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# Washington State Survey of Adolescent Health Behaviors (1998)

## *Relationships Among Health Risk Behaviors and Related Risk and Protective Factors*

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RMC Research would like to thank the students, school administrators, parents, and local prevention and health professionals who encouraged and supported school participation in the survey. This effort would be of little use or consequence without these individuals showing responsible concern and interested in addressing the key health behaviors and risk and protective factors at issue in this survey.

The planning of the survey effort through the Washington State Survey Policy Committee ultimately included many professionals from various agencies and disciplines across the state. However, the following state staff were most consistently involved:

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Department of Social and Health Services	Steve Smothers and Mary Ann LaFazia
Department of Community, Trade and Economic Development	Susan Roberts

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## Executive Summary

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The Washington State Survey of Adolescent Health Behaviors (WSSAHB) was administered for the fifth time in 1998 (Einspruch, Gabriel, Deck, and Nickel, 1998) and focused on ATOD use and related risk and protective factors. The 1998 WSSAHB was a cooperative effort among the Office of Superintendent of Public Instruction (OSPI), the Department of Social and Health Services' Division of Alcohol and Substance Abuse (DASA), and the Department of Community, Trade and Economic Development (CTED) working with the contractor, RMC Research Corporation. In addition, staff from the University of Washington's Social Development Research Group provided valuable consultation on the risk and protective factors assessment portion of the survey.

The 1998 survey administration was based on a random sample of schools designed to yield a representative sample of the state's sixth, eighth, tenth, and twelfth grade students. Of these schools asked to participate in the survey, 51 percent with sixth grade students, 61 percent with eighth grade students, and 63 percent with tenth and twelfth grade students took part in the survey. In terms of reaching the target number of schools (using replacement schools), the rates are higher: 83 percent of the sixth grade, 89 percent of the eighth grade, and 73 percent of the high school targets were reached. In all, a total of 14,601 students in 102 elementary, middle, and high schools across the state. (This included volunteer high schools added to the sample due to a low return from schools in three cells of the sampling design.) Another 37,731 students from 258 elementary, middle, and high schools participated in the survey on a volunteer basis at the schools' expense.

The results of the WSSAHB provide crucial information to school officials, health professionals, human service agencies, policymakers, and parents as they work together to ensure the health of the young people across the state. They also provide important needs assessment data for program planning and offer a global look at the effectiveness of statewide prevention and health promotion initiatives based on direction provided by federal and state initiatives.

The purpose of this report is to provide four sets of additional analyses of the survey data beyond those presented in Einspruch et al. (1998):

### **Student characteristics and ATOD use**

With the exception of smokeless tobacco, lifetime prevalence of most substances at most grades is similar for males and females. Males are about twice as likely than females to have tried smokeless tobacco at some point in their lives.

In general, current ATOD use is similar for males and females, although females are more likely than males to be current cigarette smokers (with the exception of sixth grade students), and males are more likely than females to be current users of smokeless tobacco.

Among twelfth grade students, males are more likely than females to report binge drinking in the past two weeks. On the composite alcohol use scale, eighth grade males are more likely than females to report no use, but among tenth and twelfth grade students males are more likely than females to report frequent use. Males are also more likely than females to report frequent drug use on the composite scale.

In general, lifetime prevalence of ATOD use is similar in rural and urban areas, although cigarette use is higher among eighth and twelfth grade students in rural areas, and smokeless tobacco use is higher among eighth, tenth, and twelfth grade students in rural areas.

In general, current ATOD use is similar among students in urban and rural schools. Smokeless tobacco is the exception, where rural students are more likely than urban students to report current use.

Students in urban and rural schools generally report similar levels of binge drinking in the past two weeks, with the exception that rural eighth grade students were more likely than urban students to report binge drinking

Among tenth and twelfth grade students, those who began drinking at an early age were more likely to report current alcohol use than those who began drinking at a later age. Among students at all four grades, those who began smoking cigarettes at an early age were more likely to report current cigarette use than those who began smoking at a later age. Among eighth, tenth, and twelfth grade students, those who began smoking marijuana at an early age were more likely to report current marijuana use than those who began smoking at a later age (sixth grade students were not included in this analysis due to their low prevalence of marijuana use).

Students who obtain their alcohol from home and their parents know about it are least likely to report alcohol use in the past 30 days, followed by those who obtain their alcohol from home but their parents don't know, then by those who obtain their alcohol from friends, and finally by those who ask adults to purchase it for them or who buy it themselves. Binge drinking in the past two weeks showed a similar pattern.

Sixth grade students are most likely to obtain their cigarettes from friends. As students get older, they are much more likely to obtain cigarettes from a store. Almost no students obtain cigarettes from a vending machine. While there are some differences in use rates among students who obtain their cigarettes from different sources, readers are cautioned against overinterpreting the data due to very small numbers in some categories.

Students who make good grades in school are less likely to report alcohol, tobacco, and marijuana use than students who make poor grades.

No ethnic group is immune from the impact of alcohol and other drugs. Native Americans tended to report the highest, and Asians tended to report the lowest, lifetime and 30-day prevalence rates for ATOD use (although this was not the case for every substance).

Readers are cautioned in interpreting and generalizing from the results of the analyses by ethnic group since the sampling plan did not specifically attempt to obtain a representative sample of students in each ethnic group and since the results are based on small numbers of students in most ethnic groups. Twelfth grade students were not included in analyses by ethnic group due to small numbers of students in most groups.

## **Student characteristics and violence**

In general, males are more likely than females to report engaging in violence-related behaviors. Among eighth and tenth grade students, females are more likely than males to score high on a depression scale.

In general, students in urban and rural settings exhibit similar levels of violence-related behaviors.

Having best friends who have been members of a gang is clearly associated with one's own gang membership.

Students who use alcohol or other drugs are more likely to engage in violent or delinquent behaviors than students who do not use alcohol or other drugs.

The results for weapon carrying, gang membership, the violent behavior scale, the delinquent behavior scale, and the depression scale for students who are members of different ethnic groups varied by item and it is therefore difficult to identify a consistent pattern across the selected violence-related behaviors.

## **Working and ATOD use**

Most sixth grade students (about 80 percent) do not work, and of those who do, males and females work a similar number of hours per week. Among eighth and tenth grade students, males are more likely than females to work and are more likely to work over 20 hours per week.

Students who work more than 20 hours per week are more likely than those who do not to have skipped school during the past four weeks.

Virtually all students report that they earned passing grades in the past year, regardless of how much they work.



Students who work a greater number of hours per week at a part-time job during the school year are more likely to have ever tried alcohol or other drugs.

Students who work a greater number of hours per week at a part-time job during the school year are more likely to have used alcohol or other drugs during the past 30 days.

Sixth, tenth, and twelfth grade students who worked differing numbers of hours per week were similar in their level of experiencing depressive feelings. However, there were differences among eighth grade students, with those who work five to nine hours per week being most likely to score high on this scale.

### **Risk and protective factors**

One set of analyses conducted and reported by Gabriel et al. (1997) was replicated in this report. Eight health risk behaviors (measured by both composite scales and individual questions) were predicted using risk and protective factors through the use of multiple linear regression analysis. The eight behaviors were alcohol use composite scale, binge drinking in the past two weeks, cigarette use in the past 30 days, smokeless tobacco use in the past 30 days, drug use composite scale, marijuana use in the past 30 days, violent behavior composite scale, and weapon carrying in the past 30 days. Although some changes were made from 1995 to 1998 in the measurement of some risk and protective factors, at the conceptual level it remains sensible to compare the results based on the two survey administrations. The results from the current replication are generally quite similar to those found in 1997 and therefore lend support to the strength of the findings:

- Although the predictability of the eight health risk behaviors by community and school factors was significant in and of themselves, they added virtually nothing to the predictability of the peer-individual factors alone.
- Grade level was a significant predictor across the risk and protective factor domains of all eight health behaviors. Older students are more likely than younger students to use alcohol, tobacco, and other drugs. However, younger students are more

likely than older students to engage in violent behaviors or carry weapons, with this behavior peaking in eighth grade. Gender differences were consistently seen in tobacco use and violent behaviors: females were more likely than males to smoke cigarettes, males were more likely than females to use smokeless tobacco, and males were more likely than females to engage in violent behavior or carry a weapon. Minority status was a significant predictor in violent behavior and weapon carrying, with nonwhites more likely than whites to report these behaviors.

- Within the peer-individual domain, the risk factor of antisocial behavior was a strong predictor of health risk behaviors. The risk factors of early initiation of problem behavior, attitudes favorable toward drug use, and interaction with antisocial peers were also highly related to several of these behaviors. This result is consistent with that observed in 1997.
- Within the community domain, the risk factors laws and norms favorable to drug use and perceived availability of ATOD and firearms were strong predictors of all eight health risk behaviors. Again, this result is consistent with that observed in 1997.
- Within the school domain, the risk factors academic failure and little commitment to school were strong predictors of all eight health risk behaviors. Yet again, this result is consistent with that observed in 1997.
- As in 1997, the protective factors were generally less predictive of health risk behaviors than were the risk factors.

## Chapter 1: Introduction

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The Washington State Survey of Adolescent Health Behaviors (WSSAHB) was administered for the fifth time in 1998 (Einspruch, Gabriel, Deck, and Nickel, 1998). The first two surveys included questions only about alcohol, tobacco, and other drug (ATOD) use and related risk and protective factors (Deck and Nickel, 1989; Gabriel, 1991). The next two surveys included coverage of a variety of other health risk behaviors (Einspruch and Pollard, 1993; Gabriel, Deck, Einspruch, and Nickel, 1995). The current survey once again focused on ATOD use and related risk and protective factors.

The 1998 WSSAHB was a cooperative effort among the Office of Superintendent of Public Instruction (OSPI), the Department of Social and Health Services' Division of Alcohol and Substance Abuse (DASA), and the Department of Community, Trade and Economic Development (CTED) working with the contractor, RMC Research Corporation. In addition, staff from the University of Washington's Social Development Research Group provided valuable consultation on the risk and protective factors assessment portion of the survey.

The 1998 survey administration was based on a random sample of schools designed to yield a representative sample of the state's sixth, eighth, tenth, and twelfth grade students. Randomly selected replacement schools were recruited when a given school declined to participate. Of those schools asked to participate in the survey, 51 percent with sixth grade students, 61 percent with eighth grade students, and 63 percent with tenth and twelfth grade students took part in the survey. In terms of reaching the target number of schools (using replacement schools), the rates are higher: 83 percent of the sixth grade, 89 percent of the eighth grade, and 73 percent of the high school targets were reached. In all, a total of 14,601 students in 102 elementary, middle, and high schools across the state were included. (This included volunteer high schools added to the sample due to a low return from schools in three cells of the sampling design.) Another 37,731 students from 258 elementary, middle, and high schools participated in the survey on a volunteer basis at the

schools' expense. Readers interested in a detailed account of the survey's technical methodology are referred to Deck, Nickel, Einspruch, and Gabriel (1998).

The results of the WSSAHB provide crucial information to school officials, health professionals, human service agencies, policymakers, and parents as they work together to ensure the health of the young people across the state. They also provide important needs assessment data for program planning and offer a global look at the effectiveness of statewide prevention and health promotion initiatives based on direction provided by the National Education Goals, the goals of the National Drug Control Strategy, the federal Safe and Drug-Free Schools Program's Principles of Effectiveness, the Healthy People 2000 Public Health Objectives, the Washington State essential academic learning requirements, the Washington State Board of Health Priority Health Goals 1999–2001, the Washington State Youth Violence Act, and the goals of the Washington State Governor's Council on Substance Abuse.

The purpose of this report is to provide four sets of additional analyses of the survey data beyond those presented in Einspruch et al. (1998):

- Chapter 1 provides information about the relationship between student characteristics and ATOD use.
- Chapter 2 provides information about the relationship between student characteristics and violence-related behaviors.
- Chapter 3 provides information about the relationship between number of hours worked per week and ATOD use.
- Chapter 4 provides information about using risk and protective factors to predict ATOD use and violence-related behaviors (this chapter replicates one set of analyses conducted by Gabriel, Deck, Einspruch, and Nickel [1997]).

Before presenting the results of these analyses, the reader is reminded of several cautions that need to be kept in mind:

**Correlational data.** Interrelationships among the variables included in the analyses may show that the variables are associated with one another, but they should not be interpreted as indicating that one variable caused the other. Although this might be the case, it might also be that the reverse is true or that an apparent relationship is due to some other measured or unmeasured cause (e.g., biased reporting).

**Statistical versus practical significance.** When analyses are based on a large number of survey respondents it is possible that small differences are shown to be statistically significant. However, these small differences may have little practical significance in that the difference may not be great enough to influence a program or policy decision. Readers are cautioned against overinterpreting small differences, even if they are statistically significant.

**Representativeness.** Every attempt was made to ensure representativeness of the sample to the students in Washington State public schools. Although the response rate to the survey was good (51 to 63 percent of recruited schools participated), it is possible that the results are not representative of the student population of the state as a whole. However, replacement schools for those refusing were selected to be similar in rurality and school enrollment to refusing schools. Participating and refusing schools might differ on a number of characteristics which might be related to responses to the survey. However, the use of randomly selected replacement schools is common and accepted survey practice. Thus, it may be reasonable to generalize the results to all students at these grade levels in Washington public schools.

**School dropouts.** In interpreting differences between grades, the reader should remember that some reported behaviors and risk factors may appear more prevalent in the eighth and tenth grades compared to twelfth grade because of increased school dropouts after age 16 (prior to twelfth grade).

**Developmental changes.** In interpreting differences between grades, the reader should also be reminded that developmental changes may influence students' perceptions and accuracy of reporting.

**Self-report data.** The survey measures self-reports, which may be influenced by a number of factors including problems in remembering, social desirability, and reading ability, as well as developmental changes.

**Data limitations in analyses by ethnic group.** Results by ethnic group are presented in several places throughout this report. These results are intended to serve as a starting point in understanding differences among students who are members of various ethnic groups. However, the reader is strongly cautioned to use care in interpreting these results and generalizing from them to the total population of students, as the data have limitations. One limitation to these data is that the sampling plan did specifically attempt to obtain a representative sample of students in each ethnic group. Another limitation to these data is that while the overall sample did contain students who are members of each ethnic group, their numbers are fairly small (consistent with the relatively small proportion of the population that is represented by each ethnic group). The smaller the number of students upon which results are based, the larger the margin of error associated with those results. Results by ethnic group are presented for students in Grades 6, 8, and 10. Results are not presented for students in Grade 12, as there were too few students in most ethnic groups for these results to be meaningful. It is recommended that if results by ethnic group are of particular interest to state and local policymakers and program planners, then a survey be sponsored that includes a sampling design and total sample size that can better support analyses by ethnic group.

## Chapter 2: Student Characteristics and ATOD Use

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Concerns about alcohol, tobacco, and other drug use among young people have both short- and long-term implications. In the short term, ATOD use interferes with positive, healthy physical, emotional, and social development. Relationships within families and among friends and satisfactory progress in school are all casualties of substance use. The economic costs of ATOD use are enormous: Wickizer, Wagner, Atherly, and Beck estimated that in 1990 the economic losses in Washington State due to alcohol and other drugs was \$1.81 billion, or \$372 for every man, woman, and child living in the state.

The 1998 administration of the WSSAHB focused on ATOD use among sixth, eighth, tenth, and twelfth grade students. The results showed that among sixth grade students, 13.8 percent had used alcohol in the past 30 days, 4.7 percent had used cigarettes, and 3.4 percent had used marijuana (all virtually unchanged from 1995). These numbers increased substantially as students reached higher grades. Among twelfth grade students, 52 percent had used alcohol in the past 30 days (a 7.2 percentage point increase from 1995), 28.6 percent had used cigarettes (a 4.6 percentage point increase from 1995), and 28.7 percent had used marijuana (a 4.4 percentage point increase from 1995).

The U.S. Public Health Service has set several Healthy People 2000 objectives regarding ATOD use, including:

- Reduce the proportion of young people who have used alcohol to 12.6 percent, marijuana to 3.2 percent, and cocaine to 0.6 percent in the past month.
- Reduce the proportion of high school seniors and college students engaging in recent occasions of heavy drinking of alcoholic beverages to no more than 28 percent of high school seniors and 32 percent of college students.
- Reduce the initiation of cigarette smoking by children and youth so that no more than 15 percent have become regular smokers by age 20.

- Reduce smokeless tobacco use by males aged 12 through 24 to a prevalence of no more than 4 percent.

The results presented in this chapter examine the relationship between student characteristics and ATOD use. The characteristics under examination include gender, rurality, age of first use, where alcohol and tobacco are obtained, and grades in school.

## Gender and ATOD use

**Finding:** *With the exception of smokeless tobacco, lifetime prevalence of most substances at most grades is similar for males and females. Males are about twice as likely than females to have tried smokeless tobacco at some point in their lives.*

Exhibit 2-1 details the lifetime prevalence of use of 11 substances for males and females. The most noteworthy point in this table is that at all four grades lifetime prevalence of ATOD use is similar for males and females. However, males are more likely than females to report having tried smokeless tobacco at some point in their lives. Among sixth grade students, males are about twice as likely as females to have tried smokeless tobacco (10.3 percent for males and 5.3 percent for females). By the time they are seniors, nearly half of the males have tried smokeless tobacco (48.7 percent), compared to only 21.9 percent of the females. Among eighth grade students, females are more likely than males to have ever tried smoking tobacco or alcohol, while males are more likely than females to have tried heroin. Among tenth and twelfth grade students, males were more likely than females to have tried steroids. Among twelfth grade students, males are more likely than females to have tried hallucinogens. Lifetime prevalence of alcohol, smoking tobacco, and marijuana are illustrated in Exhibit 2-2.

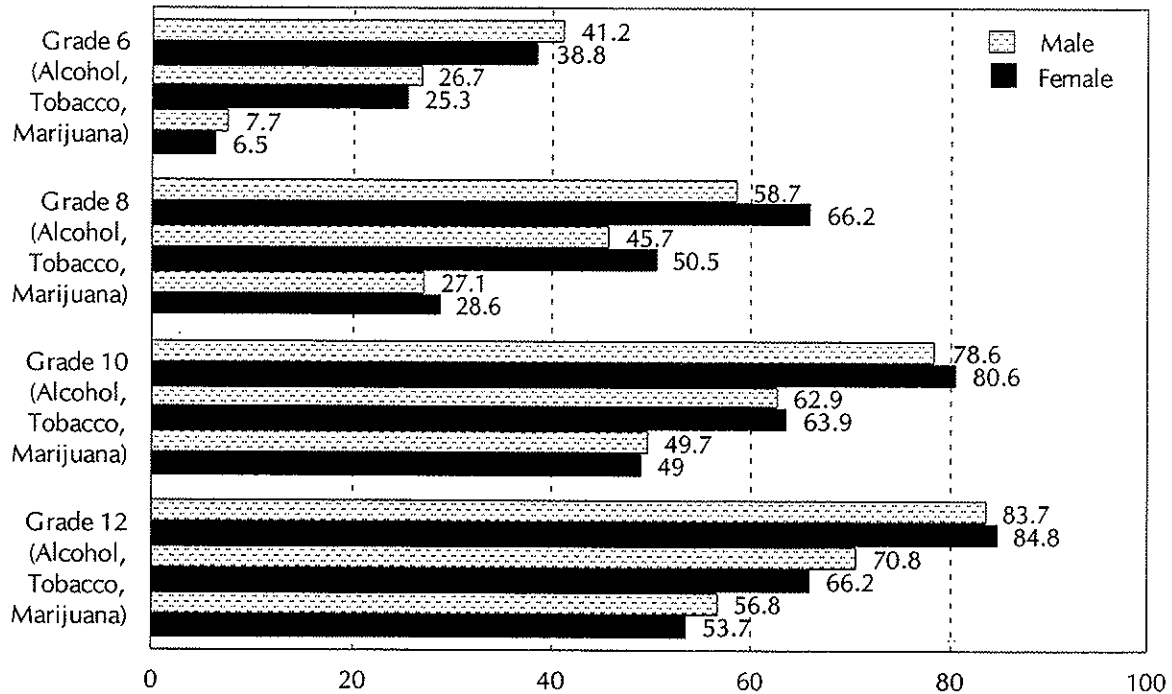


**Exhibit 2-1**  
**Gender by Lifetime Use of Alcohol and Other Drugs**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Male	Female	Male	Female	Male	Female	Male	Female
Smoking tobacco	26.7	25.3	<b>45.7</b>	<b>50.5</b>	62.9	63.9	70.8	66.2
Smokeless tobacco	<b>10.3</b>	<b>5.3</b>	<b>20.3</b>	<b>9.5</b>	<b>37.9</b>	<b>14.3</b>	<b>48.7</b>	<b>21.9</b>
Alcohol	41.2	38.8	<b>58.7</b>	<b>66.2</b>	78.6	80.6	83.7	84.8
Marijuana	7.7	6.5	27.1	28.6	49.7	49.0	56.8	53.7
Cocaine	2.6	2.1	5.5	4.8	9.2	9.8	<b>11.6</b>	<b>8.2</b>
Inhalants	7.0	7.2	13.3	14.9	14.5	16.0	14.1	12.4
Hallucinogens	3.1	2.1	8.9	8.2	19.6	17.8	<b>27.5</b>	<b>20.5</b>
Steroids	2.8	2.2	2.8	2.1	<b>4.0</b>	<b>2.2</b>	<b>4.2</b>	<b>1.8</b>
Heroin	2.0	1.4	<b>3.3</b>	<b>1.9</b>	3.9	3.9	4.3	2.9
Amphetamines of any kind	4.0	3.0	7.9	8.8	13.5	15.7	14.8	15.1
Methamphetamines specifically	2.6	2.0	5.1	4.3	9.6	9.9	10.8	11.5
Number of students varies by substance, but is about:	1,880	1,890	1,870	2,000	1,900	2,005	1,250	1,300

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 2-2**  
**Gender by Lifetime Use of Alcohol, Tobacco, and Marijuana**



Note:  $p < .01$  for alcohol and tobacco at Grade 8.

**Finding:** In general, current ATOD use is similar for males and females, although females are more likely than males to be current cigarette smokers (with the exception of sixth grade students), and males are more likely than females to be current users of smokeless tobacco.

Exhibit 2-3 details current ATOD use (that is, use in the past 30 days) for males and females. In general, use is the same for both males and females. Two exceptions are that females are more likely than males to be current cigarette smokers (with the exception of sixth grade students), and males are more likely than females to be current users of smokeless tobacco. In addition, among eighth grade students, females (34 percent) are more likely than males to be current users of alcohol (27.3 percent), while the reverse is

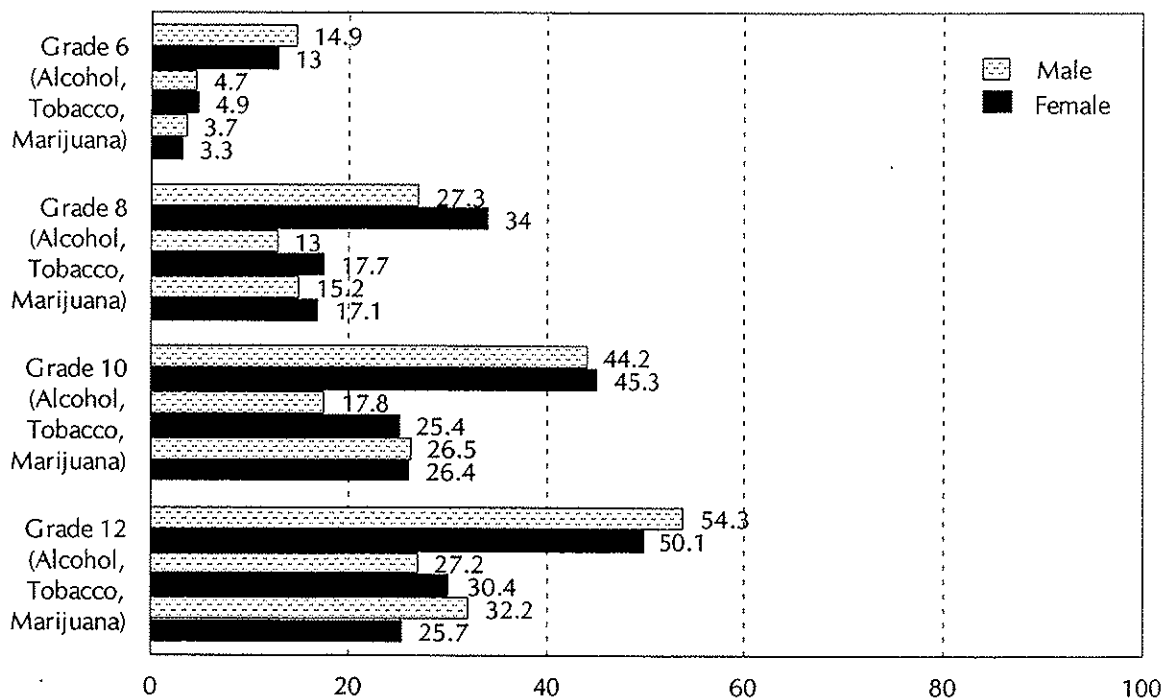
true for twelfth grade students (54.3 percent for males and 50.1 percent for females). Tenth and twelfth grade males were also more likely than females to be current users of hallucinogens, while tenth grade females were more likely to be current users of amphetamines. Current use of alcohol, smoking tobacco, and marijuana are illustrated in Exhibit 2-2.

**Exhibit 2-3**  
**Gender by 30-Day Use of Alcohol and Other Drugs**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Male	Female	Male	Female	Male	Female	Male	Female
Smoking tobacco	4.7	4.9	<b>13.0</b>	<b>17.7</b>	<b>17.8</b>	<b>25.4</b>	<b>27.2</b>	<b>30.4</b>
Smokeless tobacco	<b>4.6</b>	<b>2.5</b>	<b>8.0</b>	<b>5.1</b>	<b>14.7</b>	<b>4.7</b>	<b>18.7</b>	<b>6.2</b>
Alcohol	14.9	13.0	<b>27.3</b>	<b>34.0</b>	44.2	45.3	<b>54.3</b>	<b>50.1</b>
Marijuana	3.7	3.3	15.2	17.1	26.5	26.4	<b>32.2</b>	<b>25.7</b>
Cocaine	1.1	1.1	2.4	2.4	3.6	2.7	2.9	2.4
Inhalants	2.8	3.6	5.6	7.4	4.0	3.7	3.1	1.6
Hallucinogens	1.8	0.8	4.1	3.5	<b>7.6</b>	<b>3.9</b>	<b>7.7</b>	<b>4.5</b>
Heroin	1.0	0.2	1.6	1.1	1.9	0.7	1.0	0.5
Amphetamines of any kind	1.4	1.3	3.4	4.2	<b>4.8</b>	<b>6.3</b>	3.0	3.9
Methamphetamines specifically	1.2	0.6	2.3	2.1	3.8	3.6	2.9	3.0
Number of students varies by substance, but is about:	1,880	1,890	1,870	2,000	1,900	2,005	1,250	1,300

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 2-4**  
**Gender by 30-Day Use of Alcohol, Tobacco, and Marijuana**



Note:  $p < .01$  for alcohol and tobacco at Grade 8.  
 $p < .01$  for tobacco at Grades 8, 10, and 12.  
 $p < .01$  for marijuana at Grade 12.

