³ National Center for Education Statistics (NCES). *Indicators of School Crime and Safety, 2002*. Washington, DC: U.S. Department of Education,

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⁴ Refer to Liu (2003).

⁵ Gilbert, M. J. "Policy Brief: Community Perceptions of Neighborhood Safety and Deprivation," San Antonio, TX: The University of Texas at San Antonio, Metropolitan Research & Policy Institute, 2002.

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⁶ Harris, M. and B. Jensen. "Fear of Crime and Perceptions of Safety," in *Australian Social Monitor*, Vol. 1, No. 1, pp. 8-10. Parkville, Victoria Australia: The University of Melbourne, Melbourne Institute of Applied Economic and Social Research, September 1998.

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⁷ Refer to Appendix G of Liu (2003).

⁸ Dembo, R., Blount, W. R., Schmeidler, J., and W. Burgos. "Perceived Environment Drug Use Risk and the Correlates of Early Drug Use or Nonuse Among Inner-city Youths: The Motivated Actor." *International Journal of the Addictions*, 21:977-1000, 1986; and, Nurco, D.N., Kinlock, T., O'Grady, K., Lerner, M. and T.E. Hanlon. "Perceptions of Social Pathology in the Neighborhood and the Etiology of Narcotic Addiction." *The Journal of Nervous and Mental Disease*, 184:35-42, 1995.

⁹ Blount, W.R. and R. Dembo. "The Effect of Perceived Neighborhood Setting on Self-Reported Tobacco, Alcohol, and Marijuana Use Among Inner-City Minority Junior High School Youth," *International Journal of the Addictions*, 19:175-198, 1984.

¹⁰ "Other illicit drugs" queried in the school survey include cocaine (not crack), crack, hallucinogens (LSD, PCP, etc.), uppers, downers, Ecstasy, Rohypnol (roches, roofies, etc.), and heroin.

¹¹ The odds ratio is a ratio of one odds to another, where the odds of an event is calculated as the number of events divided by the number of non-events. The odds ratio is a measure of association: "1.0" means that there is no relationship between the variables; "less than 1.0" means a negative relation, and "greater than 1.0" means a positive relation.

¹² Refer to Liu (2003).

¹³ Schinke, S., Brounstein, P. and S. Gardner, *Science-Based Prevention Programs and Principles*, 2002. DHHS Pub. No. (SMA) 03-3764. Rockville, MD: Center for Substance Abuse Prevention, Substance Abuse and Mental Health Services Administration, 2002. <http://modelprograms.samhsa.gov/pdfs/CSAPScienceReport.pdf>