**Finding:** Twelfth grade males are more likely than females to report binge drinking in the past two weeks. On the composite alcohol use scale, eighth grade males are more likely than females to report no use, but among tenth and twelfth grade students males are more likely than females to report frequent use. Males are also more likely than females to report frequent drug use on the composite scale.

Exhibit 2-5 details the differences between males and females in terms of binge drinking, alcohol use as measured by a composite scale, and drug use as measured by a composite scale. Among twelfth grade students, males are more likely than females to report binge drinking (that is, consuming five or more drinks in a row) in the past two weeks. For

example, 37.5 percent of the twelfth grade males report binge drinking in the past two weeks, compared to 28.2 percent of females. This result is illustrated in Exhibit 2-6.

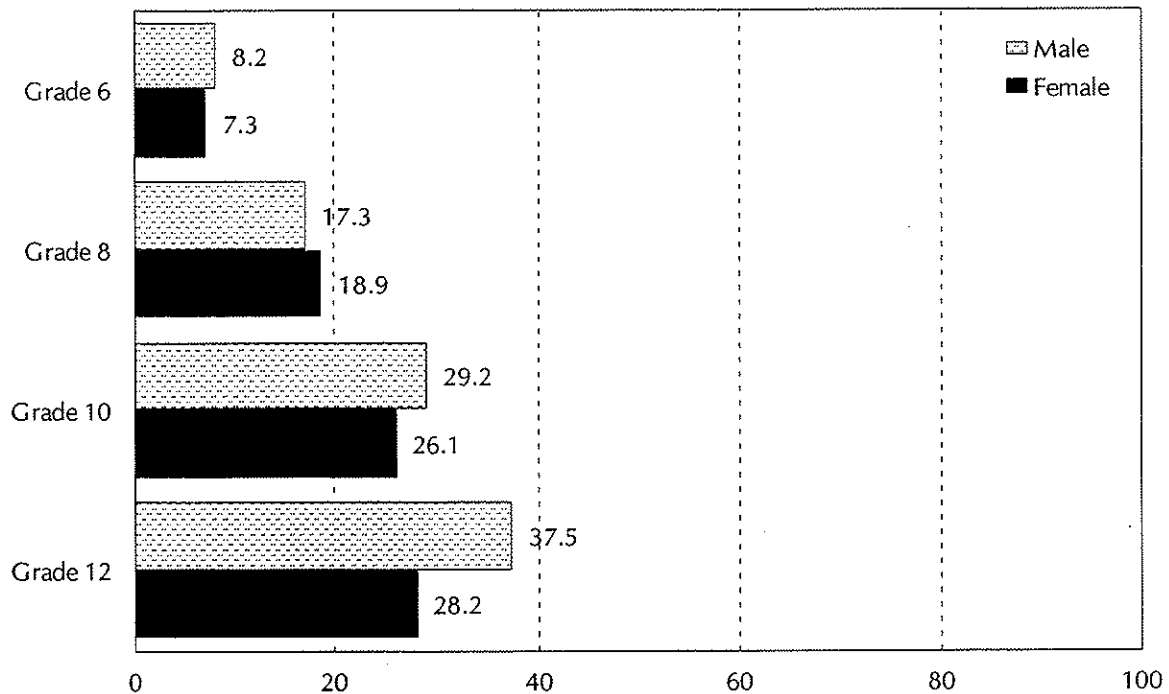
The alcohol use scale and drug use scale are composite scales that have the values of *never used* (never having tried alcohol or other drugs), *prior use* (some experimentation with alcohol or other drugs but no use in the past 30 days), *recent use* (one full drink or use of at least one drug in the past 30 days) and *frequent use* (for the alcohol scale, drinking ten or more times in the past 30 days or binge drinking three or more times in the past two weeks; for the drug scale using at least one substance ten or more times or using cocaine three or more times in the past 30 days). Eighth grade females are more likely than males to report some recent alcohol use (26.9 percent for females and 20.6 percent for males). Tenth and twelfth grade males are more likely than females to report frequent alcohol use (22.9 percent for twelfth grade males compared to 10 percent for females). Males are also more likely than females to report frequent drug use (for example, 16.8 percent of twelfth grade males report frequent use, compared to 9.3 percent of females).

**Exhibit 2-5**  
**Gender by Binge Drinking, Alcohol Use Scale, and Drug Use Scale**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Male	Female	Male	Female	Male	Female	Male	Female
Binge drink in the past two weeks	8.2	7.3	17.3	18.9	29.2	26.1	<b>37.5</b>	<b>28.2</b>
Alcohol Use Scale								
Never used	58.2	61.2	<b>40.4</b>	<b>33.6</b>	<b>20.8</b>	<b>19.0</b>	<b>16.0</b>	<b>15.2</b>
Prior use	26.5	25.6	<b>31.7</b>	<b>32.1</b>	<b>34.7</b>	<b>35.4</b>	<b>29.3</b>	<b>34.5</b>
Recent use	12.3	11.5	<b>20.6</b>	<b>26.9</b>	<b>30.5</b>	<b>35.9</b>	<b>31.8</b>	<b>40.3</b>
Frequent use	3.0	1.8	<b>7.3</b>	<b>7.5</b>	<b>14.1</b>	<b>9.7</b>	<b>22.9</b>	<b>10.0</b>
Drug Use Scale								
Never used	85.8	86.8	<b>67.5</b>	<b>65.3</b>	<b>46.8</b>	<b>47.7</b>	<b>40.8</b>	<b>45.0</b>
Prior use	8.1	6.1	<b>14.6</b>	<b>13.7</b>	<b>25.0</b>	<b>24.2</b>	<b>25.9</b>	<b>28.2</b>
Recent use	4.9	6.1	<b>11.9</b>	<b>16.5</b>	<b>16.2</b>	<b>20.1</b>	<b>16.5</b>	<b>17.5</b>
Frequent use	1.2	1.0	<b>6.0</b>	<b>4.5</b>	<b>11.9</b>	<b>8.0</b>	<b>16.8</b>	<b>9.3</b>
Number of students varies, but is about:	1,850	1,870	1,860	1,990	1,890	2,000	1,250	1,300

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 2-6  
Gender by Binge Drinking in Last Two Weeks**



Note:  $p < .01$  at Grade 12.

### Rurality and ATOD use

**Finding:** *In general, lifetime prevalence of ATOD use is similar in rural and urban areas, although cigarette use is higher among eighth and twelfth grade students in rural areas, and smokeless tobacco use is higher among eighth, tenth, and twelfth grade students in rural areas.*

Exhibit 2-7 details the lifetime prevalence of ATOD use for students who live in urban and rural settings. In general, lifetime prevalence is similar for these students, although tobacco use is higher among rural students. Cigarette use was higher among rural eighth and twelfth grade students (the difference among tenth grade students was nearly significant). For example, among twelfth grade students, 72.2 percent of students in rural schools had tried cigarettes, compared to 65.8 percent of students in urban schools. Smokeless tobacco use

was also higher among rural than urban students in Grades 8, 10, and 12 (similar to the finding reported by Einspruch, 1994). For example, 41.2 percent of twelfth grade students in rural schools had tried smokeless tobacco, compared to 30.5 percent of students in urban schools. In addition, lifetime prevalence of marijuana and hallucinogen use was higher among rural than urban eighth grade students. Lifetime prevalence of alcohol, tobacco, and marijuana use for urban and rural students is illustrated in Exhibit 2-8.

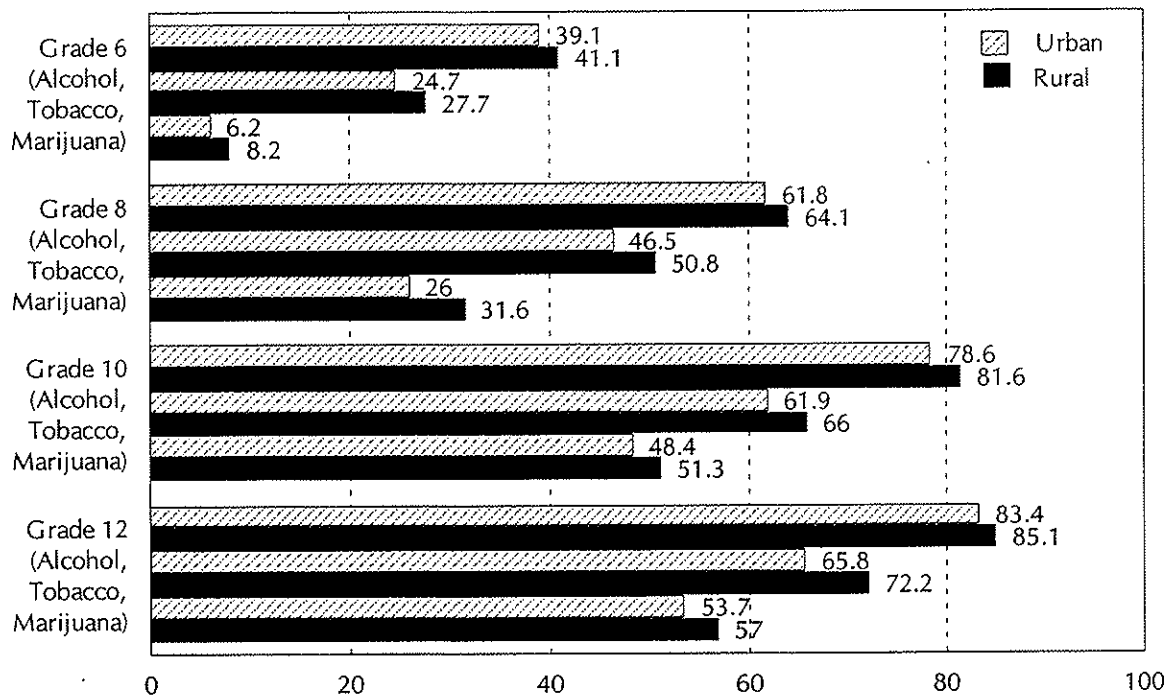
**Exhibit 2-7**  
**Urban/Rural by Lifetime Use of Alcohol, Tobacco, and Other Drugs**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Smoking tobacco	24.7	27.7	<b>46.5</b>	<b>50.8</b>	61.9	66.0	<b>65.8</b>	<b>72.2</b>
Smokeless tobacco	7.1	9.2	<b>11.6</b>	<b>19.8</b>	<b>20.8</b>	<b>34.2</b>	<b>30.5</b>	<b>41.2</b>
Alcohol	39.1	41.1	61.8	64.1	78.6	81.6	83.4	85.1
Marijuana	6.2	8.2	<b>26.0</b>	<b>31.6</b>	48.4	51.3	53.7	57.0
Cocaine	2.2	2.4	4.6	6.3	9.6	9.2	10.4	8.9
Inhalants	6.8	7.5	13.3	15.7	14.6	16.3	13.2	13.3
Hallucinogens	2.5	2.7	<b>7.8</b>	<b>10.2</b>	17.9	20.2	23.6	24.0
Steroids	2.4	2.9	2.6	2.6	2.8	3.6	2.4	3.8
Heroin	1.6	1.9	2.5	2.8	3.9	4.0	3.5	3.8
Amphetamines of any kind	3.4	3.5	7.7	9.6	14.1	15.6	15.3	14.4
Methamphetamines specifically	2.2	2.5	4.1	5.4	9.5	10.3	11.9	9.7
Number of students varies by substance, but is about:	2,550	1,310	2,410	1,605	2,470	1,485	1,530	1,070

Note: Differences for which  $p < .01$  are in bold.



**Exhibit 2-8**  
**Urban/Rural by Lifetime Use of Alcohol, Tobacco, and Marijuana**



Note:  $p < .01$  for tobacco at Grades 8 and 12.  
 $p < .01$  for marijuana at Grade 8.

**Finding:** In general, current ATOD use is similar among students in urban and rural schools. Smokeless tobacco is the exception, where rural students are more likely than urban students to report current use.

Exhibit 2-9 details current ATOD use (that is, use in the past 30 days) for students in urban and rural settings. In general, there is little difference in current use among students in these two settings. The exception is for smokeless tobacco use, where rural students are more likely than urban students to report current use. For example, among twelfth grade students, 15.9 percent of those in rural schools report current use, compared to 10 percent in urban schools. Eighth grade students in rural schools were also more likely than those in urban schools to report current cigarette use (17.8 percent compared to 13.6 percent). Use

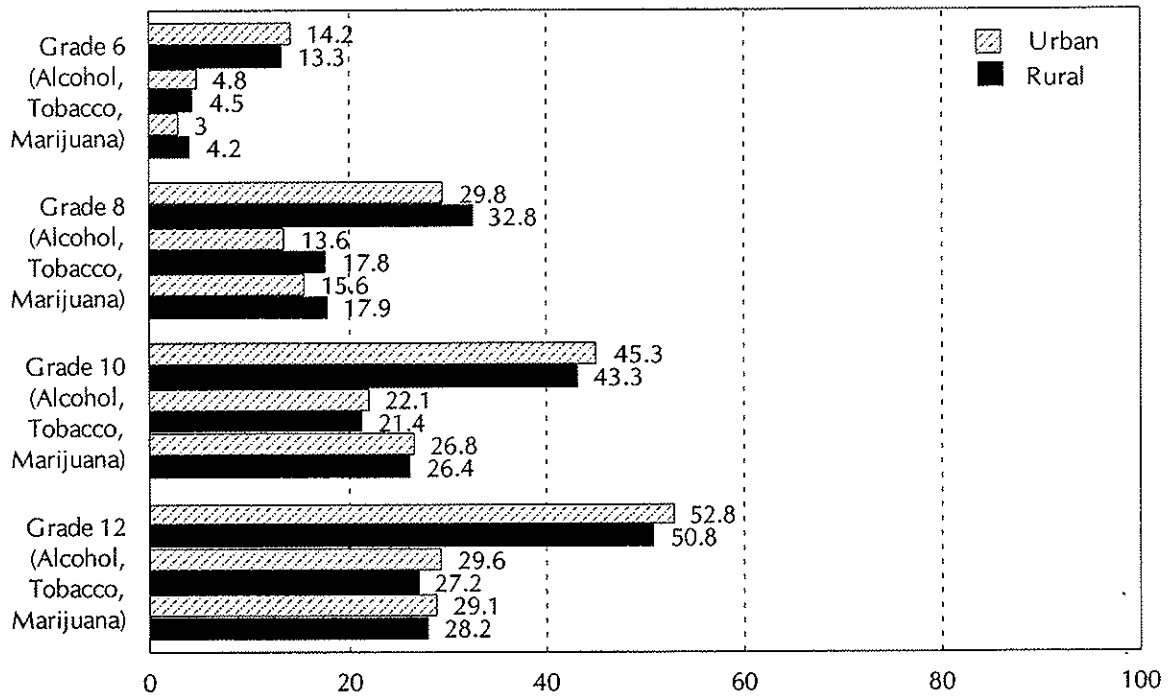
of alcohol, tobacco, and marijuana among students in urban and rural schools is illustrated in Exhibit 2-10.

**Exhibit 2-9**  
**Urban/Rural by 30-Day Use of Alcohol, Tobacco, and Other Drugs**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Smoking tobacco	4.8	4.5	<b>13.6</b>	<b>17.8</b>	22.1	21.4	29.6	27.2
Smokeless tobacco	3.5	3.5	<b>5.5</b>	<b>8.5</b>	<b>8.0</b>	<b>12.2</b>	<b>10.0</b>	<b>15.9</b>
Alcohol	14.2	13.3	29.8	32.8	45.8	43.3	52.8	50.8
Marijuana	3.0	4.2	15.6	17.9	26.8	26.4	29.1	28.2
Cocaine	0.9	1.2	2.3	2.7	3.5	2.6	2.6	2.7
Inhalants	3.3	3.0	6.1	7.4	3.6	4.3	1.7	3.1
Hallucinogens	1.0	1.7	3.6	4.2	5.4	6.4	6.2	5.8
Heroin	0.6	0.6	1.4	1.2	1.6	0.9	0.7	0.8
Amphetamines of any kind	1.3	1.5	3.4	4.5	5.7	5.4	3.3	4.0
Methamphetamines specifically	0.9	0.9	2.0	2.6	3.8	3.8	2.5	3.3
Number of students varies by substance, but is about:	2,550	1,310	2,410	1,605	2,470	1,485	1,530	1,070

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 2-10**  
**Urban/Rural by 30-Day Use of Alcohol, Tobacco, and Marijuana**



Note:  $p < .01$  for smoking tobacco at Grade 6.  
 $p < .01$  for smokeless tobacco at Grades 8, 10, and 12.

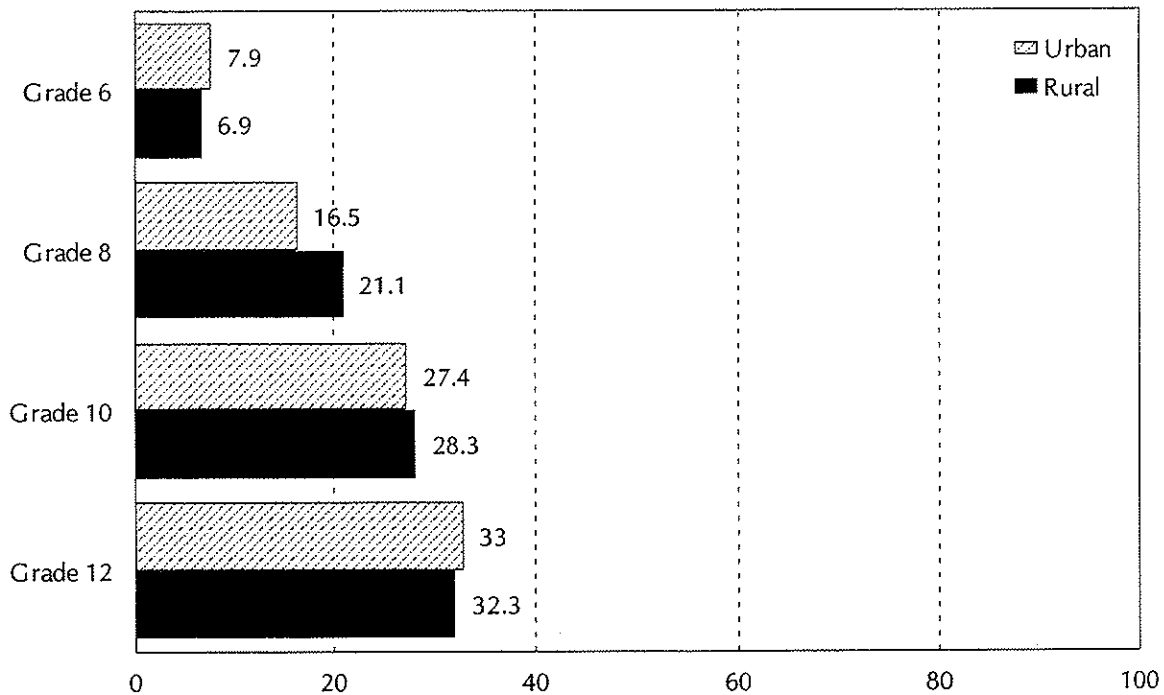
Students in urban and rural schools generally report similar levels of binge drinking, with the exception of eighth grade students (21.1 percent of rural students report binge drinking in the past two weeks, compared to 16.5 percent of urban students). Similarly, students in both settings report similar levels of use on the composite alcohol use scale, with the exception that tenth grade rural students were more likely to report no recent use and urban students were more likely to report some recent use. The results for the composite drug use scale were mixed, with similar levels of use among sixth and tenth grade students, but with a greater percentage of eighth and twelfth grade urban students reporting that they have never used drugs. These results are detailed in Exhibits 2-11 and 2-12.

**Exhibit 2-11**  
**Urban/Rural by Binge Drinking, Alcohol Use Scale, and Drug Use Scale**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Binge drink in the past two weeks	7.9	6.9	<b>16.5</b>	<b>21.1</b>	27.4	28.3	33.0	32.3
Alcohol Use Scale								
Never used	60.5	58.7	37.6	35.6	<b>21.0</b>	<b>17.9</b>	16.4	14.6
Prior use	24.9	27.8	32.1	31.3	<b>32.9</b>	<b>38.4</b>	30.4	34.4
Recent use	12.0	11.4	23.3	24.6	<b>34.6</b>	<b>31.3</b>	36.9	34.8
Frequent use	2.5	2.1	7.1	8.5	<b>11.6</b>	<b>12.3</b>	16.4	16.2
Drug Use Scale								
Never used	86.9	85.6	<b>67.8</b>	<b>63.3</b>	48.4	45.0	<b>44.9</b>	<b>40.5</b>
Prior use	7.0	7.2	<b>13.6</b>	<b>15.0</b>	23.1	27.1	<b>24.8</b>	<b>30.1</b>
Recent use	5.0	6.0	<b>14.1</b>	<b>14.8</b>	18.6	17.9	<b>16.6</b>	<b>17.6</b>
Frequent use	1.0	1.1	<b>4.4</b>	<b>6.8</b>	10.0	9.9	<b>13.8</b>	<b>11.7</b>
Number of students varies, but is about:	2,550	1,310	2,410	1,605	2,470	1,485	1,530	1,070

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 2-12**  
**Urban/Rural by Binge Drinking in the Last Two Weeks**



Note:  $p < .01$  at Grade 8.

### Age of first use and current use

Students begin experimenting with alcohol and other drug use at an early age. The younger the age of drinking onset, the greater the chance that an individual will develop a clinically defined alcohol disorder at some point in life. For example, Grant et al. (1997) found that young people who began drinking before age 15 were four times more likely to develop alcohol dependence than those who began drinking at age 21. Exhibit 2-13 shows the percentage of students who reported alcohol use in the past month for students who began drinking at different ages. The number of students in each age group is also reported in the exhibit (for example, there were 385 twelfth grade students who reported that they were 10 or younger when they first “had more than a sip or two of beer, wine, or hard liquor”). As a general rule, percentages in this exhibit are reported only for those age groups that contained at least 150 students.

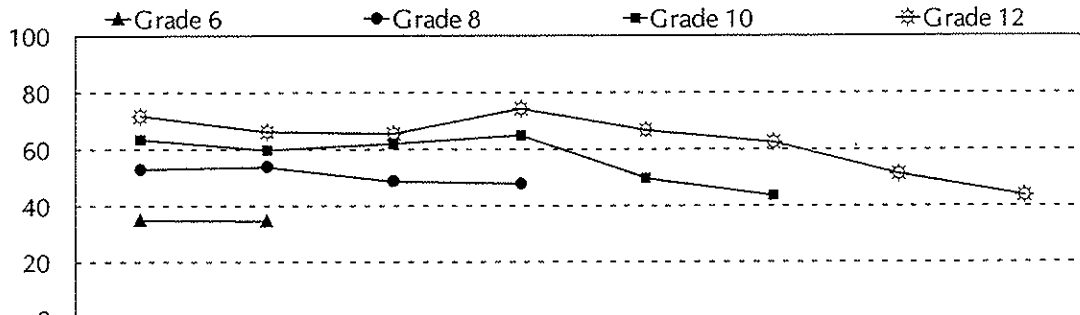
**Finding:** Among tenth and twelfth grade students, those who began drinking at an early age were more likely to report current alcohol use than those who began drinking at a later age. Among students at all four grades, those who began smoking cigarettes at an early age were more likely to report current cigarette use than those who began smoking at a later age. Among eighth, tenth, and twelfth grade students, those who began smoking marijuana at an early age were more likely to report current marijuana use than those who began smoking at a later age.

Exhibit 2-13 shows that tenth and twelfth grade students who began drinking at an early age were more likely to report current alcohol use than those who began drinking at a later age. For example, of those twelfth grade students who first “had more than a sip or two of beer, wine, or hard liquor” at age ten or younger, 71.7 percent reported alcohol use in the past month. In contrast, of those twelfth grade students who first had more than a sip of alcohol at age 17 or older, 43.6 percent reported current alcohol use. A similar trend was suggested among eighth grade students, although it was not statistically significant.

Exhibit 2-14 shows a similar finding for cigarette use. Among students at all four grades, those who first “smoked a cigarette, even just a puff” at a younger age were more likely to report current use than those who were older when they began smoking. For example, of those twelfth grade students who began smoking at age 10 or younger, 54.2 percent reported cigarette use in the past month. In contrast, of those twelfth grade students who first smoked a cigarette at age 17 or older, 24.5 percent reported current cigarette use.

Exhibit 2-15 shows a similar finding for marijuana use. Among students in Grades 8, 10, and 12, those who first “smoked marijuana” at a younger age were more likely to report current use than those who were older when they began smoking (there were not enough sixth grade marijuana smokers to include them in this exhibit). For example, of those twelfth grade students who began smoking marijuana at age 13, 66.7 percent reported marijuana use in the past month. In contrast, of those twelfth grade students who first smoked marijuana at age 17 or older, 38.8 percent reported current marijuana use.

**Exhibit 2-13**  
**Age of First Use of Alcohol by Alcohol Use in the Past 30 Days**

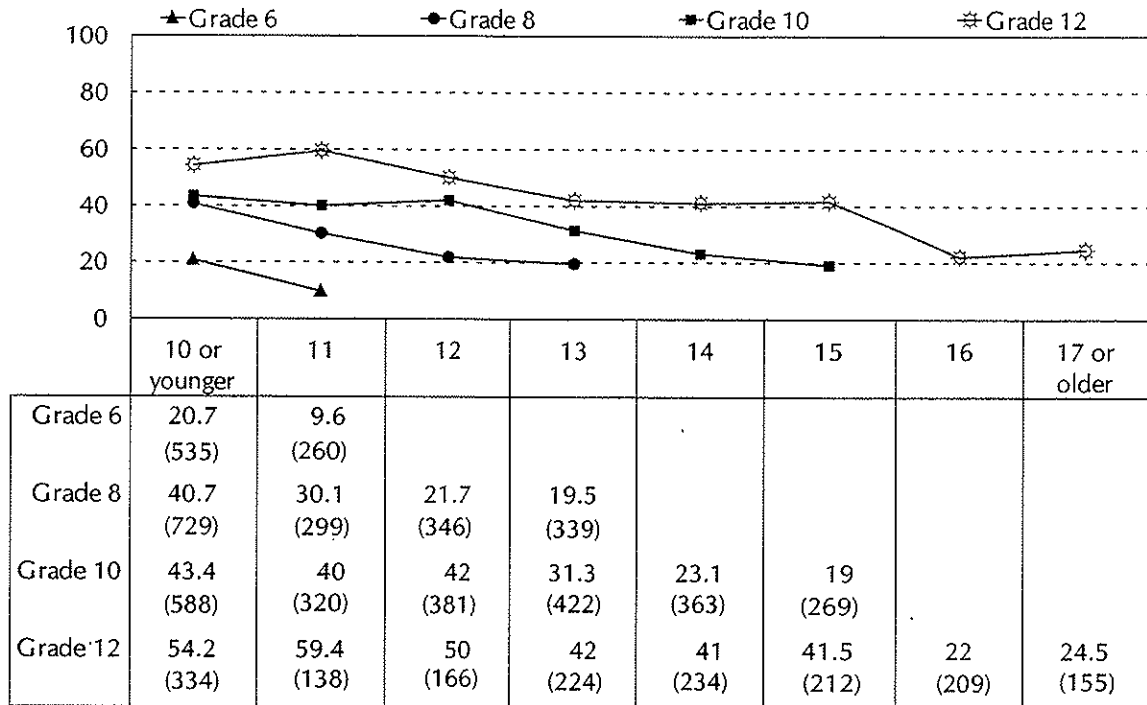


	10 or younger	11	12	13	14	15	16	17 or older
Grade 6	34.8 (755)	34.5 (354)						
Grade 8	52.9 (917)	53.7 (337)	48.6 (397)	47.7 (436)				
Grade 10	63.4 (839)	59.6 (230)	61.9 (323)	64.8 (435)	49.7 (513)	43.5 (496)		
Grade 12	71.7 (385)	66.1 (115)	65.4 (162)	74.2 (236)	66.7 (279)	62.4 (330)	51.3 (355)	43.6 (225)

Note: Number of students in each age group appears in parentheses.  
 $p < .01$  for Grades 10 and 12.

*There are 40% of who only 30%...*

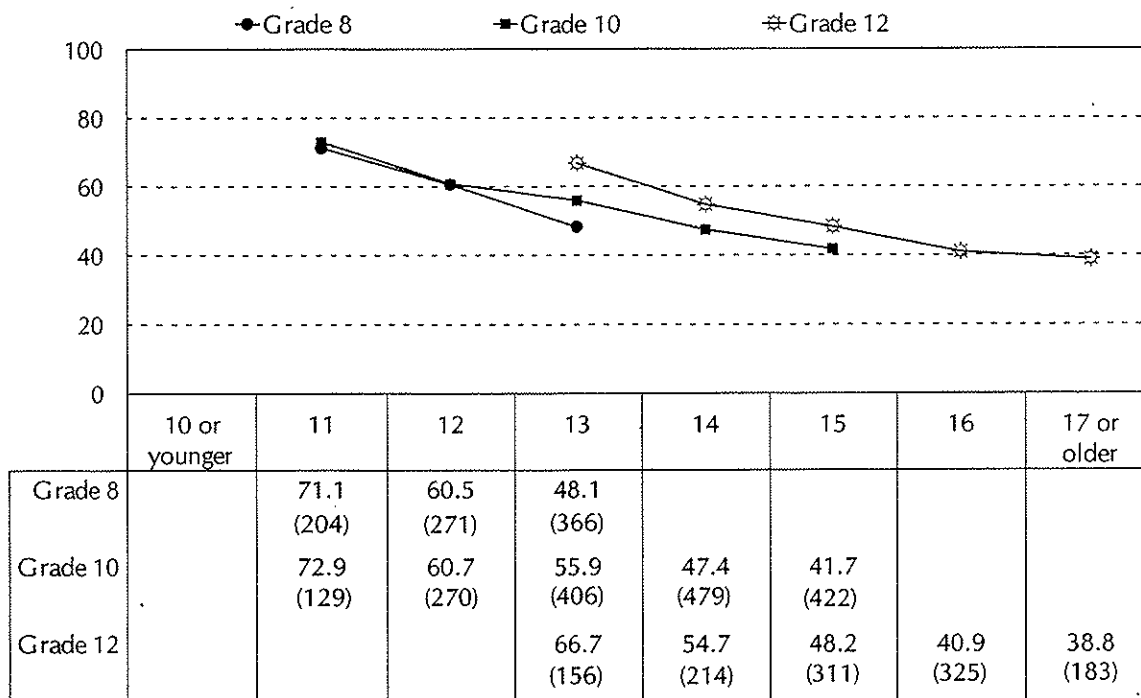
**Exhibit 2-14**  
**Age of First Use of Cigarettes by Cigarette Use in the Past 30 Days**



Note: Number of students in each age group appears in parentheses.  
 $p < .01$  for all four grades.



**Exhibit 2-15**  
**Age of First Use of Marijuana by Marijuana Use in the Past 30 Days**



Note: Number of students in each age group appears in parentheses.  
 $p < .01$  for Grades 8, 10, and 12.

### Source of alcohol and cigarettes and level of use

The exhibits in this section detail the level of use and the average age of first use among students who obtain their alcohol and cigarettes from different sources. Exhibit 2-16 shows that students who obtain their alcohol from home and their parents know about it are least likely to report alcohol use in the past 30 days, followed by those who obtain their alcohol from home but their parents don't know, then by those who obtain their alcohol from friends, and finally by those who ask adults to purchase it for them or who buy it themselves. (The reader may note that when asked their source of alcohol, a certain number of students report that they do not drink. However, a small percentage of these students reported use in the past month. This represents either an inconsistency in student responses or students who have decided that they do not drink at some point after they had

consumed alcohol within the past 30 days.) Exhibit 2-17 shows a similar finding for binge drinking in the past two weeks.

Exhibit 2-18 shows the average age of first use for students who obtain their alcohol from different sources (for those students who indicated that their age of first use was not “never”). In general, there is very little variation in the age of onset of use among these students. While there are some significant differences at some grade levels, this is due in part to the large sample sizes. Readers are therefore cautioned against overinterpreting the results. For example, a difference of one-half year among tenth grade students may be statistically, but not practically, significant (e.g., beginning to drink regularly at 13.7 years for those who obtain alcohol from home and their parents know, compared to 14.2 years for those who obtain their alcohol from friends).

**Exhibit 2-16**  
**Source of Alcohol by Alcohol Use in the Past 30 Days**

Source	Grade 6		Grade 8		Grade 10		Grade 12	
	N	30-Day Use	N	30-Day Use	N	30-Day Use	N	30-Day Use
Don't drink	3,076	3.4	2,279	4.1	1,563	3.3	776	3.1
From home and parents know	356	44.4	339	53.7	299	57.2	219	60.3
From home but parents don't know	125	65.6	295	66.1	165	67.9	53	67.9
From friends	182	68.7	743	70.1	1,371	72.1	1,126	72.4
Ask adults to purchase or buy it myself	30	76.7	158	75.3	319	85.6	302	85.4

**Exhibit 2-17**  
**Source of Alcohol and Binge Drinking in the Past Two Weeks**

Source	Grade 6		Grade 8		Grade 10		Grade 12	
	N	Binge	N	Binge	N	Binge	N	Binge
Don't drink	3,022	1.3	2,249	1.3	1,557	1.0	771	1.2
From home and parents know	348	17.5	337	24.0	294	21.8	222	23.9
From home but parents don't know	121	33.9	292	35.3	163	39.3	54	38.9
From friends	177	54.8	734	45.2	1,368	44.8	1,119	45.3
Ask adults to purchase or buy it myself	30	56.7	156	57.1	310	69.0	298	66.4

Exhibit 2-18

Source of Alcohol by Average Age of First Use

Had more than a sip or two of alcohol<sup>1</sup>

Source	Grade 6		Grade 8		Grade 10		Grade 12	
	N	Mean S.D.	N	Mean S.D.	N	Mean S.D.	N	Mean S.D.
Don't drink	608	10.5 0.7	686	11.3 1.4	694	12.9 2.1	330	13.9 2.4
From home and parents know	274	10.5 0.6	272	11.3 1.4	272	12.1 2.0	209	13.3 2.5
From home and parents don't know	108	10.6 0.9	274	11.3 1.3	157	12.3 2.0	54	12.9 2.6
From friends	166	10.6 1.0	698	11.5 1.4	1,328	12.7 2.0	1,101	13.9 2.3
Ask adults to purchase or buy it myself	26	10.1 0.4	147	11.2 1.2	312	12.1 1.8	292	12.9 2.2

Began drinking alcohol regularly<sup>2</sup>

Don't drink	18	11.3 1.7	47	12.1 1.8	127	13.7 1.3	61	14.4 1.9
From home and parents know	44	10.8 0.7	101	12.0 1.3	122	13.7 1.9	108	15.0 2.1
From home and parents don't know	51	10.6 0.9	146	12.2 1.2	90	14.1 1.3	31	15.5 1.3
From friends	96	10.9 1.0	422	12.4 1.2	886	14.2 1.4	802	15.5 1.5
Ask adults to purchase or buy it myself	18	10.6 0.6	113	12.4 1.2	276	13.9 1.6	262	15.1 1.7

<sup>1</sup> p < .01 for Grades 6, 10, and 12.

<sup>2</sup> p < .01 for Grades 10 and 12.

Exhibit 2-19 details the level of current cigarette use for students who obtain their cigarettes from different sources. Sixth grade students are most likely to obtain their cigarettes from friends, and of the students who do so, 30.1 percent report cigarette use in the past 30 days. As students get older, they are much more likely to obtain cigarettes from a store—of those twelfth grade students who do so, 71.4 percent reported use in the past month. Almost no students obtain cigarettes from a vending machine. While there are some differences in use rates among students who obtain their cigarettes from different sources, readers are again cautioned against overinterpreting the data due to very small numbers in some categories (for example, only 44 twelfth grade students reported that they obtain their cigarettes from adults).

Exhibit 2-20 shows the average age of first use for students who obtain their cigarettes from different sources (for those students who indicated that their age of first use was not “never”). In general, there is little variation in the age of first use among those who obtain their cigarettes from different sources, especially for those groups with at least 200 students in them (larger differences appear in groups with small number of students, but are likely not stable estimates of age of first use).

**Exhibit 2-19**  
**Source of Cigarette and Tobacco Use in the Past 30 Days**

Source	Grade 6		Grade 8		Grade 10		Grade 12	
	N	30-Day Use	N	30-Day Use	N	30-Day Use	N	30-Day Use
Don't smoke	3,102	0.2	2,643	0.5	2,511	0.5	1,459	0.4
From adults	88	26.1	214	58.9	241	79.3	44	77.3
From friends	349	30.1	748	39.7	722	51.0	207	53.6
From vending machines	8	37.5	12	58.3	8	37.5	3	100.0
From a store	20	65.0	97	72.2	216	80.1	755	71.4

**Exhibit 2-20**  
**Source of Cigarettes by Age of First Use**

Source	Grade 6		Grade 8		Grade 10		Grade 12	
	N	Mean S.D.	N	Mean S.D.	N	Mean S.D.	N	Mean S.D.
Don't smoke	448	10.5 0.8	690	11.4 1.3	1,147	12.5 1.8	645	13.5 2.4
From adults	82	10.3 0.6	211	11.0 1.3	241	11.7 1.6	45	12.3 2.3
From friends	324	10.5 0.8	746	11.4 1.3	720	12.4 1.8	212	13.7 2.2
From vending machines	7	10.7 0.9	11	10.1 0.3	7	13.7 2.3	3	12.3 3.0
From a store	18	10.6 0.4	102	11.0 1.3	226	11.8 1.7	756	13.0 2.3

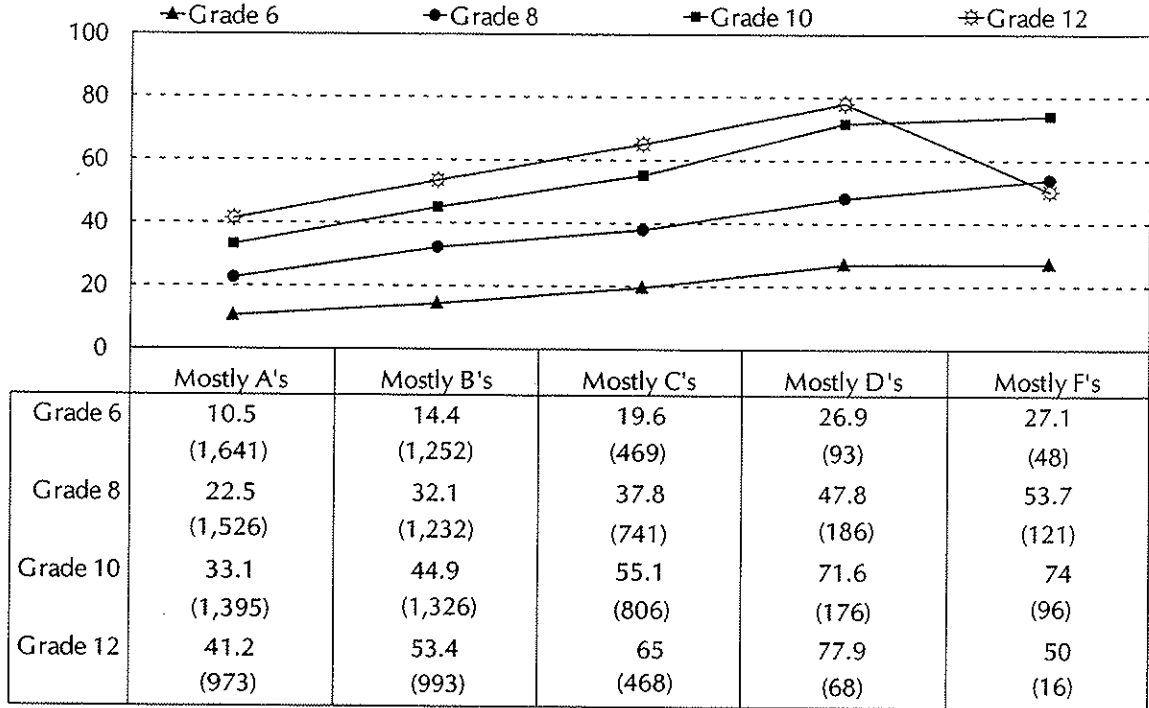
## Grades in school by 30-day use

The results of the 1998 administration of the WSSAHB showed a modest yet significant correlation between the risk factor of “academic failure” and alcohol and other drug use. As noted in the survey report, children fail in school for many reasons, but research indicates that the very experience of failure, regardless of whether the failure is linked to the student’s ability, places him or her at higher risk of negative behavior. The association between school grades and ATOD use is illustrated in Exhibits 2-21, 2-22, and 2-23.

**Finding:** *Students who make good grades in school are less likely to report alcohol and other drug use than students who make poor grades.*

Exhibit 2-21 shows that students who report that their grades last year were mostly A’s were least likely to report alcohol use in the past 30 days. In general, with each lower letter grade that students earned, the likelihood increased that they had used alcohol in the past 30 days. Exhibit 2-22 shows a similar finding for cigarette use and Exhibit 2-23 shows a similar finding for marijuana use.

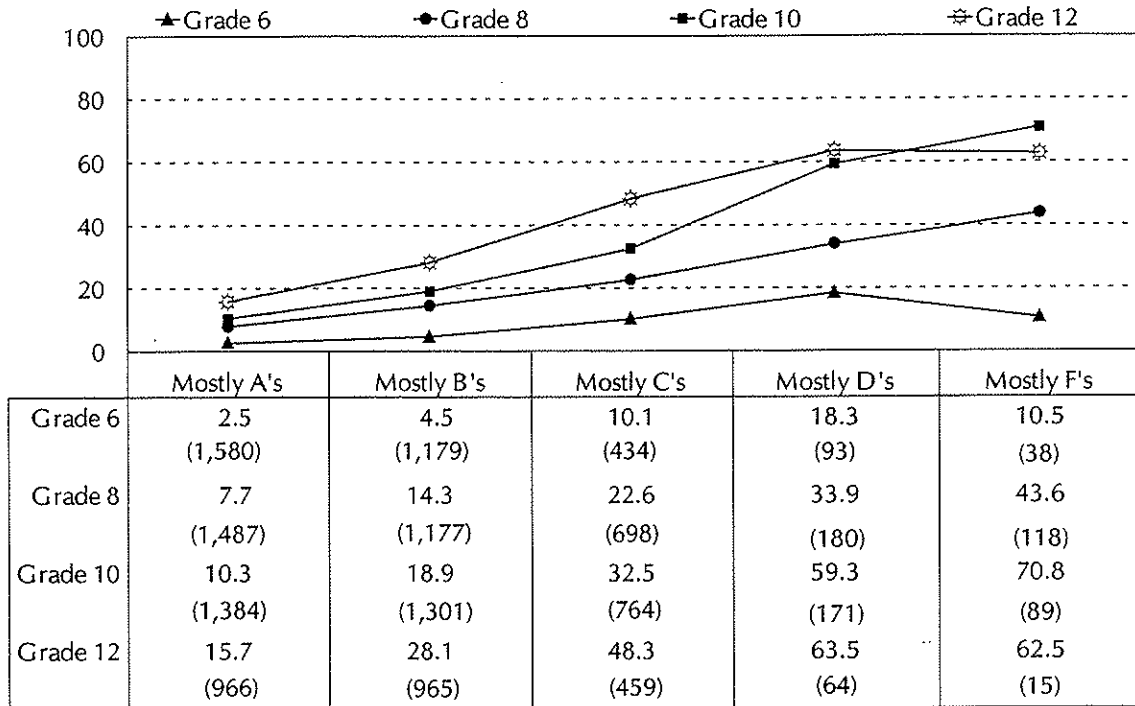
**Exhibit 2-21**  
**Grades in School by 30-Day Use of Alcohol**



Note: Number of students earning a given grade appears in parentheses.  
 $p < .01$  for all four grades.

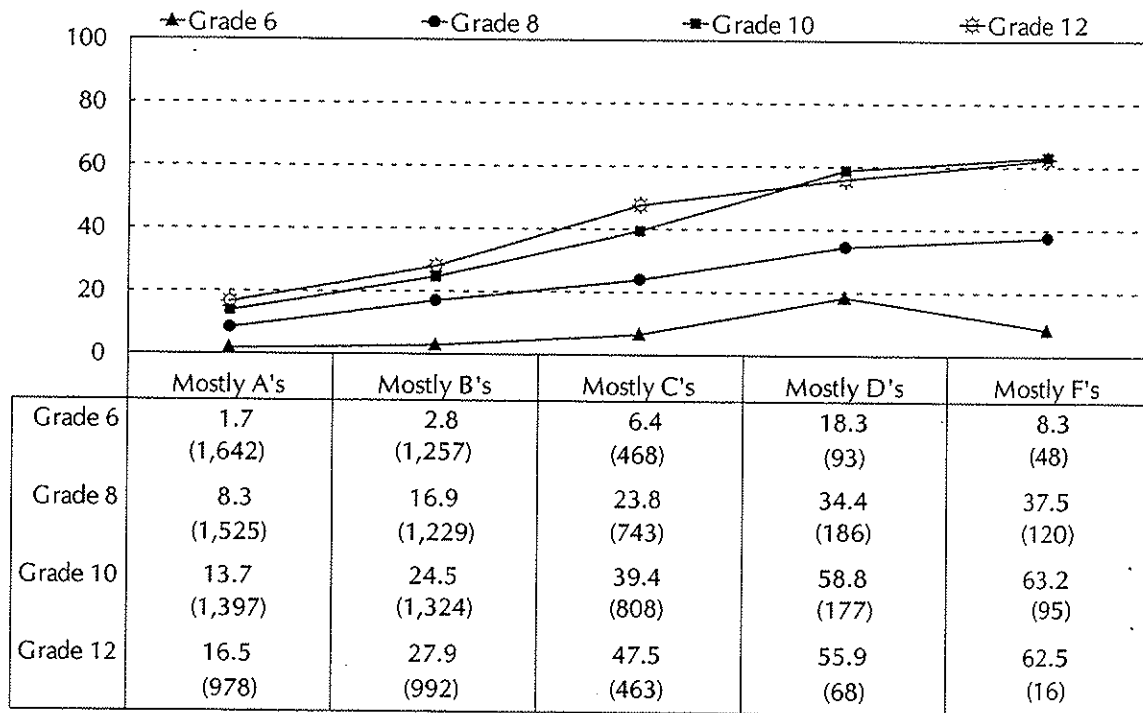


**Exhibit 2-22**  
**Grades in School by 30-Day Use of Cigarettes**



Note: Number of students earning a given grade appears in parentheses.  
 $p < .01$  for all four grades.

**Exhibit 2-23**  
**Grades in School by 30-Day Use of Marijuana**



Note: Number of students earning a given grade appears in parentheses.  
 $p < .01$  for all four grades.

### **Ethnic group and ATOD use**

Exhibits 2-24a-c details the lifetime prevalence of ATOD use for members of different ethnic groups. Two points may be seen from these tables. First, no ethnic group is immune from the impact of alcohol and other drugs. Second, Native Americans tended to report the highest levels of use and Asians tended to report the lowest levels of use. Among sixth grade students, there were no differences among ethnic groups for low-prevalence substances, and to some extent this was also the case among eighth grade students. Readers are again reminded that care should be taken in interpreting and generalizing from the results by ethnic group (see the caution in the introduction to this report).

**Exhibit 2-24a**  
**Ethnic Group by Lifetime ATOD Use—Grade 6**

	Black/ African American	Asian/ Pacific Islander	Native American/ American Indian	Hispanic	White, not Hispanic	Other
Smoking tobacco	<b>28.1</b>	<b>22.1</b>	<b>37.1</b>	<b>22.6</b>	<b>24.3</b>	<b>30.6</b>
Smokeless tobacco	<b>9.0</b>	<b>4.3</b>	<b>20.6</b>	<b>5.6</b>	<b>7.3</b>	<b>7.8</b>
Alcohol	<b>39.2</b>	<b>31.3</b>	<b>49.8</b>	<b>42.5</b>	<b>41.2</b>	<b>36.0</b>
Marijuana	<b>8.5</b>	<b>2.8</b>	<b>12.6</b>	<b>9.9</b>	<b>5.6</b>	<b>9.5</b>
Cocaine	4.2	1.6	4.9	3.1	1.9	2.6
Inhalants	<b>4.8</b>	<b>8.3</b>	<b>13.1</b>	<b>8.6</b>	<b>6.1</b>	<b>7.9</b>
Hallucinogens	4.2	2.0	3.4	1.8	2.4	3.4
Steroids	4.9	3.3	1.0	3.7	2.4	2.5
Heroin	3.6	1.6	0.5	1.5	1.5	2.4
Amphetamines of any kind	5.5	2.9	3.9	4.0	2.9	4.4
Methamphetamines specifically	1.2	2.1	3.9	2.5	2.1	2.6
Number of students varies by substance, but is no more than:	170	257	210	328	2,127	638

**Exhibit 2-24b**  
**Ethnic Group by Lifetime ATOD Use—Grade 8**

	Black/ African American	Asian/ Pacific Islander	Native American/A merican Indian	Hispanic	White, not Hispanic	Other
Smoking tobacco	<b>56.1</b>	<b>41.9</b>	<b>63.6</b>	<b>52.6</b>	<b>45.6</b>	<b>55.0</b>
Smokeless tobacco	<b>10.9</b>	<b>8.9</b>	<b>31.2</b>	<b>10.7</b>	<b>14.9</b>	<b>18.1</b>
Alcohol	67.6	59.6	63.4	64.9	61.7	67.1
Marijuana	<b>34.9</b>	<b>20.7</b>	<b>54.7</b>	<b>30.5</b>	<b>25.7</b>	<b>33.7</b>
Cocaine	<b>3.5</b>	<b>3.7</b>	<b>8.0</b>	<b>8.5</b>	<b>4.6</b>	<b>7.0</b>
Inhalants	<b>12.2</b>	<b>8.9</b>	<b>20.3</b>	<b>15.4</b>	<b>13.8</b>	<b>18.2</b>
Hallucinogens	<b>4.8</b>	<b>5.9</b>	<b>14.5</b>	<b>7.0</b>	<b>8.6</b>	<b>13.5</b>
Steroids	3.5	0.7	1.7	2.7	2.5	4.1
Heroin	4.7	3.0	2.9	2.0	2.3	4.7
Amphetamines of any kind	<b>4.8</b>	<b>4.5</b>	<b>12.2</b>	<b>6.3</b>	<b>8.5</b>	<b>13.7</b>
Methamphetamines specifically	4.1	2.6	5.8	3.8	4.7	6.5
Number of students varies by substance, but is no more than:	148	271	175	450	2,562	345

**Exhibit 2-24c**  
**Ethnic Group by Lifetime ATOD Use—Grade 10**

	Black/ African American	Asian/ Pacific Islander	Native American/ American Indian	Hispanic	White, not Hispanic	Other
Smoking tobacco	59.2	48.8	75.8	67.6	63.8	67.3
Smokeless tobacco	13.5	14.1	41.9	20.8	27.2	30.2
Alcohol	81.5	70.5	85.3	80.9	79.9	84.2
Marijuana	53.7	34.3	68.1	55.0	48.7	56.5
Cocaine	6.1	5.7	13.8	19.4	8.6	11.1
Inhalants	14.9	8.9	20.4	18.5	14.9	19.5
Hallucinogens	15.4	11.7	28.0	26.6	18.2	23.0
Steroids	4.1	2.9	5.5	4.0	2.7	4.7
Heroin	4.1	4.7	6.7	6.5	3.2	7.3
Amphetamines of any kind	11.6	9.2	20.7	21.6	13.6	20.4
Methamphetamines specifically	6.1	5.0	14.3	17.2	9.6	9.8
Number of students varies by substance, but is no more than:	149	283	95	301	2,751	319

Exhibits 2-25a-c details the 30-day prevalence of ATOD use for members of different ethnic groups. As with lifetime prevalence, no ethnic group is immune from the impact of current alcohol and other drug use. Also, as with lifetime prevalence, Native Americans tended to report the highest levels of use. However although Asians tended to report the lowest levels of use, this was not the case for every substance. With only a few exceptions, the prevalence rates for low-prevalence substances were similar for each ethnic group.

**Exhibit 2-25a**  
**Ethnic Group by 30-Day ATOD Use—Grade 6**

	Black/ African American	Asian/ Pacific Islander	Native American/ American Indian	Hispanic	White, not Hispanic	Other
Cigarettes	<b>2.1</b>	<b>2.9</b>	<b>16.0</b>	<b>5.4</b>	<b>3.9</b>	<b>5.2</b>
Smokeless tobacco	<b>4.9</b>	<b>3.1</b>	<b>14.1</b>	<b>4.0</b>	<b>2.3</b>	<b>4.0</b>
Alcohol	<b>17.0</b>	<b>10.5</b>	<b>25.5</b>	<b>18.6</b>	<b>12.6</b>	<b>13.0</b>
Marijuana	<b>4.2</b>	<b>0.8</b>	<b>7.8</b>	<b>5.6</b>	<b>2.9</b>	<b>3.9</b>
Cocaine	<b>3.0</b>	<b>0.4</b>	<b>3.9</b>	<b>1.9</b>	<b>0.7</b>	<b>0.8</b>
Inhalants	<b>6.1</b>	<b>2.7</b>	<b>6.4</b>	<b>5.3</b>	<b>2.6</b>	<b>2.3</b>
Hallucinogens	3.0	0.8	2.0	1.5	1.2	1.0
Heroin	<b>3.7</b>	<b>0.8</b>	<b>0.0</b>	<b>1.2</b>	<b>0.4</b>	<b>0.3</b>
Amphetamines of any kind	0.6	1.2	3.0	1.2	1.3	1.5
Methamphetamines specifically	0.0	1.6	2.9	1.3	0.6	0.8
Number of students varies by substance, but is no more than:	170	257	210	328	2,127	638

**Exhibit 2-25b**  
**Ethnic Group by 30-Day ATOD Use—Grade 8**

	Black/ African American	Asian/ Pacific Islander	Native American/ American Indian	Hispanic	White, not Hispanic	Other
Cigarettes	<b>10.3</b>	<b>10.0</b>	<b>30.7</b>	<b>14.7</b>	<b>14.3</b>	<b>20.6</b>
Smokeless tobacco	<b>5.6</b>	<b>1.9</b>	<b>14.0</b>	<b>5.9</b>	<b>6.5</b>	<b>9.4</b>
Alcohol	<b>36.6</b>	<b>23.7</b>	<b>37.6</b>	<b>33.9</b>	<b>29.9</b>	<b>34.7</b>
Marijuana	<b>22.6</b>	<b>11.5</b>	<b>33.5</b>	<b>18.5</b>	<b>14.3</b>	<b>22.4</b>
Cocaine	2.8	2.2	2.9	3.4	2.1	4.5
Inhalants	5.5	3.7	8.8	8.1	6.3	7.9
Hallucinogens	3.5	1.9	6.4	3.4	3.7	5.6
Heroin	2.8	2.2	1.7	1.1	1.1	2.1
Amphetamines of any kind	<b>2.1</b>	<b>1.1</b>	<b>4.6</b>	<b>2.7</b>	<b>4.0</b>	<b>7.3</b>
Methamphetamines specifically	2.8	1.1	3.5	1.6	2.1	3.9
Number of students varies by substance, but is no more than:	148	271	175	450	2,562	345

**Exhibit 2-25c**  
**Ethnic Group by 30-Day ATOD Use—Grade 10**

	Black/ African American	Asian/ Pacific Islander	Native American/ American Indian	Hispanic	White, not Hispanic	Other
Cigarettes	<b>15.6</b>	<b>15.8</b>	<b>34.4</b>	<b>27.2</b>	<b>21.6</b>	<b>23.4</b>
Smokeless tobacco	6.8	5.3	11.7	8.1	10.0	12.6
Alcohol	<b>49.3</b>	<b>30.5</b>	<b>43.6</b>	<b>50.8</b>	<b>44.0</b>	<b>55.6</b>
Marijuana	<b>33.6</b>	<b>17.4</b>	<b>40.0</b>	<b>32.4</b>	<b>25.2</b>	<b>34.6</b>
Cocaine	2.7	2.8	2.2	5.7	3.0	2.8
Inhalants	4.1	2.8	6.5	4.4	3.5	6.3
Hallucinogens	<b>6.1</b>	<b>2.5</b>	<b>13.8</b>	<b>7.7</b>	<b>5.6</b>	<b>6.9</b>
Heroin	1.4	2.2	3.2	1.7	1.1	1.9
Amphetamines of any kind	<b>4.8</b>	<b>1.8</b>	<b>8.7</b>	<b>5.7</b>	<b>5.2</b>	<b>11.4</b>
Methamphetamines specifically	4.1	2.9	6.3	5.1	3.7	4.4
Number of students varies by substance, but is no more than:	149	283	95	301	2,751	319

Exhibit 2-26 details the results for binge drinking, the alcohol use scale, and the drug use scale by ethnic group. Among sixth and eighth grade students Native Americans reported the highest rates of binge drinking, and Asian and white students reported the lowest rates of binge drinking. Among tenth grade students Hispanics reported the highest rates of binge drinking and Asian students reported the lowest rates of binge drinking. The results for the alcohol and drug use scales varied a bit. However consistent with the lifetime and 30-day prevalence rates, Native Americans tended to be least likely to report that they have never used alcohol or other drugs and most likely to report frequent use. Also consistent with lifetime and 30-day prevalence rates, Asians tended to be most likely to report that they have never used alcohol or other drugs and least likely to report frequent use.

**Exhibit 2-26a**  
**Ethnic Group by Binge Drinking, Alcohol Use Scale, and Drug Use Scale—Grade 6**

	Black/ African American	Asian/ Pacific Islander	American Indian/ Alaskan Native	Hispanic	White, not Hispanic	Other
Binge drink in the past two weeks	<b>7.1</b>	<b>5.7</b>	<b>21.2</b>	<b>12.1</b>	<b>5.6</b>	<b>8.8</b>
Alcohol Use Scale						
Never used	<b>60.9</b>	<b>68.1</b>	<b>49.3</b>	<b>56.7</b>	<b>58.6</b>	<b>63.7</b>
Prior use	<b>21.7</b>	<b>21.3</b>	<b>24.6</b>	<b>24.1</b>	<b>28.6</b>	<b>22.9</b>
Recent use	<b>14.3</b>	<b>9.1</b>	<b>16.7</b>	<b>16.0</b>	<b>10.9</b>	<b>12.2</b>
Frequent use	<b>3.1</b>	<b>1.6</b>	<b>9.4</b>	<b>3.1</b>	<b>1.9</b>	<b>1.3</b>
Drug Use Scale						
Never used	<b>82.4</b>	<b>86.5</b>	<b>75.9</b>	<b>82.7</b>	<b>88.5</b>	<b>84.9</b>
Prior use	<b>6.7</b>	<b>8.4</b>	<b>7.4</b>	<b>8.4</b>	<b>6.1</b>	<b>10.0</b>
Recent use	<b>7.9</b>	<b>5.2</b>	<b>15.8</b>	<b>6.5</b>	<b>4.6</b>	<b>3.9</b>
Frequent use	<b>3.0</b>	<b>0.0</b>	<b>1.0</b>	<b>2.5</b>	<b>0.8</b>	<b>1.1</b>
Number of students varies, but is no more than:	170	257	210	328	2,127	638

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 2-26b**  
**Ethnic Group by Binge Drinking, Alcohol Use Scale, and Drug Use Scale—Grade 8**

	Black/ African American	Asian/ Pacific Islander	American Indian/ Alaskan Native	Hispanic	White, not Hispanic	Other
Binge drink in the past two weeks	<b>14.7</b>	<b>12.5</b>	<b>28.7</b>	<b>23.7</b>	<b>17.1</b>	<b>21.5</b>
Alcohol Use Scale						
Never used	31.3	39.9	35.5	34.8	37.8	32.6
Prior use	31.3	26.2	26.2	30.7	31.8	32.3
Recent use	29.2	19.8	29.7	25.9	23.0	24.3
Frequent use	8.3	4.1	8.7	8.6	7.4	10.7
Drug Use Scale						
Never used	<b>57.2</b>	<b>74.3</b>	<b>43.4</b>	<b>66.2</b>	<b>68.6</b>	<b>57.9</b>
Prior use	<b>18.6</b>	<b>12.3</b>	<b>20.8</b>	<b>11.8</b>	<b>13.7</b>	<b>16.9</b>
Recent use	<b>17.2</b>	<b>10.8</b>	<b>25.4</b>	<b>17.9</b>	<b>12.6</b>	<b>16.3</b>
Frequent use	<b>6.9</b>	<b>2.6</b>	<b>10.4</b>	<b>4.1</b>	<b>5.1</b>	<b>8.9</b>
Number of students varies, but is no more than:	148	271	175	450	2,562	345

Note: Differences for which  $p < .01$  are in bold.



**Exhibit 2-26c**  
**Ethnic Group by Binge Drinking, Alcohol Use Scale, and Drug Use Scale—Grade 10**

	Black/ African American	Asian/ Pacific Islander	American Indian/ Alaskan Native	Hispanic	White, not Hispanic	Other
Binge drink in the past two weeks	<b>27.8</b>	<b>14.4</b>	<b>28.3</b>	<b>37.7</b>	<b>26.9</b>	<b>34.6</b>
Alcohol Use Scale						
Never used	<b>17.9</b>	<b>29.1</b>	<b>14.9</b>	<b>17.4</b>	<b>19.8</b>	<b>15.7</b>
Prior use	<b>31.7</b>	<b>39.7</b>	<b>41.5</b>	<b>31.8</b>	<b>35.9</b>	<b>27.7</b>
Recent use	<b>37.9</b>	<b>24.5</b>	<b>29.8</b>	<b>29.4</b>	<b>33.5</b>	<b>41.8</b>
Frequent use	<b>12.4</b>	<b>6.7</b>	<b>13.8</b>	<b>21.4</b>	<b>10.8</b>	<b>14.8</b>
Drug Use Scale						
Never used	<b>42.9</b>	<b>62.5</b>	<b>29.5</b>	<b>41.4</b>	<b>48.2</b>	<b>38.7</b>
Prior use	<b>22.4</b>	<b>18.6</b>	<b>28.4</b>	<b>24.9</b>	<b>25.2</b>	<b>23.9</b>
Recent use	<b>22.4</b>	<b>13.6</b>	<b>22.1</b>	<b>18.5</b>	<b>17.9</b>	<b>22.3</b>
Frequent use	<b>12.2</b>	<b>5.4</b>	<b>20.0</b>	<b>15.2</b>	<b>8.8</b>	<b>15.1</b>
Number of students varies, but is no more than:	149	283	95	301	2,751	319

Note: Differences for which  $p < .01$  are in bold.



## Chapter 3: Student Characteristics and Violence

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In 1984 the U.S. Surgeon General declared violence as much a public health issue for the nation today as smallpox, tuberculosis, and syphilis had been decades earlier. Indeed, injuries, suicide, and homicide are the leading cause of death among youth. Schools have also felt the impact of increasing violence in recent years. For example, the percentages of public secondary school teachers reporting weapons possession as a moderate or serious problem in their schools nearly doubled from 1990–91 to 1993–94 (NCES, 1996). Several Healthy People 2000 objectives relate to youth safety and violence, including:

- Reduce by 20 percent the incidence of physical fighting among adolescents aged 14 to 17.
- Reduce by 20 percent the incidence of weapon carrying among adolescents aged 14 to 17.
- Reduce by 15 percent the incidence of injurious suicide attempts among adolescents aged 14 to 19.

The results presented in this chapter detail the relationship between student characteristics and violent behaviors. A comparison of violent behaviors is made between males and females and between students in urban and rural settings. The relationship between having friends in gangs and students' own gang membership is also examined, as is the relationship between ATOD use and violent behavior.

### Gender and violence-related behaviors

**Finding:** *In general, males are more likely than females to report engaging in violence-related behaviors. Among eighth and tenth grade students, females are more likely than males to score high on a depression scale.*

Exhibit 3-1 details differences between males and females on a set of violence-related behaviors. Across the items in this table, males are more likely than females to report engaging in violence-related behaviors. Specifically males are more likely than females to have carried a weapon in the past 30 days for self-protection or because they thought they might need it in a fight, to have carried a gun or knife or other weapon to school in the past year, or to have ever belonged to a gang (except that the difference in gang membership did not exist for eighth grade students). On composite scales of violent and delinquent behavior, males are more likely than females to report "infrequent" (i.e., occurrence of one or two violent or delinquent behaviors in the past 12 months) or "frequent" (i.e., three or more violent or delinquent behaviors or a single behavior ten or more times in the past 12 months). Exhibit 3-2 illustrates the differences between males and females in their level of weapon carrying in the past 30 days. Exhibit 3-3 illustrates differences between males and females in lifetime gang membership. Einspruch (1994) also noted that males were more likely than females to have carried a weapon during the past month, to have ever carried a weapon to school, and to have been in a fight during the past year which resulted in injuries that required medical attention.

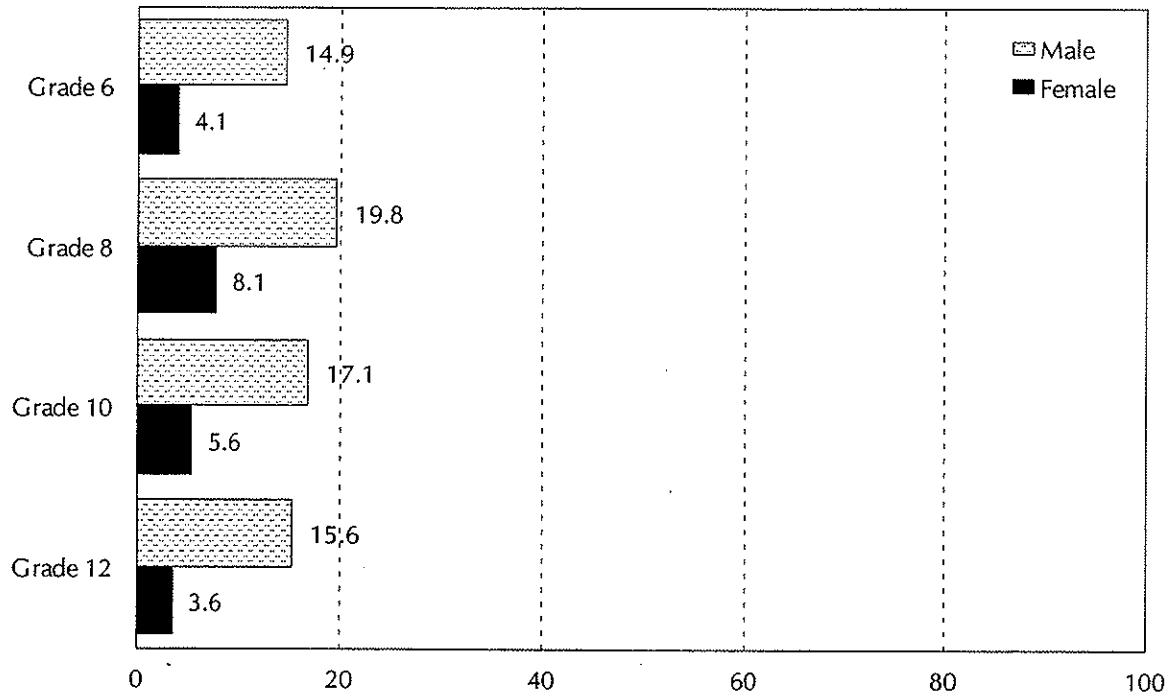
In addition, among eighth and tenth grade students, females are more likely than males to score high on a depression scale. While this scale is not a clinical assessment of depression, it does provide a sense of the extent to which students experience some depressive feelings. This is an important concern given the association between depression and suicide. In the 1995 administration of the WSSAHB (Gabriel et al., 1995), 9.8 percent of eighth grade students, 8.1 percent of tenth grade students, and 3.8 percent of twelfth grade students reported that that had made at least one suicide attempt in the past 12 months. Einspruch (1994) noted that eighth grade females were slightly more likely than males to have attempted suicide in the past year, while tenth and twelfth grade males and females were equally likely to have attempted suicide in the past year. He also noted that higher levels of alcohol or other drug use were associated with increased likelihood of suicidal ideation or attempted suicide.

**Exhibit 3-1  
Gender by Violence-Related Behaviors**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Male	Female	Male	Female	Male	Female	Male	Female
Carried a weapon in the past 30 days	<b>14.9</b>	<b>4.1</b>	<b>19.8</b>	<b>8.1</b>	<b>17.1</b>	<b>5.6</b>	<b>15.6</b>	<b>3.6</b>
Carried a gun to school in past year	<b>1.3</b>	<b>0.6</b>	<b>2.9</b>	<b>1.1</b>	<b>3.5</b>	<b>1.0</b>	<b>2.7</b>	<b>0.6</b>
Carried a knife to school in past year	<b>6.1</b>	<b>1.6</b>	<b>10.2</b>	<b>4.4</b>	<b>10.3</b>	<b>4.2</b>	<b>8.1</b>	<b>2.1</b>
Carried other weapon to school in past year	<b>4.2</b>	<b>1.4</b>	<b>6.0</b>	<b>1.6</b>	<b>6.0</b>	<b>2.2</b>	<b>5.7</b>	<b>0.8</b>
Ever belonged to a gang	<b>10.5</b>	<b>5.8</b>	12.2	11.1	<b>14.5</b>	<b>8.8</b>	<b>12.3</b>	<b>6.0</b>
Violence Behavior Scale								
None	<b>69.4</b>	<b>89.6</b>	<b>65.6</b>	<b>81.8</b>	<b>67.5</b>	<b>84.2</b>	<b>69.4</b>	<b>89.3</b>
Infrequent	<b>25.0</b>	<b>9.2</b>	<b>26.1</b>	<b>15.7</b>	<b>22.3</b>	<b>13.6</b>	<b>23.3</b>	<b>9.6</b>
Frequent	<b>5.6</b>	<b>1.3</b>	<b>8.3</b>	<b>2.5</b>	<b>10.1</b>	<b>2.3</b>	<b>7.3</b>	<b>1.2</b>
Delinquent Behavior Scale								
None	<b>82.6</b>	<b>93.3</b>	<b>68.6</b>	<b>84.0</b>	<b>71.9</b>	<b>82.5</b>	<b>69.8</b>	<b>87.8</b>
Infrequent	<b>15.2</b>	<b>5.9</b>	<b>24.4</b>	<b>12.8</b>	<b>18.3</b>	<b>13.8</b>	<b>18.3</b>	<b>9.6</b>
Frequent	<b>2.2</b>	<b>0.8</b>	<b>6.9</b>	<b>3.2</b>	<b>9.8</b>	<b>3.7</b>	<b>12.0</b>	<b>2.6</b>
Depression Scale (high on scale)	10.4	8.0	<b>7.4</b>	<b>15.9</b>	<b>5.7</b>	<b>15.4</b>	5.9	8.4
Number of students varies by substance, but is about (fewer for composite scales):	1,880	1,890	1,870	2,000	1,900	2,005	1,250	1,300

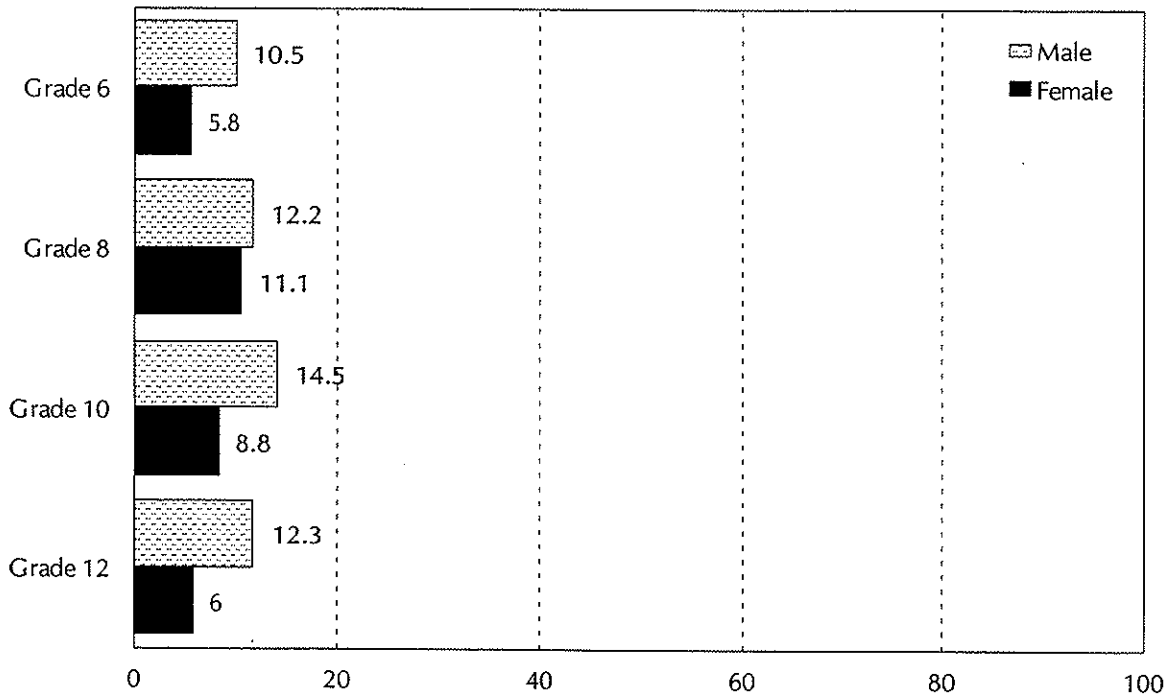
Note: Differences for which  $p < .01$  are in bold.

**Exhibit 3-2**  
**Gender by Weapon Carrying in the Past 30 Days**



Note:  $p < .01$  for all four grades.

**Exhibit 3-3**  
**Gender by Lifetime Gang Membership**



Note:  $p < .01$  for Grades 6, 10, and 12.

## Rurality and violence-related behaviors

**Finding:** *In general, students in urban and rural settings exhibit similar levels of violence-related behaviors.*

Exhibit 3-4 details the similarities in levels of violence-related behaviors between students in urban and rural settings. With only occasional exceptions at a grade level, students in urban and rural settings were equally likely to have carried a weapon in the past 30 days for self-protection or because they thought they might need it in a fight, to have carried a gun or knife or other weapon to school in the past year, to have ever belonged to a gang, or to exhibit violent or delinquent behavior as measured by composite scales. Students in urban and rural settings were also equally likely to report experiencing depressive feelings (except for a greater percentage of urban students at the tenth grade). Exhibits 3-5 and 3-6 illustrate urban and rural similarities in weapon carrying and lifetime gang membership.

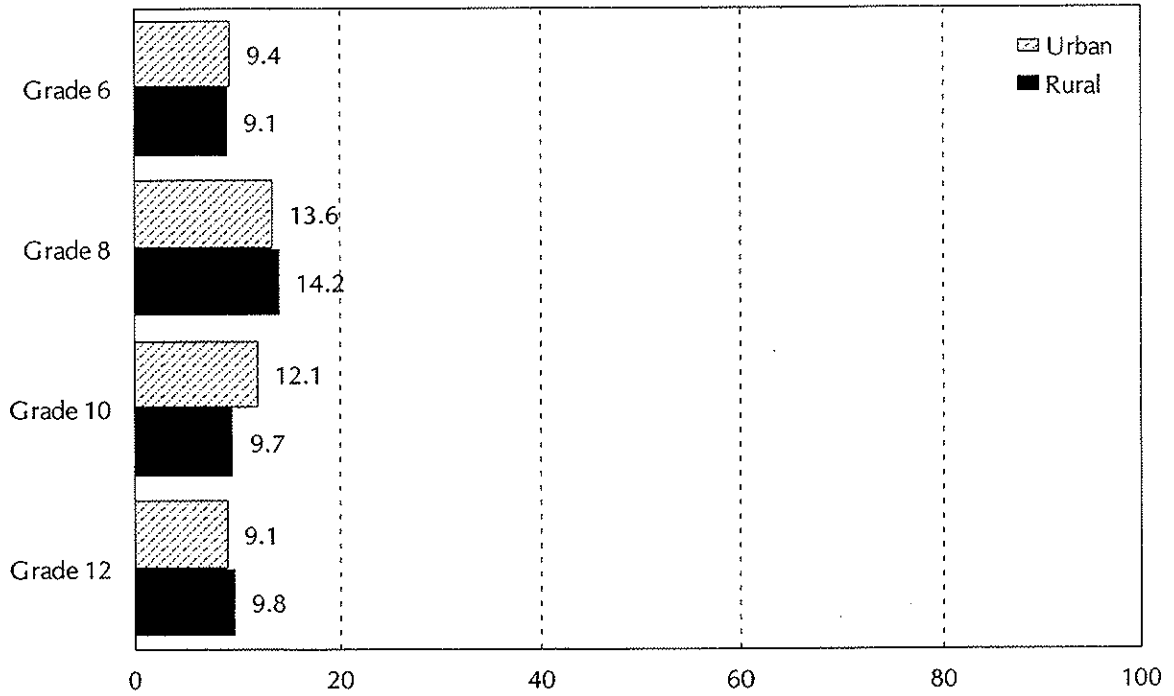
**Exhibit 3-4**  
**Urban/Rural by Violence-Related Behaviors**

	Grade 6		Grade 8		Grade 10		Grade 12	
	Urban	Rural	Urban	Rural	Urban	Rural	Urban	Rural
Carried a weapon in the past 30 days	9.4	9.1	13.6	14.2	<b>12.1</b>	<b>9.7</b>	9.1	9.8
Carried a gun on school property in past year	1.1	0.6	2.0	1.8	2.5	1.6	1.5	1.9
Carried a knife on school property in past year	4.3	2.7	7.3	7.6	7.2	7.3	4.8	5.5
Carried other weapon on school property in past year	<b>3.4</b>	<b>1.7</b>	3.8	3.8	4.1	3.8	2.8	3.7
Ever belonged to a gang	8.4	7.5	11.1	12.4	<b>12.7</b>	<b>9.7</b>	9.5	8.5
Violence Behavior Scale								
None	78.4	81.7	74.9	72.1	76.0	76.0	79.2	80.2
Infrequent	18.1	15.2	19.8	21.8	18.2	17.4	17.0	15.2
Frequent	3.5	3.1	5.3	6.1	5.8	6.6	3.8	4.6
Delinquent Behavior Scale								
None	88.1	88.2	77.3	75.4	76.9	78.1	78.9	78.9
Infrequent	10.5	10.1	18.0	18.5	16.3	15.4	14.3	13.4
Frequent	1.4	1.7	4.7	6.0	6.8	6.5	6.8	7.6
Depression Scale (high on scale)	9.0	9.5	11.0	12.9	<b>11.8</b>	<b>8.8</b>	8.2	5.8
Number of students varies by item, but is about:	2,550	1,310	2,410	1,605	2,470	1,485	1,530	1,070

Note: Differences for which  $p < .01$  are in bold.

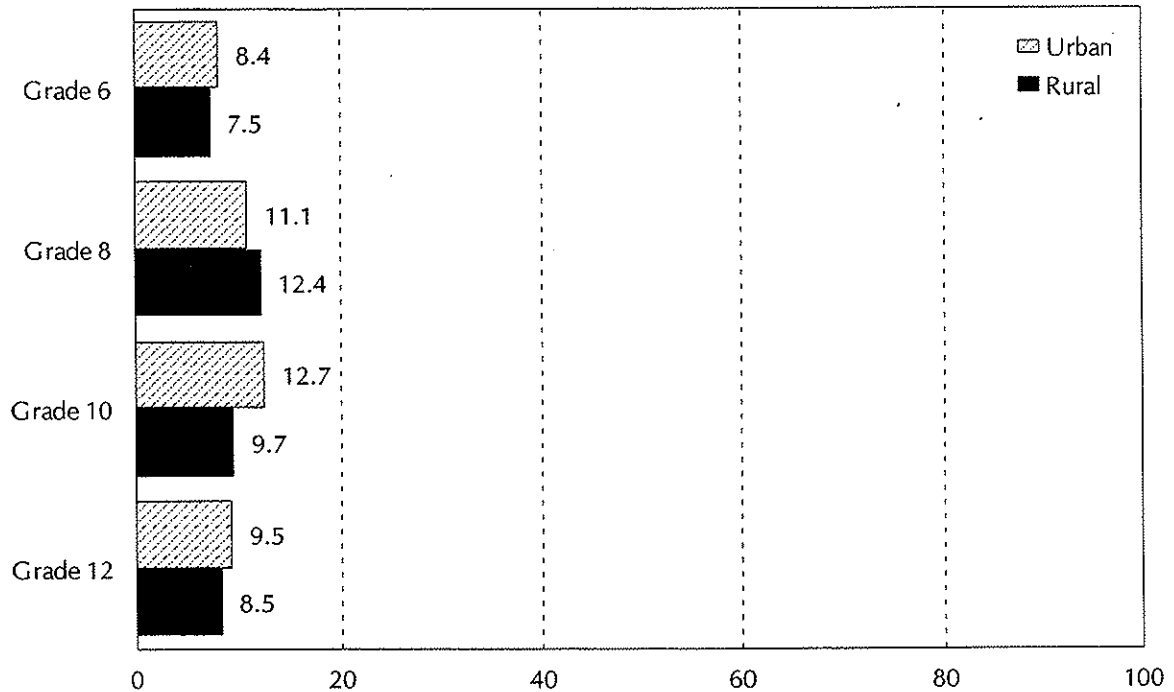


**Exhibit 3-5**  
**Urban/Rural by Weapon Carrying in the Past 30 Days**



Note:  $p < .01$  for Grade 10.

**Exhibit 3-6**  
**Urban/Rural by Lifetime Gang Membership**



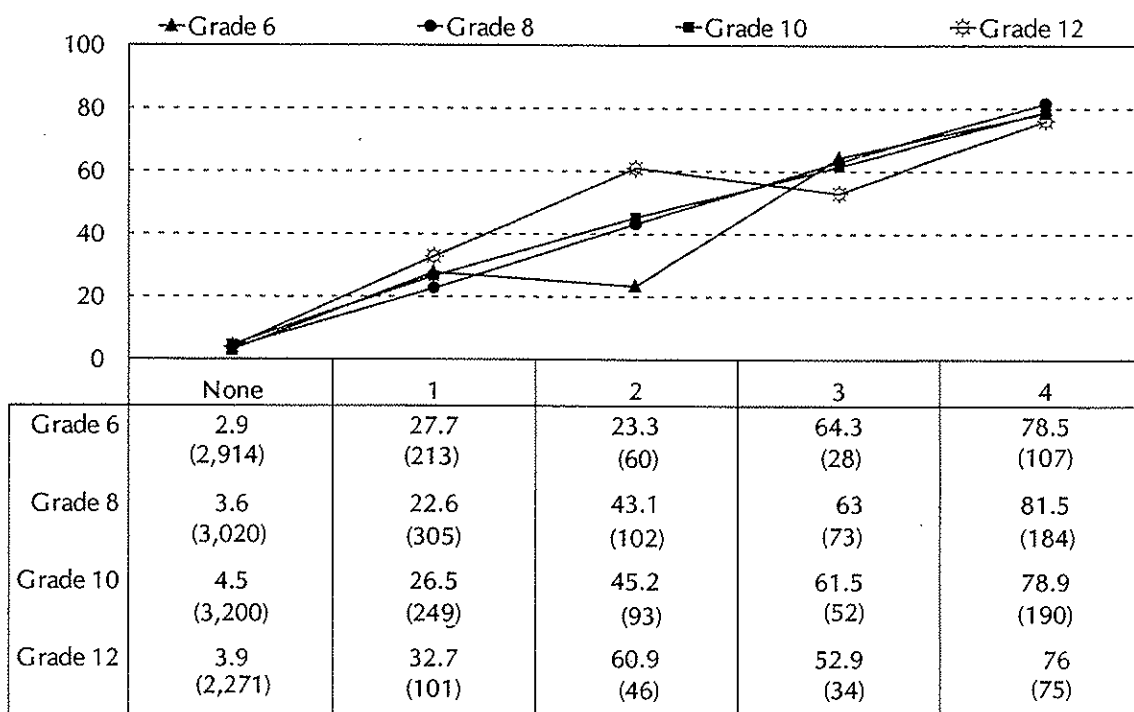
Note:  $p < .01$  for Grade 10.

## Friends in gangs and own gang membership

**Finding:** Having best friends who have been members of a gang is clearly associated with one's own lifetime gang membership.

Exhibit 3-7 illustrates the clear association between having friends who have been members of a gang and one's own lifetime gang membership. Almost none of the students who report that none of their best friends have been a member of a gang in the past 12 months report that they themselves have ever been a gang member. In contrast, the vast majority (about 80 percent) of the students who report that four of their best friends have been members of a gang in the past 12 months report that they themselves have been a gang member.

**Exhibit 3-7**  
**Lifetime Gang Membership for Students With Differing Numbers of Best Friends Who Have Belonged to a Gang in the Past 12 Months**



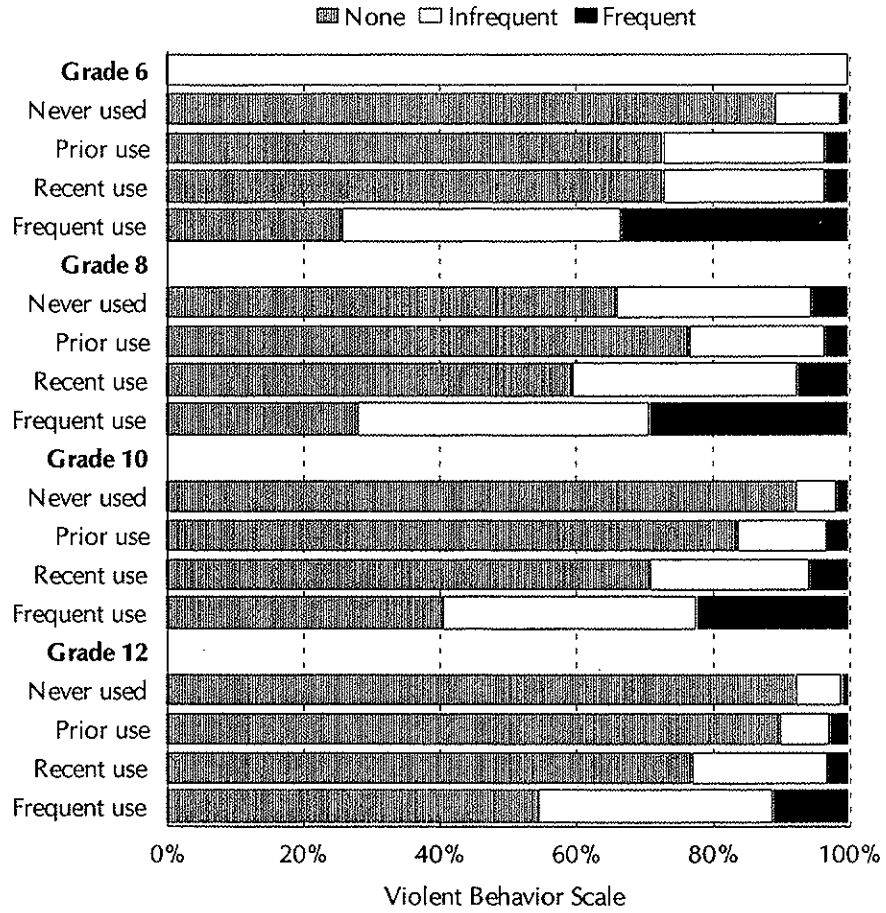
Note: Number of students with a given number of best friends appears in parentheses.  
 $p < .01$  for all four grades.

## Level of ATOD use and violence-related behavior

**Finding:** *Students who use alcohol or other drugs are more likely to engage in violent or delinquent behaviors than students who do not use alcohol or other drugs.*

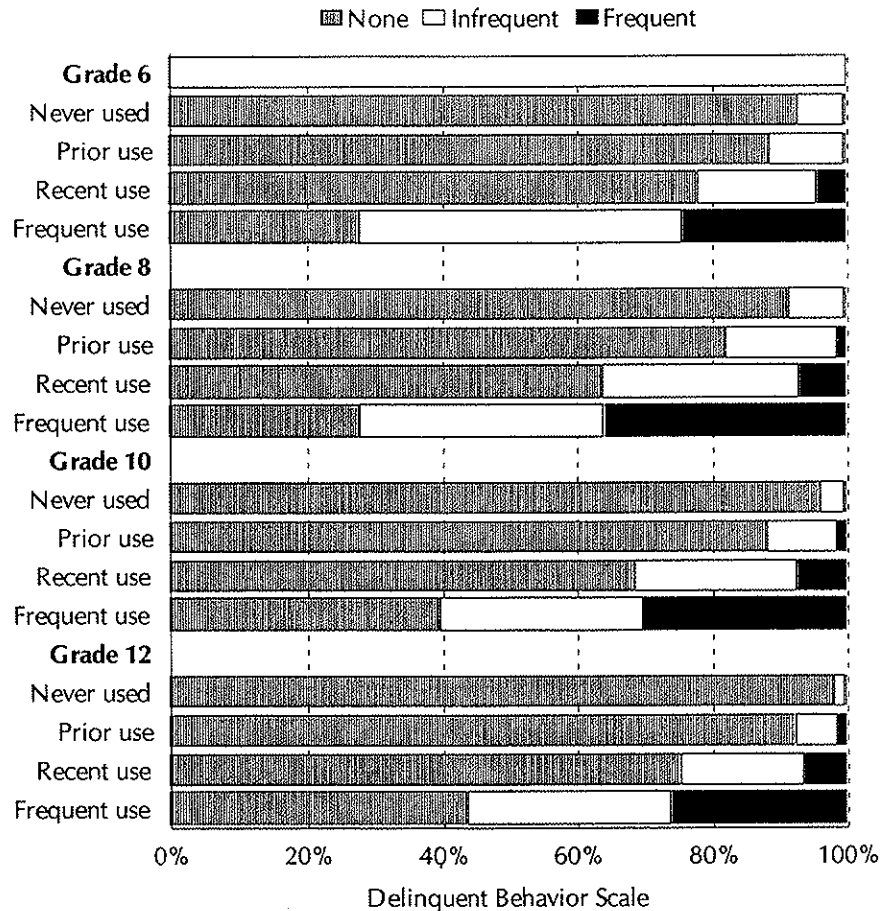
The clear relationship between the level of student ATOD use and violent and delinquent behavior is shown in Exhibits 3-8 to 3-11. Exhibit 3-8 shows that students who use alcohol are more likely to engage in violent behaviors than those who do not. For example, among twelfth grade students who have never used alcohol, 6.7 percent engage in infrequent violent behavior and 1.2 percent engage in frequent violent behavior. In contrast, among twelfth grade students who use alcohol frequently, 34.1 percent engage in infrequent violent behavior and 11.5 percent engage in frequent violent behavior. Exhibit 3-9 shows a similar relationship between alcohol use and delinquent behavior. For example, among twelfth grade students who have never used alcohol, 1.5 percent engage in infrequent delinquent behavior and 0.5 percent engage in frequent delinquent behavior. In contrast, among twelfth grade students who use alcohol frequently, 30.4 percent engage in infrequent delinquent behavior and 26.1 percent engage in frequent delinquent behavior. Einspruch (1994) also noted that higher levels of alcohol and other drug use were associated with weapon carrying in the past month and ever carrying a weapon to school.

**Exhibit 3-8**  
**Level of Alcohol Use by Level of Violent Behavior**



$p < .01$  for all four grades.

**Exhibit 3-9**  
**Level of Alcohol Use by Level of Delinquent Behavior**

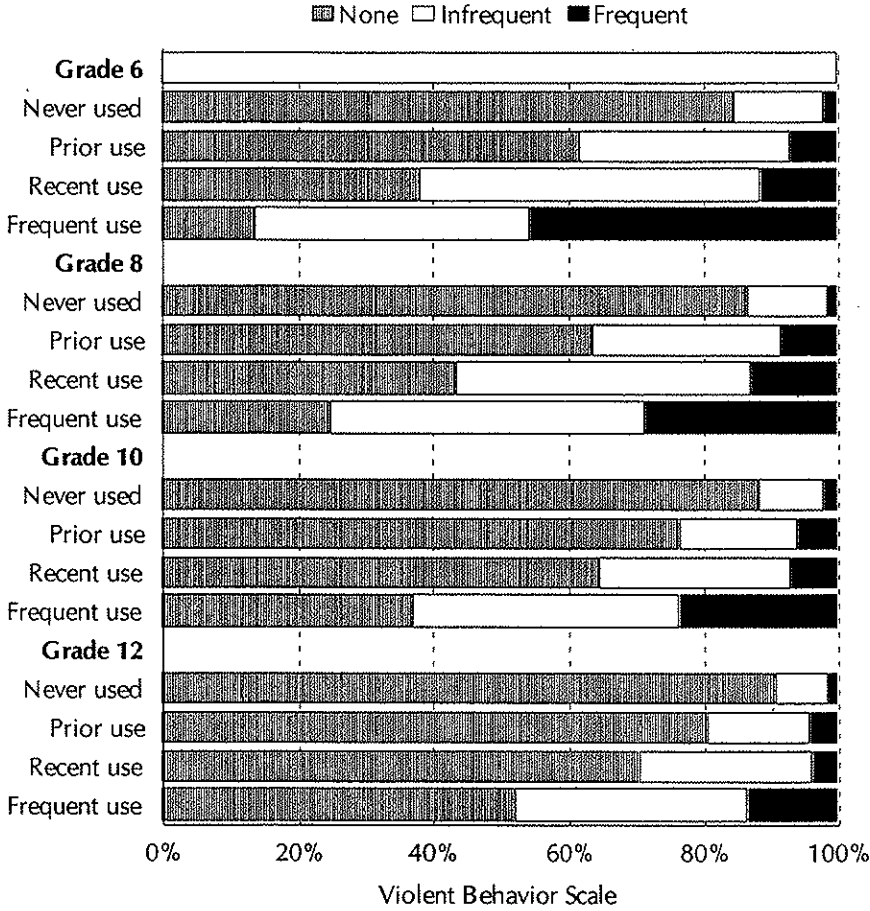


$p < .01$  for all four grades.

Exhibit 3-10 shows that students who use drugs are more likely to engage in violent behaviors than those who do not. For example, among twelfth grade students who have never used drugs, 7.6 percent engage in infrequent violent behavior and 1.6 percent engage in frequent violent behavior. In contrast, among twelfth grade students who use drugs frequently, 34.8 percent engage in infrequent violent behavior and 13.3 percent engage in frequent violent behavior. Exhibit 3-11 shows a similar relationship between drug use and delinquent behavior. For example, among twelfth grade students who have never used drugs, 11.5 percent engage in infrequent delinquent behavior and 0.5 percent

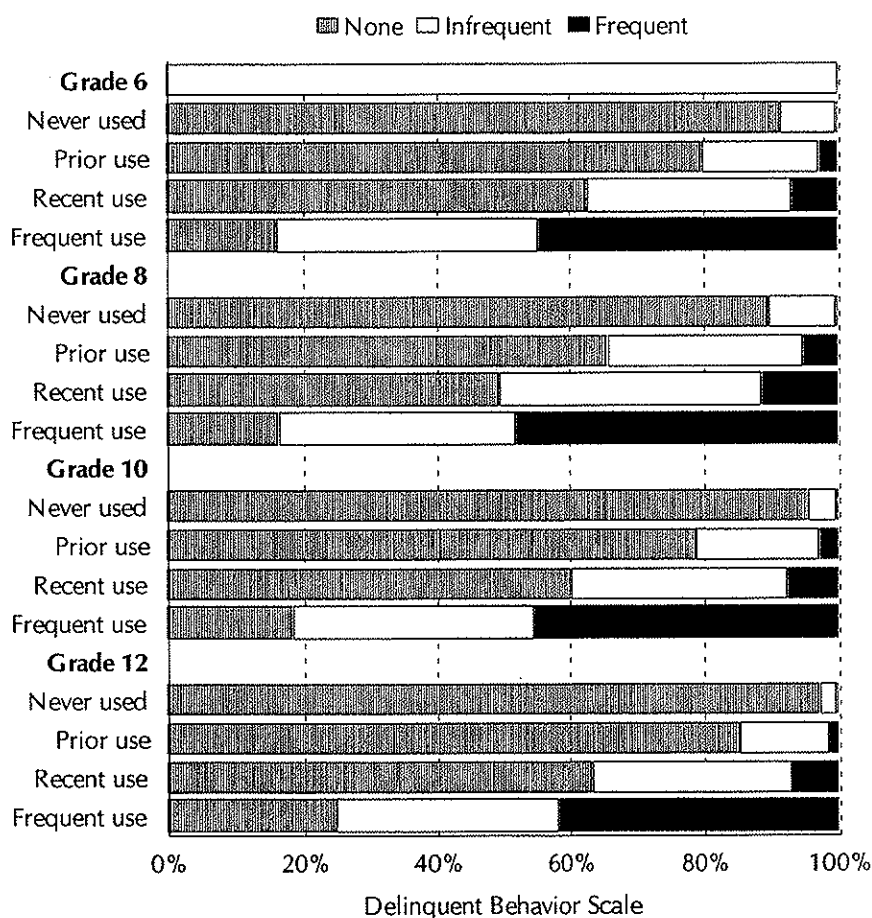
engage in frequent delinquent behavior. In contrast, among twelfth grade students who use drugs frequently, 33.7 percent engage in infrequent delinquent behavior and 41.6 percent engage in frequent delinquent behavior.

**Exhibit 3-10**  
**Level of Drug Use by Level of Violent Behavior**



$p < .01$  for all four grades.

**Exhibit 3-11**  
**Level of Drug Use by Level of Delinquent Behavior**



$p < .01$  for all four grades.

### **Ethnic group and violence-related behaviors**

Exhibit 3-12 details the results for weapon carrying, gang membership, the violent behavior scale, the delinquent behavior scale, and the depression scale for students who are members of different ethnic groups. These results varied by item and it is therefore difficult to identify a consistent pattern across the selected violence-related behaviors. For example, among sixth grade students, blacks and Native Americans were most likely to have carried a weapon in the past 30 days for self-protection or because the student thought he or she

would need it in a fight; among eighth grade students Native Americans were most likely and Hispanics were least likely to report this behavior; and among tenth grade students Hispanics were most likely and whites were least likely to report this behavior. Among sixth and eighth grade students, Native Americans were most likely and whites were least likely to report having ever been a member of a gang, while among tenth grade students Hispanics were most likely and whites were least likely to report having ever been a member of a gang. Among sixth grade students Asians and whites were most likely to report no violent or delinquent behavior, while blacks were most likely to report frequent violent behavior and Native Americans were most likely to report frequent delinquent behavior. Among eighth grade students whites were most likely to report no violent or delinquent behavior, while blacks were most likely to report frequent violent or delinquent behavior. Similar results were seen for tenth grade students, although Native Americans and Hispanics were most likely to report frequent delinquent behavior. Among sixth grade students there were no significant differences among ethnic groups on the depression scale (as defined by four items on the survey—it is not a clinical measure of depression). Among eighth grade students Native Americans were most likely and blacks were least likely to report a high score on this scale. Among tenth grade students others were most likely and whites were least likely to report a high score on this scale. Readers are again reminded that care should be taken in interpreting and generalizing from the results by ethnic group (see the caution in the introduction to this report).



**Exhibit 3-12a**  
**Ethnic Group by Violence-Related Behaviors—Grade 6**

	Black/ African American	Asian/ Pacific Islander	American Indian/ Alaskan Native	Hispanic	White, not Hispanic	Other
Carried a weapon in the past 30 days	<b>17.4</b>	<b>6.7</b>	<b>17.0</b>	<b>13.6</b>	<b>7.9</b>	<b>9.8</b>
Carried a gun to school in past year	<b>0.0</b>	<b>0.8</b>	<b>3.8</b>	<b>1.4</b>	<b>0.6</b>	<b>0.8</b>
Carried a knife to school in past year	<b>8.4</b>	<b>2.5</b>	<b>12.4</b>	<b>4.1</b>	<b>2.5</b>	<b>3.4</b>
Carried other weapon to school in past year	<b>4.2</b>	<b>2.9</b>	<b>7.1</b>	<b>5.2</b>	<b>1.6</b>	<b>4.0</b>
Ever belonged to a gang	<b>15.1</b>	<b>12.3</b>	<b>17.2</b>	<b>9.4</b>	<b>5.9</b>	<b>9.6</b>
Violent Behavior Scale						
None	<b>61.5</b>	<b>81.1</b>	<b>68.3</b>	<b>78.0</b>	<b>83.6</b>	<b>74.3</b>
Infrequent	<b>30.4</b>	<b>15.2</b>	<b>28.0</b>	<b>18.1</b>	<b>13.9</b>	<b>20.8</b>
Frequent	<b>8.1</b>	<b>3.7</b>	<b>3.8</b>	<b>4.0</b>	<b>2.5</b>	<b>4.9</b>
Delinquent Behavior Scale						
None	<b>82.2</b>	<b>94.6</b>	<b>79.1</b>	<b>84.1</b>	<b>91.1</b>	<b>82.1</b>
Infrequent	<b>14.4</b>	<b>4.5</b>	<b>16.0</b>	<b>13.4</b>	<b>7.9</b>	<b>16.2</b>
Frequent	<b>3.4</b>	<b>0.8</b>	<b>4.8</b>	<b>2.5</b>	<b>1.0</b>	<b>1.7</b>
Depression Scale (high on scale)	11.7	9.7	14.9	10.0	8.1	10.2
Number of students varies by behavior, but is no more than (fewer for composite scales):	170	257	210	328	2,127	638

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 3-12b**  
**Ethnic Group by Violence-Related Behaviors—Grade 8**

	Black/ African American	Asian/ Pacific Islander	American Indian/ Alaskan Native	Hispanic	White, not Hispanic	Other
Carried a weapon in the past 30 days	<b>16.9</b>	<b>13.4</b>	<b>22.8</b>	<b>18.7</b>	<b>11.7</b>	<b>19.3</b>
Carried a gun to school in past year	<b>5.9</b>	<b>2.3</b>	<b>0.6</b>	<b>2.4</b>	<b>1.5</b>	<b>3.4</b>
Carried a knife to school in past year	<b>7.3</b>	<b>3.9</b>	<b>9.6</b>	<b>9.8</b>	<b>6.9</b>	<b>10.2</b>
Carried other weapon to school in past year	5.9	5.4	3.0	5.7	2.8	5.6
Ever belonged to a gang	<b>16.7</b>	<b>12.9</b>	<b>28.0</b>	<b>21.3</b>	<b>7.8</b>	<b>15.0</b>
Violent Behavior Scale						
None	<b>66.7</b>	<b>72.7</b>	<b>60.8</b>	<b>71.5</b>	<b>77.1</b>	<b>64.4</b>
Infrequent	<b>20.7</b>	<b>22.3</b>	<b>32.2</b>	<b>21.7</b>	<b>18.3</b>	<b>26.1</b>
Frequent	<b>12.6</b>	<b>4.9</b>	<b>7.0</b>	<b>6.8</b>	<b>4.6</b>	<b>9.4</b>
Delinquent Behavior Scale						
None	<b>59.1</b>	<b>79.9</b>	<b>57.6</b>	<b>71.8</b>	<b>80.1</b>	<b>68.8</b>
Infrequent	<b>28.5</b>	<b>17.4</b>	<b>30.2</b>	<b>20.7</b>	<b>16.0</b>	<b>23.2</b>
Frequent	<b>12.4</b>	<b>2.7</b>	<b>12.2</b>	<b>7.5</b>	<b>4.0</b>	<b>8.0</b>
Depression Scale (high on scale)	<b>9.0</b>	<b>13.9</b>	<b>18.4</b>	<b>15.2</b>	<b>10.6</b>	<b>12.5</b>
Number of students varies by behavior, but is no more than (fewer for composite scales):	148	271	175	450	2,562	345

Note: Differences for which  $p < .01$  are in bold.

**Exhibit 3-12c**  
**Ethnic Group by Violence-Related Behaviors—Grade 10**

	Black/ African American	Asian/ Pacific Islander	American Indian/ Alaskan Native	Hispanic	White, not Hispanic	Other
Carried a weapon in the past 30 days	<b>15.8</b>	<b>10.6</b>	<b>10.8</b>	<b>20.9</b>	<b>8.6</b>	<b>20.8</b>
Carried a gun to school in past year	<b>6.5</b>	<b>2.5</b>	<b>6.5</b>	<b>6.0</b>	<b>1.2</b>	<b>3.0</b>
Carried a knife to school in past year	<b>10.9</b>	<b>5.7</b>	<b>13.9</b>	<b>14.0</b>	<b>5.8</b>	<b>10.8</b>
Carried other weapon to school in past year	<b>5.1</b>	<b>4.9</b>	<b>8.8</b>	<b>7.0</b>	<b>2.7</b>	<b>6.2</b>
Ever belonged to a gang	<b>16.2</b>	<b>12.9</b>	<b>20.9</b>	<b>22.1</b>	<b>8.8</b>	<b>17.6</b>
Violent Behavior Scale						
None	<b>68.6</b>	<b>73.9</b>	<b>66.0</b>	<b>64.7</b>	<b>79.9</b>	<b>64.7</b>
Infrequent	<b>20.0</b>	<b>21.8</b>	<b>25.5</b>	<b>24.3</b>	<b>15.4</b>	<b>24.9</b>
Frequent	<b>11.4</b>	<b>4.3</b>	<b>8.5</b>	<b>11.0</b>	<b>4.8</b>	<b>10.4</b>
Delinquent Behavior Scale						
None	<b>60.4</b>	<b>83.8</b>	<b>71.6</b>	<b>67.1</b>	<b>79.3</b>	<b>75.4</b>
Infrequent	<b>29.5</b>	<b>12.9</b>	<b>13.7</b>	<b>18.8</b>	<b>14.9</b>	<b>17.2</b>
Frequent	<b>10.1</b>	<b>3.2</b>	<b>14.7</b>	<b>14.0</b>	<b>5.8</b>	<b>7.4</b>
Depression Scale (high on scale)	<b>11.5</b>	<b>15.5</b>	<b>14.8</b>	<b>13.5</b>	<b>8.8</b>	<b>19.2</b>
Number of students varies by behavior, but is no more than (fewer for composite scales):	149	283	95	301	2,751	319

Note: Differences for which  $p < .01$  are in bold.



## Chapter 4: Working and ATOD Use

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This chapter explores the relationship between working and ATOD use and violence-related behaviors. Students work at a part-time job during the school year for a variety of reasons, whether it is to earn extra money or as a matter of economic necessity. One question on the 1998 WSSAHB asked students how many hours a week they work at a part-time job during the school year. While only 17.5 percent of sixth grade students report working at a part-time job, nearly two-thirds (62.4 percent) of twelfth grade students report working at a part-time job. Given the large number of students gaining experience in the workplace, employers of youth have an opportunity to help establish appropriate workplace norms regarding ATOD use.

### **Gender and hours worked per week**

Exhibit 4-1 details the difference between males and females in the number of hours they work each week at a part-time job. Most sixth grade students (about 80 percent) do not work, and of those who do, males and females work a similar number of hours per week. Among eighth and tenth grade students, males are more likely than females to work and are more likely to work over 20 hours per week.

**Exhibit 4-1**  
**Gender by Number of Hours Worked Per Week During the School Year**

	Don't Work	1-4 Hours	5-9 Hours	10-20 Hours	Over 20 Hours
<b>Grade 6</b>					
Male ( <i>n</i> = 1,847)	80.9	14.1	3.1	0.6	1.3
Female ( <i>n</i> = 1,882)	84.3	10.9	3.5	0.4	1.0
<b>Grade 8</b>					
Male ( <i>n</i> = 1,877)	<b>76.1</b>	<b>13.5</b>	<b>5.6</b>	<b>2.1</b>	<b>2.7</b>
Female ( <i>n</i> = 1,988)	<b>79.2</b>	<b>11.7</b>	<b>6.0</b>	<b>1.9</b>	<b>1.2</b>
<b>Grade 10</b>					
Male ( <i>n</i> = 1,903)	<b>61.7</b>	<b>11.1</b>	<b>7.4</b>	<b>13.8</b>	<b>6.0</b>
Female ( <i>n</i> = 2,011)	<b>68.6</b>	<b>8.3</b>	<b>7.3</b>	<b>13.0</b>	<b>2.8</b>
<b>Grade 12</b>					
Male ( <i>n</i> = 1,250)	<b>40.4</b>	<b>5.5</b>	<b>8.0</b>	<b>23.3</b>	<b>22.8</b>
Female ( <i>n</i> = 1,302)	<b>34.5</b>	<b>6.2</b>	<b>10.1</b>	<b>30.6</b>	<b>18.6</b>

### **Ethnic group and hours worked per week**

Exhibit 4-2 details differences among ethnic groups in the number of hours students work each week at a part-time job. Among sixth grade students most students do not work. However Asians were least likely to report that they work and students who described themselves as a member of some other ethnic group were most likely to report that they work. Among eighth grade students there were no differences among ethnic groups in the number of hours they work per week. About one-third of the tenth grade students in each ethnic group reported that they work. However Hispanics were most likely and Asians and whites were least likely to report that they work over 20 hours per week. Readers are again reminded that care should be taken in interpreting and generalizing from the results by ethnic group (see the caution in the introduction to this report).

**Exhibit 4-2**  
**Ethnic Group by Number of Hours Worked Per Week During the School Year**

	Don't Work	1-4 Hours	5-9 Hours	10-20 Hours	Over 20 Hours
<b>Grade 6</b>					
Black/African American (n = 160)	<b>78.1</b>	<b>16.9</b>	<b>3.8</b>	<b>0.0</b>	<b>1.3</b>
Asian/Pacific Islander (n = 253)	<b>88.9</b>	<b>8.7</b>	<b>1.6</b>	<b>0.8</b>	<b>0.0</b>
American Indian/Alaskan Native (n = 203)	<b>79.8</b>	<b>15.8</b>	<b>3.4</b>	<b>0.5</b>	<b>0.5</b>
Hispanic (n = 322)	<b>82.9</b>	<b>11.2</b>	<b>2.8</b>	<b>0.3</b>	<b>2.8</b>
White, not Hispanic (n = 2,099)	<b>84.2</b>	<b>11.5</b>	<b>2.6</b>	<b>0.7</b>	<b>1.0</b>
Other (n = 604)	<b>76.7</b>	<b>16.1</b>	<b>5.8</b>	<b>0.3</b>	<b>1.2</b>
<b>Grade 8</b>					
Black/African American (n = 147)	80.3	10.2	5.4	1.4	2.7
Asian/Pacific Islander (n = 270)	79.3	11.1	6.7	1.5	1.5
American Indian/Alaskan Native (n = 173)	72.3	13.9	8.1	4.0	1.7
Hispanic (n = 448)	81.9	10.9	4.0	2.0	1.1
White, not Hispanic (n = 2,537)	78.0	12.2	5.9	2.0	1.9
Other (n = 332)	69.6	17.8	6.0	2.7	3.9
<b>Grade 10</b>					
Black/African American (n = 147)	<b>66.0</b>	<b>6.8</b>	<b>6.8</b>	<b>12.2</b>	<b>8.2</b>
Asian/Pacific Islander (n = 282)	<b>68.4</b>	<b>7.1</b>	<b>7.1</b>	<b>14.2</b>	<b>3.2</b>
American Indian/Alaskan Native (n = 94)	<b>60.6</b>	<b>10.6</b>	<b>7.4</b>	<b>16.0</b>	<b>5.3</b>
Hispanic (n = 302)	<b>68.5</b>	<b>3.3</b>	<b>7.3</b>	<b>10.6</b>	<b>10.3</b>
White, not Hispanic (n = 2,739)	<b>64.2</b>	<b>10.9</b>	<b>7.7</b>	<b>13.8</b>	<b>3.5</b>
Other (n = 318)	<b>68.2</b>	<b>9.4</b>	<b>4.7</b>	<b>12.3</b>	<b>5.9</b>

### Hours worked per week and school performance

**Finding:** Students who work more than 20 hours per week are more likely than those who do not to have skipped school during the past four weeks.

Exhibit 4-3 details the percentage of students who missed school during the past four weeks, depending on how many hours they work during the week. Among students working fewer or greater hours per week, there is little difference in the percentage of

students who missed school because of illness (with the exception of students in Grade 10). However, students who work over 20 hours per week were more likely than those who do not to have skipped school during the past four weeks. Among sixth and tenth grade students, those who work more hours per week were more likely than those who work fewer hours per week to have missed school for other reasons, although this was not the case among eighth and twelfth grade students.

**Exhibit 4-3**  
**Number of Hours Worked Per Week by School Attendance in the Past Four Weeks**

	Missed School Because of Illness		Missed School Because Skipped		Missed School for Other Reasons	
<b>Grade 6</b>						
Don't work	(n = 2,987)	39.6	(n = 2,911)	<b>6.7</b>	(n = 2,964)	<b>28.6</b>
1-4 hours	(n = 444)	43.9	(n = 439)	<b>10.9</b>	(n = 444)	<b>34.5</b>
5-9 hours	(n = 116)	51.7	(n = 113)	<b>13.3</b>	(n = 115)	<b>33.9</b>
10-20 hours	(n = 21)	52.4	(n = 18)	<b>5.6</b>	(n = 20)	<b>50.0</b>
Over 20 hours	(n = 39)	41.0	(n = 36)	<b>27.8</b>	(n = 39)	<b>48.7</b>
<b>Grade 8</b>						
Don't work	(n = 3,024)	43.4	(n = 2,978)	<b>12.4</b>	(n = 2,983)	36.9
1-4 hours	(n = 479)	46.6	(n = 477)	<b>14.7</b>	(n = 481)	40.5
5-9 hours	(n = 234)	43.6	(n = 228)	<b>17.5</b>	(n = 229)	38.0
10-20 hours	(n = 83)	43.4	(n = 80)	<b>15.0</b>	(n = 81)	37.0
Over 20 hours	(n = 75)	42.7	(n = 74)	<b>24.3</b>	(n = 73)	43.8
<b>Grade 10</b>						
Don't work	(n = 2,523)	<b>41.3</b>	(n = 2,490)	<b>20.2</b>	(n = 2,516)	<b>38.9</b>
1-4 hours	(n = 372)	<b>41.4</b>	(n = 366)	<b>15.8</b>	(n = 370)	<b>45.1</b>
5-9 hours	(n = 281)	<b>43.1</b>	(n = 280)	<b>21.8</b>	(n = 284)	<b>48.2</b>
10-20 hours	(n = 508)	<b>45.7</b>	(n = 507)	<b>30.8</b>	(n = 515)	<b>48.0</b>
Over 20 hours	(n = 171)	<b>43.3</b>	(n = 170)	<b>41.2</b>	(n = 171)	<b>52.6</b>
<b>Grade 12</b>						
Don't work	(n = 949)	38.6	(n = 941)	<b>30.8</b>	(n = 947)	51.3
1-4 hours	(n = 148)	36.5	(n = 144)	<b>28.5</b>	(n = 143)	50.3
5-9 hours	(n = 228)	48.7	(n = 227)	<b>41.0</b>	(n = 230)	58.7
10-20 hours	(n = 671)	44.7	(n = 669)	<b>38.6</b>	(n = 679)	52.6
Over 20 hours	(n = 516)	46.3	(n = 511)	<b>44.2</b>	(n = 514)	54.5

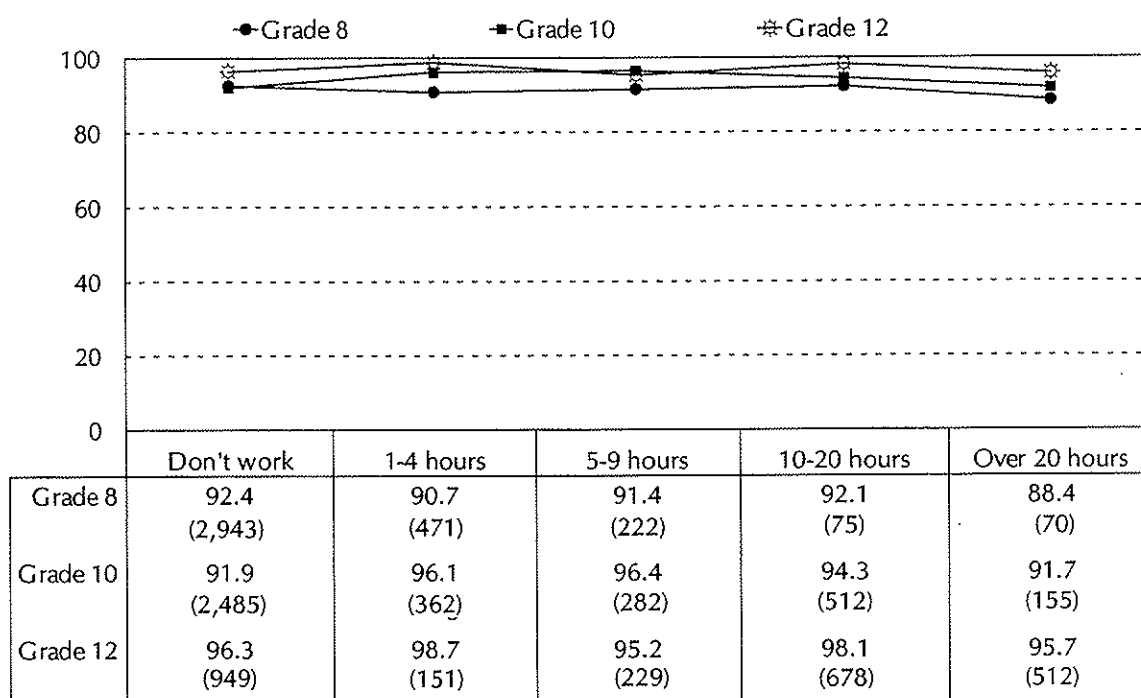
Note: Number of students working a given amount per week appears in parentheses.

Exhibit 4-4 illustrates the percentage of students who earned passing grades last year by the number of hours per week that they work during the school year. As may be seen in this



figure, virtually all students report that they earned passing grades in the past year, regardless of how much they work.

**Exhibit 4-4**  
**Number of Hours Worked Per Week by Passing Grades in School**



Note: Number of students in each age group appears in parentheses.

## Hours worked per week and ATOD use

**Finding:** Students who work a greater number of hours per week at a part-time job during the school year are more likely to have ever tried alcohol or other drugs.

Exhibit 4-5 details the lifetime prevalence of ATOD use for students who work different numbers of hours each week at a part-time job during the school year. Among sixth grade students, those who work are more likely than those who do not to report having ever tried alcohol or other drugs (readers should be cautious in interpreting the results for sixth grade students who work five or more hours per week due to the small number of students in this

category). Among older students, the greatest increase in lifetime prevalence is among those who work more than a few hours per week. The lifetime prevalence of alcohol, tobacco, and marijuana use among students who work is illustrated in Exhibits 4-6, 4-7, and 4-8.

Exhibit 4-5a

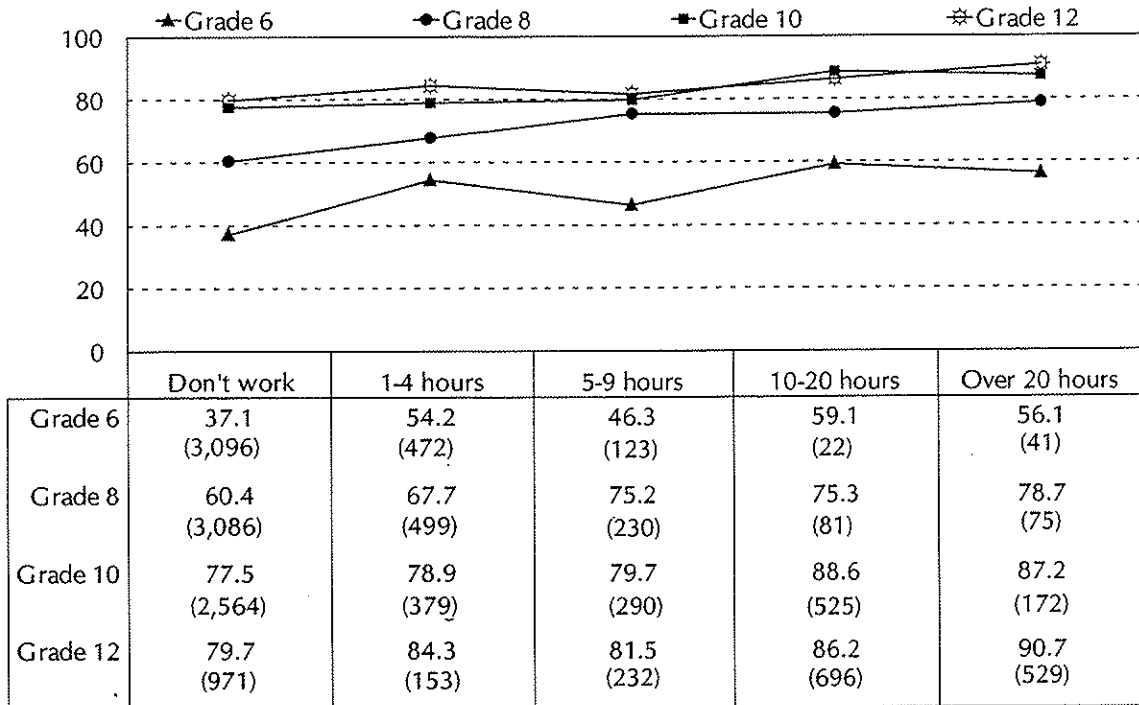
Number of Hours Worked Per Week by Lifetime ATOD Use

	Grade 6			Grade 8						
	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours
Smoking tobacco	23.1	37.1	33.3	33.3	53.5	46.4	51.0	61.5	48.2	61.0
Smokeless tobacco	6.6	13.6	11.5	18.2	19.0	13.6	17.4	19.1	19.0	30.3
Alcohol	37.1	54.2	46.3	59.1	56.1	60.4	67.7	75.2	75.3	78.7
Marijuana	5.7	11.0	11.3	19.0	23.3	26.8	29.0	39.6	28.9	46.1
Cocaine	1.8	2.3	8.1	9.1	14.0	4.7	5.6	7.3	7.2	18.4
Inhalants	5.9	10.0	13.0	22.7	32.6	13.2	15.0	17.9	21.7	33.8
Hallucinogens	1.8	4.9	7.3	4.8	9.3	7.6	10.0	13.7	13.3	22.4
Steroids	2.1	2.8	5.8	4.8	9.5	1.9	3.8	5.5	3.7	10.5
Heroin	1.1	2.4	5.8	9.5	7.3	2.0	3.2	5.6	3.6	13.7
Amphetamines	2.8	6.1	7.4	5.0	10.0	7.4	10.7	13.0	12.0	18.4
Methamphetamines	1.8	2.8	9.2	5.6	11.9	4.0	5.1	7.9	6.2	18.4
Number of students varies by substance, but is about:	3,130	475	120	20	40	3,090	500	230	80	80

**Exhibit 4-5b**  
**Number of Hours Worked Per Week by Lifetime ATOD Use**

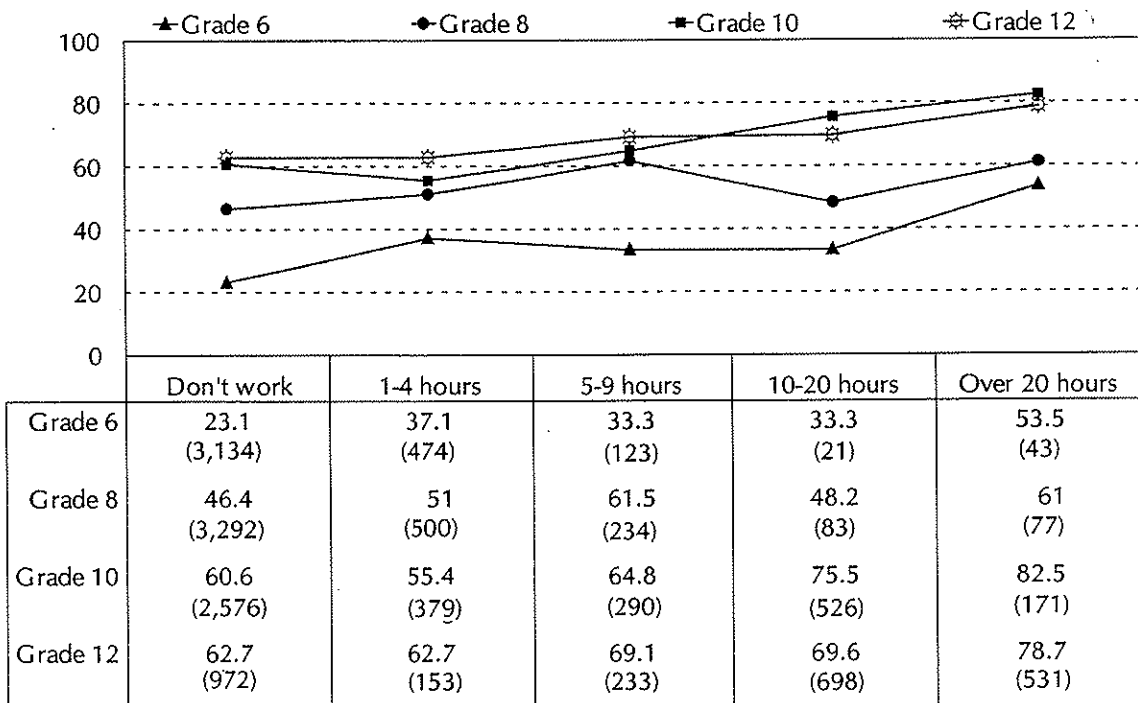
	Grade 10				Grade 12					
	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours
Smoking tobacco	60.6	55.4	64.8	75.5	82.5	62.7	62.7	69.1	69.6	78.7
Smokeless tobacco	23.4	27.5	27.7	29.5	42.1	31.0	39.9	33.5	35.6	40.0
Alcohol	77.5	78.9	79.7	88.6	87.2	79.7	84.3	81.5	86.2	90.7
Marijuana	47.1	40.4	50.2	60.8	70.0	47.5	48.0	56.5	57.5	67.5
Cocaine	9.4	4.5	12.4	8.1	20.4	10.1	5.9	6.9	7.6	14.3
Inhalants	14.6	13.8	12.8	16.7	28.1	12.6	12.5	14.1	12.0	15.7
Hallucinogens	18.0	12.2	18.3	23.5	30.2	23.1	16.3	26.5	20.5	30.2
Steroids	2.5	4.0	3.4	4.0	6.0	2.8	3.9	2.6	3.2	3.0
Heroin	3.2	3.5	4.2	4.4	13.0	4.0	0.7	3.0	3.3	4.5
Amphetamines	14.9	9.8	14.5	13.4	24.3	15.1	13.8	15.9	10.4	20.3
Methamphetamines	9.4	6.4	9.8	9.7	22.1	12.0	4.6	8.1	7.4	16.8
Number of students varies by substance, but is about:	2,575	380	290	525	170	970	150	230	700	530

**Exhibit 4-6**  
**Number of Hours Worked Per Week by Lifetime Use of Alcohol**



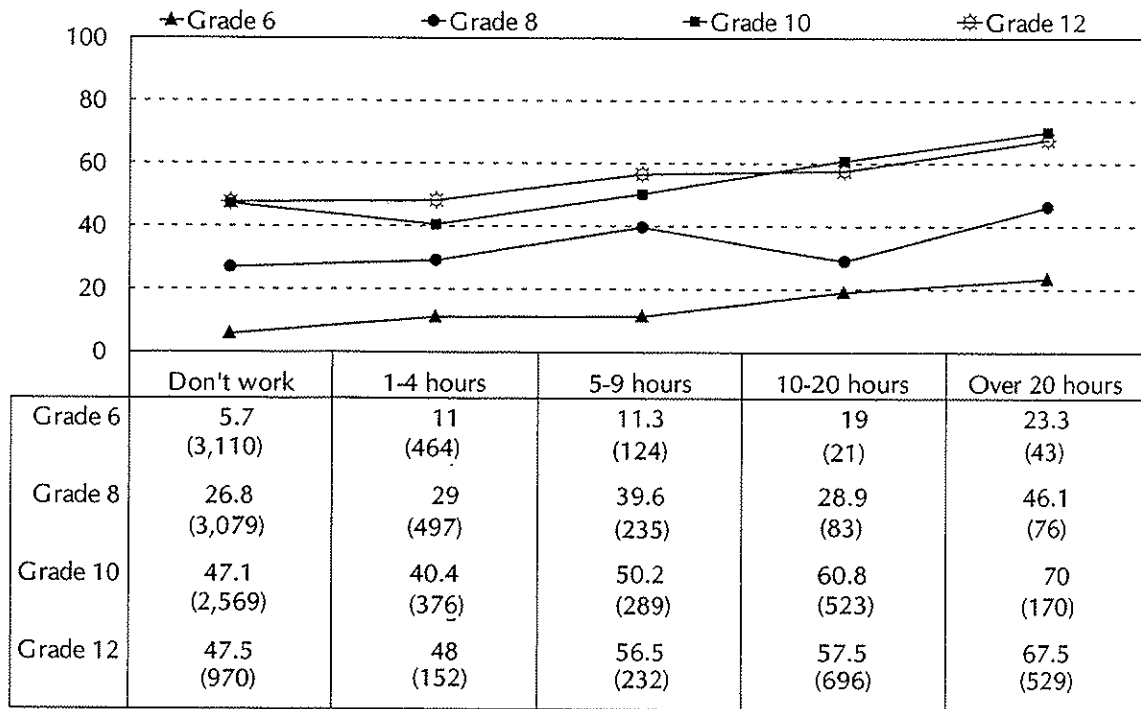
Note: Number of students working a given amount per week appears in parentheses.  
 $p < .01$  for all four grades.

**Exhibit 4-7**  
**Number of Hours Worked Per Week by Lifetime Use of Smoking Tobacco**



Note: Number of students working a given amount per week appears in parentheses.  
 $p < .01$  for all four grades.

**Exhibit 4-8**  
**Number of Hours Worked Per Week by Lifetime Use of Marijuana**



Note: Number of students working a given amount per week appears in parentheses.  
 $p < .01$  for all four grades.

**Finding:** Students who work a greater number of hours per week at a part-time job during the school year are more likely to have used alcohol or other drugs during the past 30 days.

The results for current use of alcohol and other drugs (that is, use in the past 30 days) are similar to those seen above for lifetime prevalence of ATOD use. Exhibit 4-9 details the prevalence of ATOD use in the past 30 days for students who work different numbers of hours each week at a part-time job during the school year. Among sixth grade students, those who work are more likely than those who do not to report using alcohol or other drugs during the past 30 days (readers are again cautioned in interpreting the results for

sixth grade students who work five or more hours per week due to the small number of students in these categories). Among older students, the greatest increase in prevalence of 30-day use is among those who work more than a few hours per week. The prevalence of alcohol, tobacco, and marijuana use in the past 30 days among students who work is illustrated in Exhibits 4-10, 4-11, and 4-12.

**Exhibit 4-9a**  
**Number of Hours Worked Per Week by 30-Day ATOD Use**

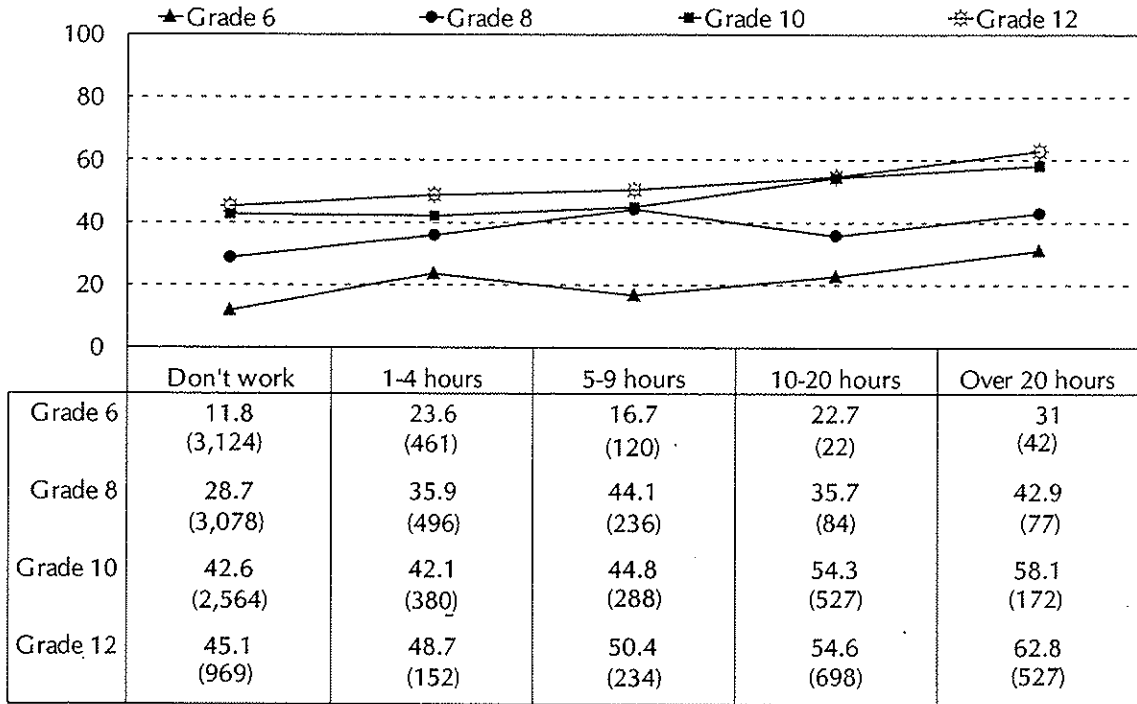
	Grade 6				Grade 8					
	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours
Smoking tobacco	3.9	7.7	7.9	20.0	29.3	14.2	16.7	18.6	15.0	30.1
Smokeless tobacco	3.2	5.6	4.2	8.7	2.4	5.7	9.2	9.0	10.7	17.1
Alcohol	11.8	23.6	16.7	22.7	31.0	28.7	35.9	44.1	35.7	42.9
Marijuana	2.7	6.2	5.0	0.0	19.5	15.7	16.9	21.3	15.7	30.3
Cocaine	0.8	0.9	2.5	0.0	7.5	2.1	2.2	4.3	2.4	14.9
Inhalants	2.7	3.7	4.2	13.6	19.0	6.1	7.1	9.0	11.9	17.6
Hallucinogens	0.7	2.2	3.4	4.5	11.6	3.3	4.2	4.3	2.4	14.9
Heroin	0.2	1.1	1.7	0.0	7.3	0.9	1.8	3.0	1.2	12.0
Amphetamines	1.1	2.0	3.4	0.0	7.3	3.5	4.5	5.7	4.8	9.5
Methamphetamine	0.7	1.1	1.6	0.0	9.8	1.9	2.6	4.3	3.6	10.7
Number of students varies by substance, but is about:	3,130	475	120	20	40	3,090	500	230	80	80



**Exhibit 4-9b**  
**Number of Hours Worked Per Week by 30-Day ATOD Use**

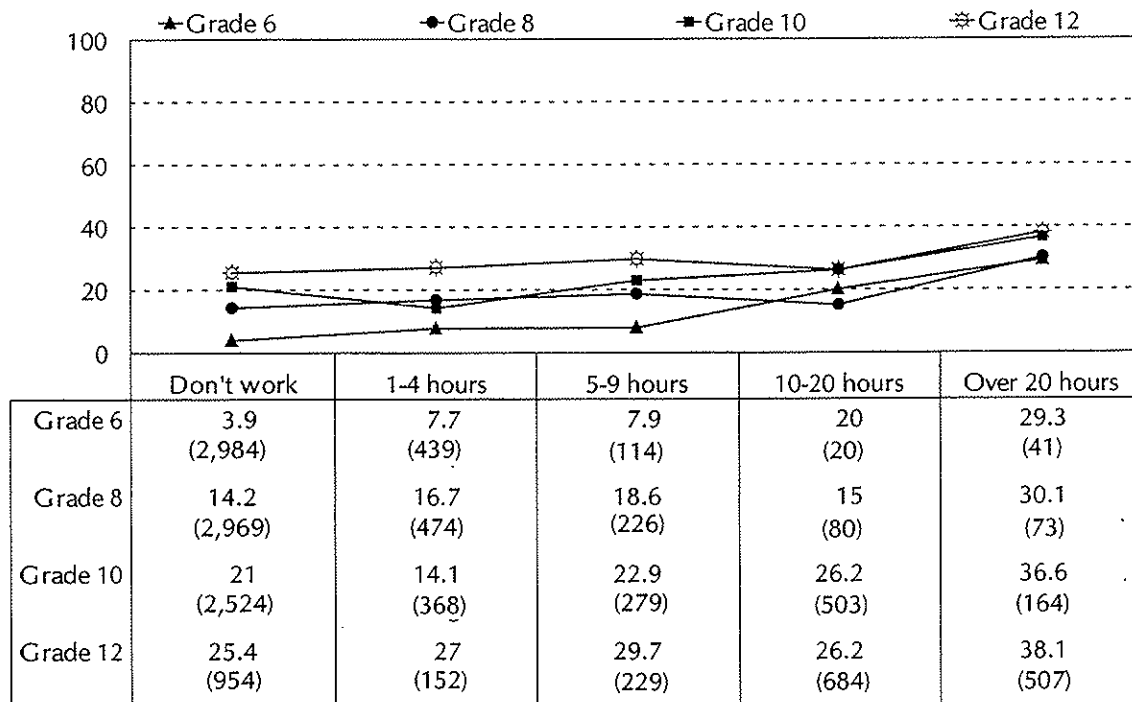
	Grade 10			Grade 12						
	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours	Don't work	1-4 hours	5-9 hours	10-20 hours	Over 20 hours
Smoking tobacco	21.0	14.1	22.9	26.2	36.6	25.4	27.0	29.7	26.2	38.1
Smokeless tobacco	8.6	11.0	8.0	9.6	24.9	10.8	9.2	9.4	12.6	17.0
Alcohol	42.6	42.1	44.8	54.3	58.1	45.1	48.7	50.4	54.6	62.8
Marijuana	25.8	19.5	25.4	32.1	40.1	26.3	24.2	26.5	27.0	38.1
Cocaine	3.0	0.3	5.6	2.7	9.9	2.8	1.3	2.1	1.4	4.7
Inhalants	3.4	3.4	3.1	4.8	8.7	2.5	1.3	1.7	1.6	3.4
Hallucinogens	5.2	3.7	6.0	8.4	11.7	6.2	3.3	5.2	4.7	9.0
Heroin	1.2	0.3	1.7	0.8	7.0	1.0	0.0	0.4	0.6	0.9
Amphetamines	5.7	2.6	5.6	5.3	13.3	3.7	2.0	2.6	2.3	6.0
Methamphetamine	3.7	1.3	4.5	4.0	9.9	2.5	1.3	2.1	1.9	5.7
Number of students varies by substance, but is about:	2,575	380	290	525	170	970	150	230	700	530

**Exhibit 4-10**  
**Number of Hours Worked Per Week by 30-Day Alcohol Use**



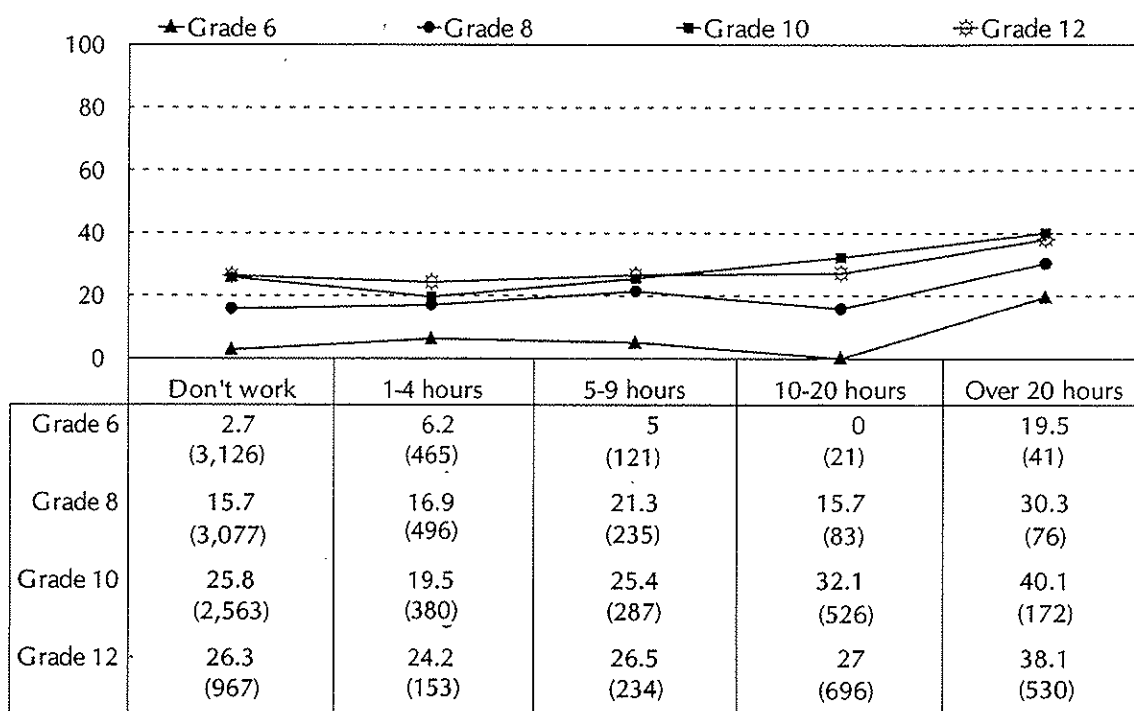
Note: Number of students working a given amount per week appears in parentheses.  
 $p < .01$  for all four grades.

**Exhibit 4-11**  
**Number of Hours Worked Per Week by 30-Day Cigarette Use**



Note: Number of students working a given amount per week appears in parentheses.  
 $p < .01$  for all four grades.

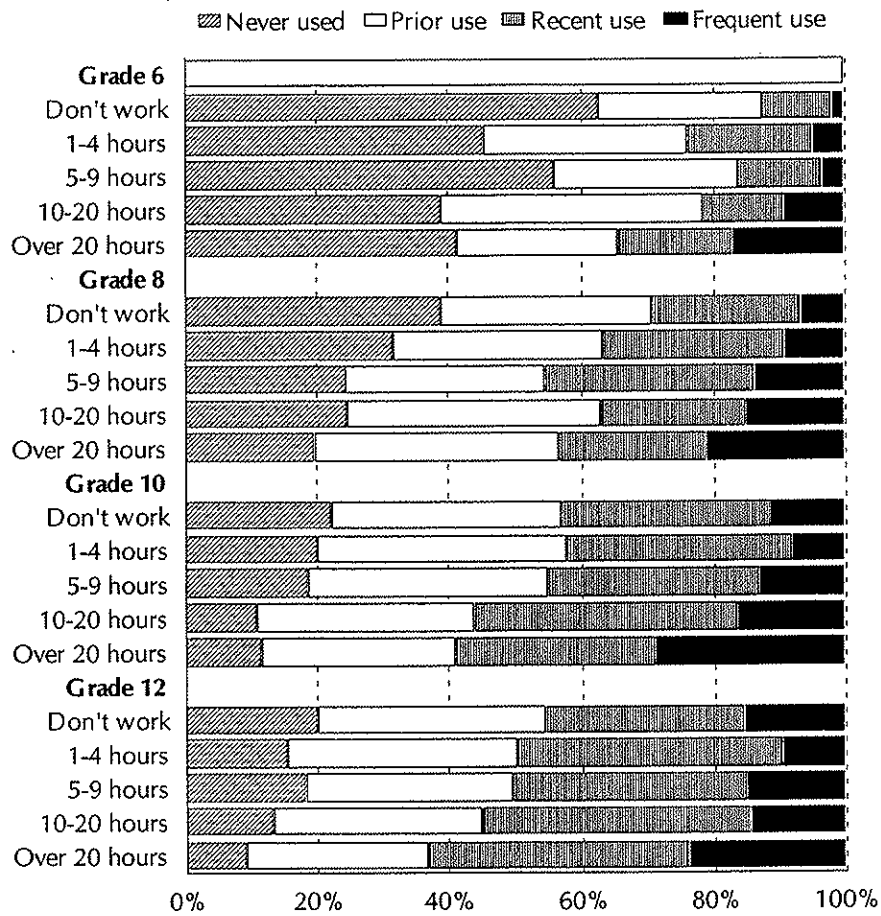
**Exhibit 4-12**  
**Number of Hours Worked Per Week by 30-Day Marijuana Use**



Note: Number of students working a given amount per week appears in parentheses.  
 $p < .01$  for all four grades.

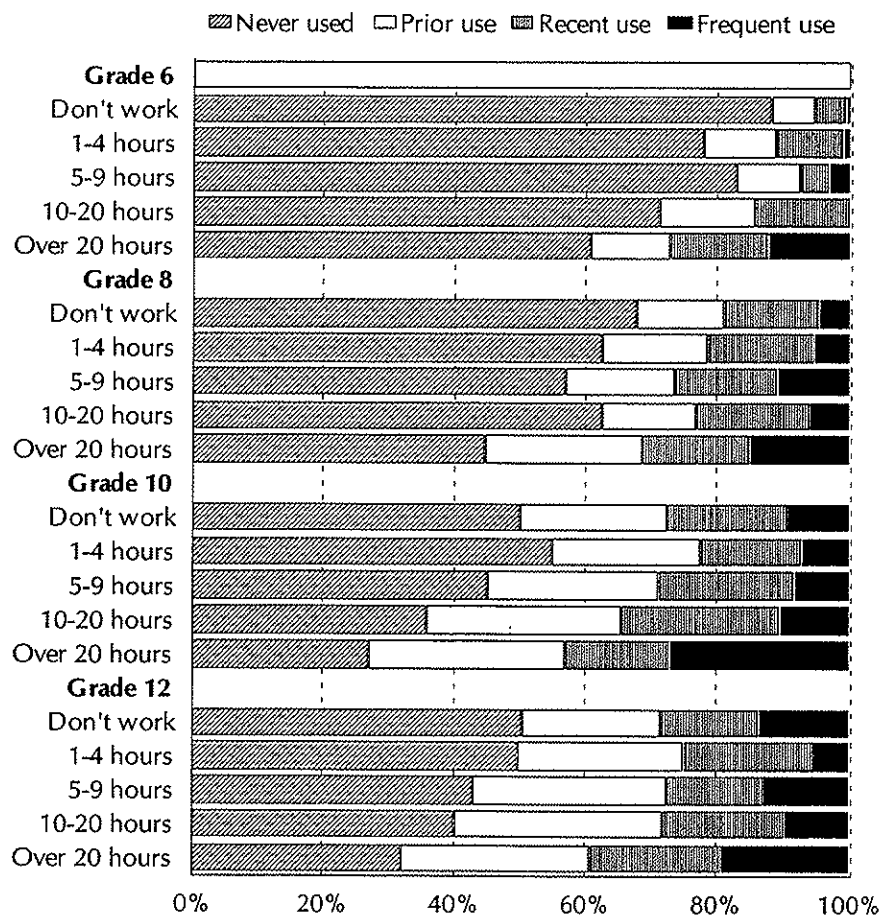
Exhibit 4-13 illustrates the level of alcohol use, as measured by the composite alcohol use scale, for students who work at a part-time job during the school year. In general, among students in all four grades, those who work differing numbers of hours show similar levels of no recent use or some recent use. However, students who work more hours, especially those who work over 20 hours per week, are more likely to report frequent alcohol use. A similar result for drug use is illustrated in Exhibit 4-14. Einspruch (1994) reported a similar finding for alcohol and drug use based on analyses of the 1992 WSSAHB. Exhibit 4-15 illustrates the level of violence-related behavior, as measured by the composite violent behavior scale, for students who work at a part-time job during the school year. As with alcohol and drug use, students who work more hours, especially those who work over 20 hours per week, are more likely to report engaging in violent behaviors frequently. A similar result for other delinquent behaviors is illustrated in Exhibit 4-16.

**Exhibit 4-13**  
**Number of Hours Worked Per Week by Level of Alcohol Use**



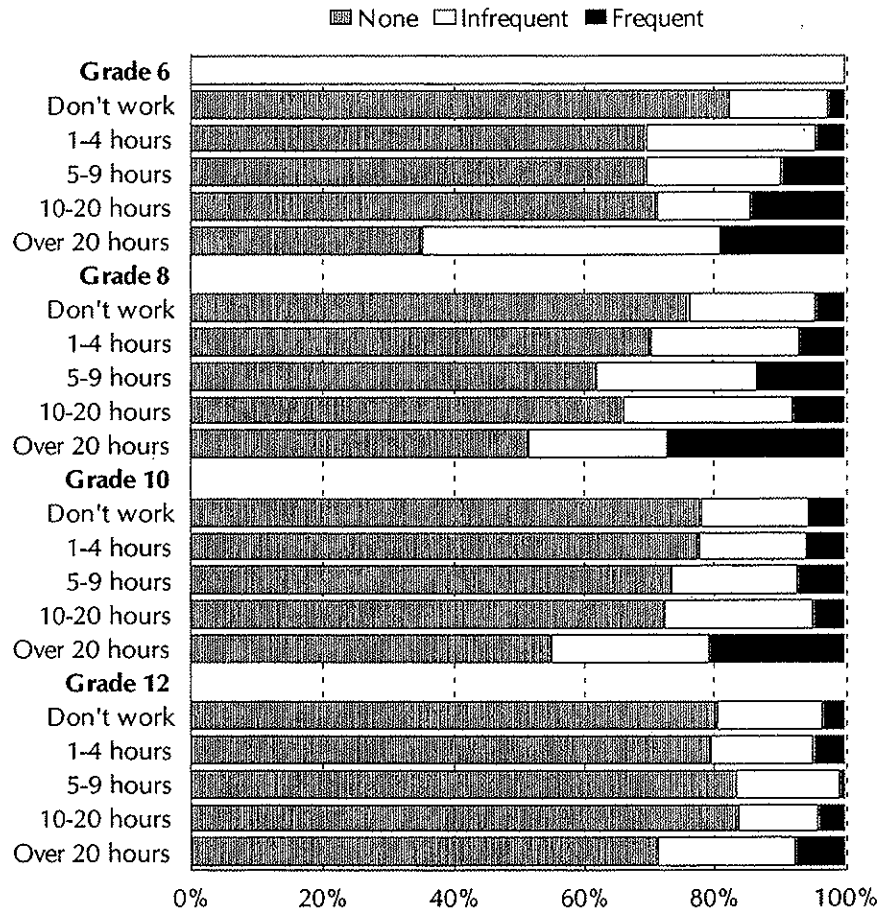
$p < .01$  for all four grades.

**Exhibit 4-14**  
**Number of Hours Worked Per Week by Level of Drug Use**



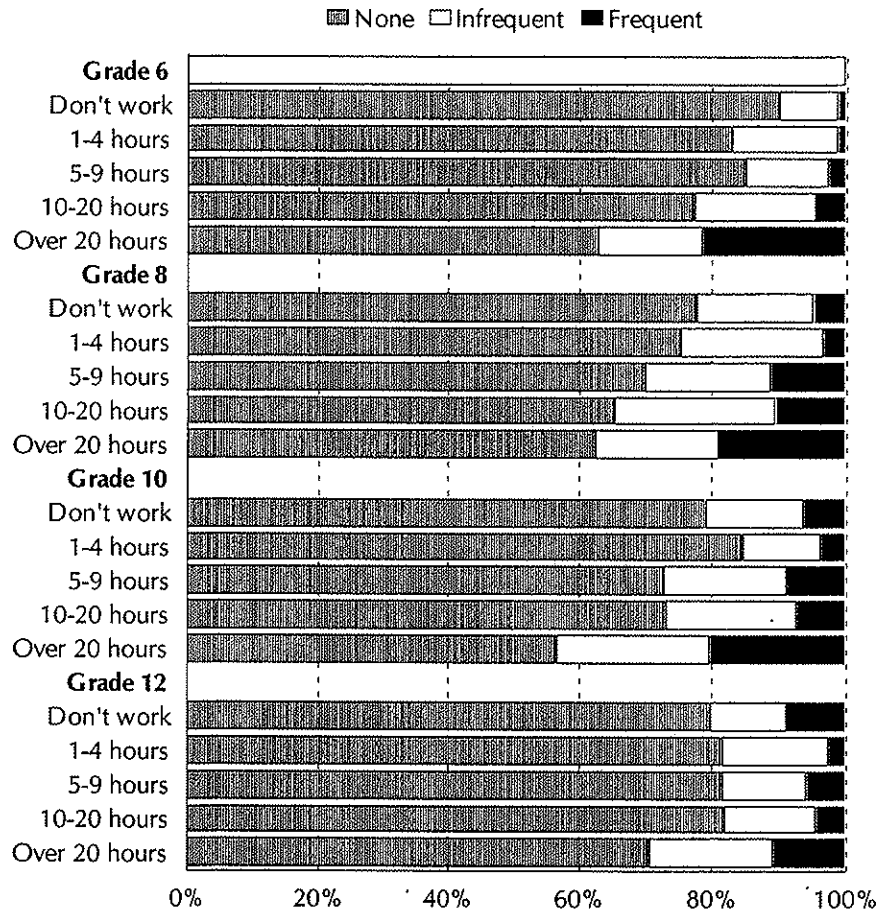
$p < .01$  for all four grades.

**Exhibit 4-15**  
**Number of Hours Worked Per Week by Level of**  
**Violent Behavior**



$p < .01$  for all four grades.

**Exhibit 4-16**  
**Number of Hours Worked Per Week by Level of**  
**Delinquent Behavior**



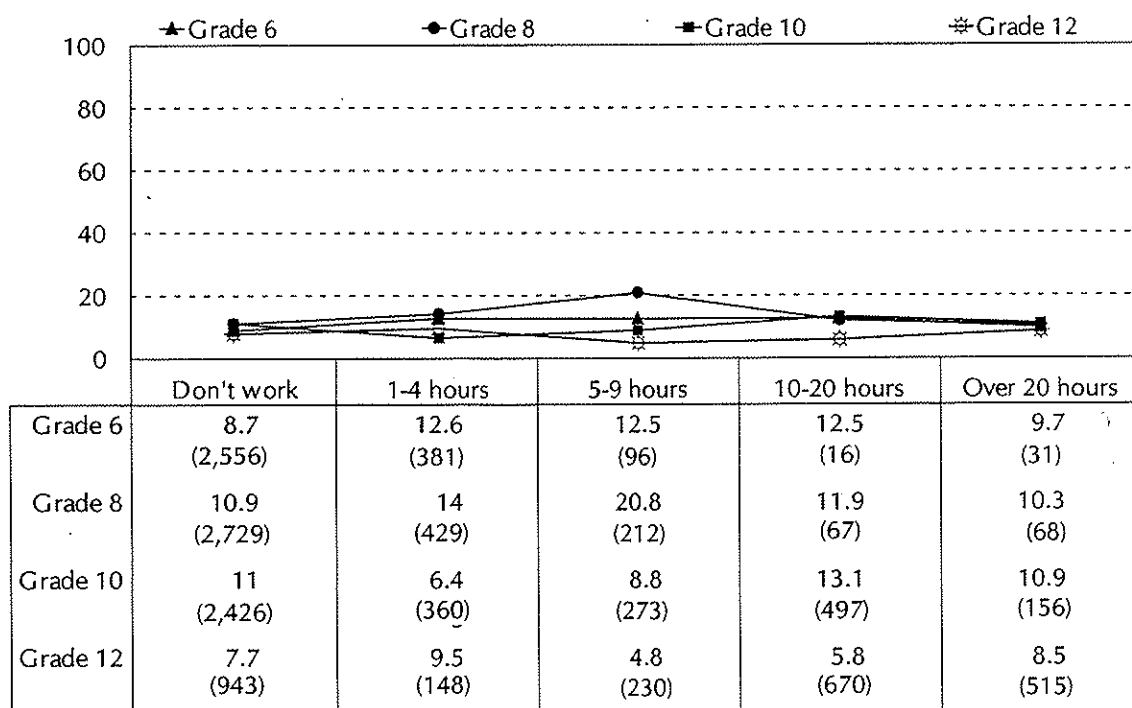
$p < .01$  for all four grades.

Exhibit 4-17 illustrates the percentage of students who scored high on a depression scale, grouped by the number of hours per week that they work at a part-time job during the school year. While this scale is not a clinical assessment of depression, it does provide a sense of the extent to which students experience some depressive feelings. Sixth, tenth, and twelfth grade students who worked differing numbers of hours per week were similar in their level of experiencing depressive feelings. However, there were differences among eighth grade students, with those who work five to nine hours per week being most likely



to score high on this scale (20.8 percent, compared to 10.9 percent of those who do not work and 10.3 percent of those who work over 20 hours per week). As mentioned above, depression is an important concern given the association between depression and suicide. In the 1995 administration of the WSSAHB (Gabriel et al., 1995), 9.8 percent of eighth grade students, 8.1 percent of tenth grade students, and 3.8 percent of twelfth grade students reported that that had made at least one suicide attempt in the past 12 months.

**Exhibit 4-17**  
**Number of Hours Worked Per Week by Depression**



Note: Number of students working a given amount per week appears in parentheses.  
 $p < .01$  for Grade 8.



## Chapter 5: Risk and Protective Factors

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The 1995 and 1998 WSSAHB included substantial coverage of risk and protective factors using standardized assessment tools developed by the Social Development Research Group at the University of Washington (Arthur, Hawkins, Catalano, and Pollard, 1998). Following the analytic report from the 1995 administration of the WSSAHB, Gabriel et al. (1997) studied in depth the relationship between risk and protective factors and health risk behaviors. This chapter replicates one set of analyses conducted and reported by Gabriel et al. (1997). By replicating these analyses one sees whether similar results emerge for a different cohort of students, and if so, one gains confidence in the validity of these results.

Some changes were made from 1995 to 1998 in the measurement of some risk and protective factors based on the work of the developers of the assessment tool. Some risk and protective factors were added, some were dropped, and some were measured by different items. Although these changes have the potential to affect the details of the results presented in this chapter, at the conceptual level it remains sensible to compare the results based on the two survey administrations.

The 1998 analytic report presented simple correlations between each risk and protective factor and the four composite health behavior scales (i.e., alcohol use scale, drug use scale, violent behavior scale, and delinquent behavior scale). These results showed the magnitude of the relationships between single risk and protective factors, in isolation of other factors, and the health behavior scales.

This chapter examines the relationship of each risk and protective factor with health behaviors in the context of all the risk and protective factors. The results allow two interpretations not available from the simple correlations provided in the analytic report. First, they provide an estimate of the full set of risk and protective factors on the behaviors under study. Second, they identify the *unique contribution* of each risk and protective

factor in predicting the health behavior (that is, they detail which factor contributes the most in predicting the health behavior, which contributes second most, and so on).

### **Analysis method: predictors and criteria**

The analyses presented in this chapter were conducted using the Multiple Linear Regression (MLR) statistical procedure. This method allows the prediction of the level of health risk behavior based on knowledge about levels of risk and protective factors. Eight variables were predicted in the analyses (i.e., criterion variables):

- |              |    |  |
|--------------|----|--|
| Alcohol use: | 1. | Alcohol use composite scale.               |
|              | 2. | Binge drinking in the past two weeks.      |
| Tobacco use: | 3. | Cigarette use in the past 30 days.         |
|              | 4. | Smokeless tobacco use in the past 30 days. |
| Drug use:    | 5. | Drug use composite scale.                  |
|              | 6. | Marijuana use in the past 30 days.         |
| Violence:    | 7. | Violent behavior composite scale.          |
|              | 8. | Weapon carrying in the past 30 days.       |

Composite scales were chosen when possible due to their superior content coverage and reliability compared to individual items (see Deck et al., 1998 for a detailed description of the content and reliability of these scales).

The multiple linear regression analyses for each criterion variable were conducted first within each risk and protective factor domain (that is, separately for community, school, and peer-individual domains). The MLR analyses were then conducted across all domains to determine if additional predictability was gained by adding the risk and protective factors from all domains rather than a single one.

The analyses were conducted by first including three student background characteristics in the predication equation: gender, ethnicity, and grade level. This had the effect of removing any predictability due to these fundamental influences before considering the influence of risk and protective factors. That is, any differences between males and females, white and nonwhite students (ethnicity was simply coded dichotomously due to the small sample sizes in some of the specific minority groups), and students in different grade levels were taken into account prior to examining the risk and protective factors. Thus, in the interpretation of the results one may say “for students of the same gender, ethnicity, and grade level the significant risk and protective influences on this criterion variable are . . .” Once these background characteristics were included in the analyses, the risk and protective factors were entered into the analyses in a stepwise fashion, in which the factor with the strongest relationship with the criterion was first entered into the prediction equation, followed by the factor that added the most to the prediction beyond the first factor, etc., until there was no statistically significant predictability added by any of the remaining risk and protective factors.

### **Peer-individual risk and protective factors**

Exhibit 5-1 details the magnitude of the multiple correlation for the two stages of the regression analyses for the eight criterion variables using the three demographic variables and the 11 risk factors and three protective factors in the peer-individual domain. The multiple correlations due to the demographic variables are shown, as well as the multiple correlations using all of the predictor variables (demographic characteristics and risk and protective factors). The squared multiple correlations are also shown, which indicate the proportion of shared variance between the predictors and criterion. The greater the squared multiple correlation, the better able we are to predict the health behavior given knowledge about demographic characteristics and risk and protective factors. A squared multiple correlation of 0 would mean that we are unable to predict the health behavior given knowledge about risk and protective factors, while a squared multiple correlation of 1 would mean that we are perfectly able to predict the health behavior given knowledge about risk and protective factors.

The current survey included 11 risk factors and three protective factors in the peer-individual domain:

***Risk factors:***

**Rebelliousness**—Young people who feel they are not part of society or are not bound by rules are at higher risk of engaging in problem behaviors.

**Early initiation of problem behavior**—Research clearly shows that the earlier an individual begins using ATOD or engaging in delinquent and violent behavior, the more likely he or she is to develop problems with the behavior in adolescence.

**Antisocial behavior**—Young people who engage in antisocial behavior are at higher risk for engaging in health risk behaviors as well.

**Attitudes favorable toward antisocial behavior**—Young people who accept or condone antisocial behavior are more likely to engage in health risk behaviors.

**Attitudes favorable toward drug use**—Young people who have positive or accepting attitudes toward drug use are more likely to engage in a variety of health risk behaviors.

**Interaction with antisocial peers**—Young people who associate with peers who engage in health risk behaviors are far more likely to engage in health risk behaviors themselves.

**Friends' use of drugs**—Young people who have friends who use drugs are more likely to engage in health risk behaviors.

**Sensation seeking**—Young people who seek out opportunities for dangerous, risky behavior in general are at higher risk for participating in health risk behaviors.

**Rewards for antisocial involvement**—Young people who believe that they are favorably perceived as a result of engaging in antisocial behavior are more likely to engage in that behavior.

**Impulsiveness**—Young people who behave impulsively are at higher risk for participating in health risk behaviors.

**Perceived risk of ATOD use**—Young people who do not perceive a risk in using ATOD are at higher risk of engaging in use.

***Protective factors:***

**Belief in the moral order**—Young people who have a belief in what is right or wrong are at lower risk for engaging in problem behaviors.

**Religiosity**—Describes the frequency with which youth attend religious services or activities.

**Social skills**—Young people who are socially competent and engage in positive interpersonal relations with their peers are less likely to participate in negative health risk behaviors.

The results in Exhibit 5-1 are quite similar to those reported by Gabriel et al. (1997), with the exception that in 1998 there was improved prediction of cigarette use and worse prediction of smokeless tobacco use. The results in this exhibit show that:

- Student drug use was the most predictable of the health behaviors, followed by alcohol use and marijuana use.
- Smokeless tobacco use was the least predictable of the health risk behaviors.
- Peer-individual risk and protective factors add four to eight times the predictability over that provided by demographics alone.

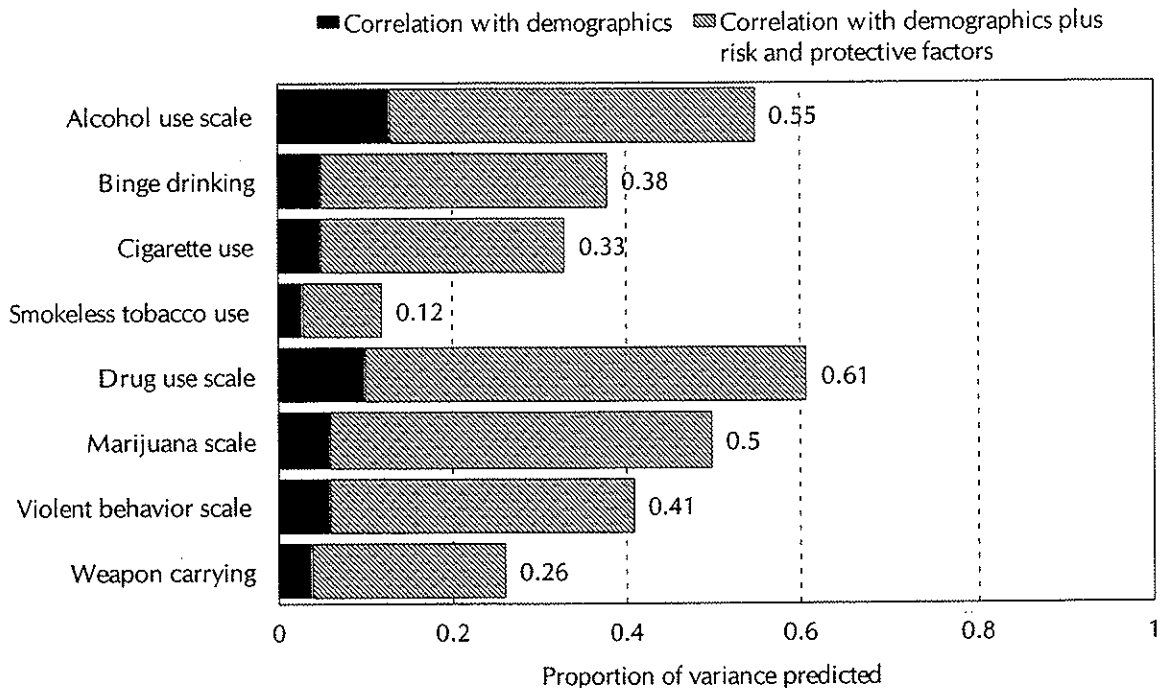
**Exhibit 5-1**  
**Magnitude of Multiple Correlations of Demographic and Risk and Protective Factors**  
**With ATOD Use and Violence in Peer-Individual Domain**

	Multiple Correlation (and R <sup>2</sup> ) with Demographics Alone	Multiple Correlation (and R <sup>2</sup> ) After Adding Risk and Protective Factors	Sample Size
Alcohol use scale	.36 (.13)	.74 (.55)	11,386
Binge drinking	.22 (.05)	.62 (.38)	11,386
30-day cigarette use	.22 (.05)	.57 (.33)	11,386
30-day smokeless tobacco use	.18 (.03)	.35 (.12)	11,386
Drug use scale	.32 (.10)	.78 (.61)	11,386
30-day marijuana use	.25 (.06)	.71 (.50)	11,386
Violent behavior scale	.24 (.06)	.64 (.41)	11,386
30-day weapon carrying	.20 (.04)	.51 (.26)	11,386

Exhibit 5-2 illustrates these relationships. The shaded area in each bar represents the proportion of variance in each health risk behavior predicted by demographic characteristics alone, and the full bar represents the total proportion of variance predicted by demographics characteristics and risk and protective factors together. This exhibit shows that having knowledge about peer-individual risk and protective factors provides more information about the likelihood of engaging in health risk behaviors than knowledge only about background characteristics.



**Exhibit 5-2**  
**Predictable Variance in Selected Health Risk Behavior Due to Demographic and Peer-Individual Risk and Protective Factors**



***Alcohol use***

Exhibit 5-3 details the results of the multiple linear regression analyses in which alcohol use is predicted from demographic characteristics and peer-individual risk and protective factors. Standardized regression weights, *t*-statistics, and significance levels are shown for the alcohol use composite scale and binge drinking. Blank entries in some of the risk and protective factors are shown when that factor was not included in the predication equation because it did not add significantly to the predictability once the other factors were included. All three demographic characteristics were included in the predication equation regardless of whether they had a significant influence in order to ensure that relationships among risk and protective factors and measures of alcohol use were assessed after taking student background characteristics into account. The results in Exhibit 5-3 show that:

- Grade level is the only demographic variable that has a significant relationship with both alcohol use and binge drinking (as in 1995). This result simply reflects the relationship that as students get older a higher percentage use alcohol and use it heavily.
- Both gender and minority status are significant predictors of alcohol use (as in 1995), indicating that females are more likely than males and whites are more likely than nonwhites to engage in alcohol use, once all other peer-individual factors are accounted for.
- In terms of risk and protective factors, the strongest predictors of alcohol use are early initiation of problem behavior, friends' use of drugs, antisocial behavior, and social skills. Gabriel et al. (1997) reported that the strongest predictors were early initiation of problem behavior, friends' use of drugs, and social skills.
- In terms of risk and protective factors, the strongest predictors of binge drinking are antisocial behavior, attitudes favorable to drug use, and belief in the moral order. Gabriel et al. (1997) reported that the strongest predictors were antisocial behavior, attitudes favorable toward drug use, and social skills.

**Exhibit 5-3**  
**Regression Weights of Demographic and Risk and Protective Factors in**  
**the Prediction of Alcohol Use**

Peer-Individual Domain

	Alcohol Use Composite			Binge Drinking		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-.06	-9.10	<b>&lt;.01</b>	-.02	-2.59	.01
Minority	-.02	-.35	<b>&lt;.01</b>	-.00	-.21	.83
Grade level	.12	16.95	<b>&lt;.01</b>	.05	5.70	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Rebelliousness						
Early initiation of problem behavior	.31	37.01	<b>&lt;.01</b>	.10	9.71	<b>&lt;.01</b>
Antisocial behavior	.13	17.19	<b>&lt;.01</b>	.24	26.54	<b>&lt;.01</b>
Attitudes favorable toward antisocial behavior				.02	2.15	<b>&lt;.01</b>
Attitudes favorable toward drug use	.10	12.31	<b>&lt;.01</b>	.16	16.60	<b>&lt;.01</b>
Interaction with antisocial peers				.09	9.53	<b>&lt;.01</b>
Friends' use of drugs	.17	20.69	<b>&lt;.01</b>	.04	3.73	<b>&lt;.01</b>
Sensation seeking	.07	9.37	<b>&lt;.01</b>	.06	7.27	<b>&lt;.01</b>
Rewards for antisocial behavior	.03	3.64	<b>&lt;.01</b>	.03	3.78	<b>&lt;.01</b>
Impulsiveness						
Perceived risk of ATOD use	.03	3.78	<b>&lt;.01</b>	.05	5.44	<b>&lt;.01</b>
Belief in the moral order (p)	-.02	-2.88	<b>&lt;.01</b>			
Social skills (p)	-.12	-14.44	<b>&lt;.01</b>	-.11	-11.56	<b>&lt;.01</b>
Religiosity (p)	-.03	-4.14	<b>&lt;.01</b>			
<b>Total Multiple Correlation (Squared)</b>		.74 (.55)			.62 (.38)	

<sup>1</sup>Statistically significant predictors (p < .01) are in bold.

***Tobacco use***

Exhibit 5-4 details the results of the MLR for cigarette and smokeless tobacco use in the past 30 days. As in 1995, these are the least predictable of the health risk behaviors presented in this report, perhaps due in part to the fact that these are single items that

measure specific behaviors (unlike the alcohol and drug use scales). The results in Exhibit 5-4 are quite similar to those reported in Gabriel et al. (1995) and show that:

- All three demographic characteristics are significant predictors of both forms of tobacco use (only gender and grade level were significant in 1995). After accounting for all other peer-individual risk and protective factors, females were more likely than males to smoke cigarettes, males were more likely than females to use smokeless tobacco, whites were more likely than nonwhites to use either form of tobacco, and older students were more likely to use either form of tobacco than younger students.
- In terms of risk and protective factors, as in 1995 the strongest predictors of cigarette use were antisocial behavior, attitudes favorable toward drug use, interaction with antisocial peers, and early initiation of problem behavior (in 1995 rewards for conventional involvement was a slightly stronger predictor than early initiation of problem behavior, but this protective factor was not included in 1998).
- In terms of risk and protective factors, as in 1995, the strongest predictor of smokeless tobacco use was antisocial behavior.

**Exhibit 5-4**  
**Regression Weights of Demographic and Risk and Protective Factors in**  
**the Prediction of 30-Day Cigarette and Smokeless Tobacco Use**

Peer-Individual Domain

	Cigarettes			Smokeless Tobacco		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-0.8	-10.31	<b>&lt;.01</b>	.07	7.29	<b>&lt;.01</b>
Minority	-.02	-2.89	<b>&lt;.01</b>	-.04	-4.80	<b>&lt;.01</b>
Grade level	.06	7.00	<b>&lt;.01</b>	.06	5.90	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Rebelliousness						
Early initiation of problem behavior	.12	11.23	<b>&lt;.01</b>	.07	6.16	<b>&lt;.01</b>
Antisocial behavior	.21	22.39	<b>&lt;.01</b>	.13	12.45	<b>&lt;.01</b>
Attitudes favorable toward antisocial behavior						
Attitudes favorable toward drug use	.21	20.55	<b>&lt;.01</b>	.07	6.11	<b>&lt;.01</b>
Interaction with antisocial peers	.11	11.66	<b>&lt;.01</b>	.07	6.72	<b>&lt;.01</b>
Friends' use of drugs	.03	2.41	<b>&lt;.01</b>			
Sensation seeking	.02	2.31	<b>&lt;.01</b>	.03	2.67	<b>&lt;.01</b>
Rewards for antisocial behavior				-.02	-2.00	.05
Impulsiveness	.02	2.13	<b>&lt;.01</b>			
Perceived risk of ATOD use	.04	4.39	<b>&lt;.01</b>	.03	3.21	<b>&lt;.01</b>
Belief in the moral order (p)	.03	3.65	<b>&lt;.01</b>	.02	2.19	.03
Social skills (p)	-.05	-5.02	<b>&lt;.01</b>	-.07	-6.06	<b>&lt;.01</b>
Religiosity (p)	-.04	-4.42	<b>&lt;.01</b>			
<b>Total Multiple Correlation (Squared)</b>	<b>.57 (.33)</b>			<b>.35 (.12)</b>		

<sup>1</sup>Statistically significant predictors (p < .01) are in bold.

**Drug use**

Exhibit 5-5 details the results of the MLR for the drug use scale and 30-day marijuana use. As in 1995, drug use is the most predictable of the health risk behaviors presented in this report. As shown in Exhibits 5-1 and 5-2, a full 61 percent of the variance in drug use is predicted through information provided by risk and protective factors (in 1995 an almost

identical result was shown: 58 percent of the variance in drug use was predicted through information provided by risk and protective factors). The results in Exhibit 5-5 are quite similar to those reported in Gabriel et al. (1997) and show that:

- Gender and grade level are significant predictors of both the drug use scale and marijuana use (in 1995 gender was only predictive of drug use). Once all risk and protective factors are taken into account, females are more likely than males and older students are more likely than younger students to use drugs.
- As in 1995, the strongest predictors of drug use were early initiation of problem behavior, antisocial behavior, attitudes favorable toward drug use, and interaction with antisocial peers.
- As in 1995, the strongest predictors of marijuana use were antisocial behavior, attitudes favorable toward drug use, and interaction with antisocial peers.

**Exhibit 5-5**  
**Regression Weights of Demographic and Risk and Protective Factors in**  
**the Prediction of Drug Use**

Peer-Individual Domain

	Drug Use Composite			30-Day Marijuana Use		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	<b>-.07</b>	<b>-11.30</b>	<b>&lt;.01</b>	<b>-.05</b>	<b>-7.38</b>	<b>&lt;.01</b>
Minority	-.00	-.48	.63	-.00	-.62	.53
Grade level	<b>.08</b>	<b>11.53</b>	<b>&lt;.01</b>	<b>.08</b>	<b>10.67</b>	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Rebelliousness	<b>-.02</b>	<b>-3.15</b>	<b>&lt;.01</b>	<b>-.04</b>	<b>-4.58</b>	<b>&lt;.01</b>
Early initiation of problem behavior	<b>.28</b>	<b>35.73</b>	<b>&lt;.01</b>	<b>.07</b>	<b>8.34</b>	<b>&lt;.01</b>
Antisocial behavior	<b>.25</b>	<b>34.23</b>	<b>&lt;.01</b>	<b>.39</b>	<b>47.78</b>	<b>&lt;.01</b>
Attitudes favorable toward antisocial behavior	-.01	2.01	.05	-.03	-3.66	<b>&lt;.01</b>
Attitudes favorable toward drug use	<b>.19</b>	<b>24.48</b>	<b>&lt;.01</b>	<b>.22</b>	<b>24.84</b>	<b>&lt;.01</b>
Interaction with antisocial peers	<b>.10</b>	<b>13.04</b>	<b>&lt;.01</b>	<b>.14</b>	<b>17.08</b>	<b>&lt;.01</b>
Friends' use of drugs	<b>.07</b>	<b>9.26</b>	<b>&lt;.01</b>			<b>&lt;.01</b>
Sensation seeking	<b>.04</b>	<b>6.40</b>	<b>&lt;.01</b>	<b>.04</b>	<b>4.52</b>	<b>&lt;.01</b>
Rewards for antisocial behavior	.02	2.54	.01			
Impulsiveness						
Perceived risk of ATOD use	<b>.07</b>	<b>11.02</b>	<b>&lt;.01</b>	<b>.07</b>	<b>8.59</b>	<b>&lt;.01</b>
Belief in the moral order (p)			<b>&lt;.01</b>	<b>.03</b>	<b>3.81</b>	<b>&lt;.01</b>
Social skills (p)	<b>-.07</b>	<b>-9.73</b>	<b>&lt;.01</b>	<b>-.05</b>	<b>-6.33</b>	<b>&lt;.01</b>
Religiosity (p)	<b>-.03</b>	<b>-5.11</b>	<b>&lt;.01</b>	<b>-.03</b>	<b>-4.32</b>	<b>&lt;.01</b>
<b>Total Multiple Correlation (Squared)</b>		<b>.78 (.61)</b>			<b>.71 (.50)</b>	

<sup>1</sup>Statistically significant predictors ( $p < .01$ ) are in bold.

***Violent behavior***

Exhibit 5-6 details the results of the MLR for the violent behavior scale and 30-day weapon carrying. Again, the composite index is more highly predictable than the single behavior, since it includes several different related behaviors. The results in Exhibit 5-6 are quite similar to those reported in Gabriel et al. (1997) and show that:

- All three demographic variables are significant predictors of violent behavior and weapon carrying once risk and protective factors are taken into account (only gender and grade level were significant predictors in 1995). Males are more likely than females, nonwhites are more likely than whites, and younger students are more likely than older students to engage in violent behavior or weapon carrying.
- In terms of risk and protective factors, the strongest predictors in both 1995 and 1998 are antisocial behavior, early initiation of problem behavior, and attitudes favorable toward antisocial behavior.
- In both 1995 and 1998 the strongest predictors of weapon carrying are antisocial behavior and attitudes favorable toward antisocial behavior.



**Exhibit 5-6**  
**Regression Weights of Demographic and Risk and Protective Factors in**  
**the Prediction of Violent Behavior and Weapon Carrying**

Peer-Individual Domain

	Violent Behavior			Weapon Carrying		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	.13	17.54	<b>&lt;.01</b>	.12	14.00	<b>&lt;.01</b>
Minority	.03	4.60	<b>&lt;.01</b>	.04	4.40	<b>&lt;.01</b>
Grade level	-.10	-12.60	<b>&lt;.01</b>	-.09	-9.60	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Rebelliousness	.05	6.36	<b>&lt;.01</b>			
Early initiation of problem behavior	.16	17.82	<b>&lt;.01</b>	.08	7.55	<b>&lt;.01</b>
Antisocial behavior	.34	38.48	<b>&lt;.01</b>	.24	23.80	<b>&lt;.01</b>
Attitudes favorable toward antisocial behavior	.14	16.63	<b>&lt;.01</b>	.15	15.87	<b>&lt;.01</b>
Attitudes favorable toward drug use	-.07	-7.04	<b>&lt;.01</b>	-.03	-2.43	.02
Interaction with antisocial peers	.10	11.45	<b>&lt;.01</b>	.10	9.77	<b>&lt;.01</b>
Friends' use of drugs				.03	2.82	<b>&lt;.01</b>
Sensation seeking	.04	5.20	<b>&lt;.01</b>	.03	2.66	<b>&lt;.01</b>
Rewards for antisocial behavior	.02	3.11	<b>&lt;.01</b>	.04	4.74	<b>&lt;.01</b>
Impulsiveness	.03	4.29	<b>&lt;.01</b>	.04	4.11	<b>&lt;.01</b>
Perceived risk of ATOD use				-.02	-2.45	.01
Belief in the moral order (p)	-.02	-2.68	<b>&lt;.01</b>			
Social skills (p)	-.03	-3.23	<b>&lt;.01</b>	-.06	-5.52	<b>&lt;.01</b>
Religiosity (p)	.02	2.44	.02	.02	2.16	.03
<b>Total Multiple Correlation (Squared)</b>		<b>.64 (.41)</b>			<b>.51 (.26)</b>	

<sup>1</sup>Statistically significant predictors (p < .01) are in bold.

### Community risk and protective factors

Exhibit 5-7 details the magnitude of the multiple correlation for the two stages of the regression analyses for the eight criterion variables using the three demographic variables and the six risk factors and two protective factors in the community domain. As in the previous section, the multiple correlations due to the demographic variables are shown, as

well as the multiple correlations using all of the predictor variables (demographic characteristics and risk and protective factors). The squared multiple correlations are also shown, which indicate the proportion of shared variance between the predictors and criterion.

The survey assessed six risk factors and two protective factors in the community domain. For purposes of this report, they are described briefly as follows:

***Risk factors:***

**Low neighborhood attachment**—describes the extent to which students feel a part of the neighborhood in which they live; whether they feel what they do there makes a difference in their lives.

**Community disorganization**—describes the extent to which people in the community take part in important decisions or processes that affect their lives.

**Personal transitions and mobility**—describes the extent to which a person has changed homes or schools.

**Laws and norms favorable toward drug use**—describes policies a community holds in relation to health and problem behaviors which are communicated in a variety of ways—through laws, social practices, and expectations.

**Perceived availability of ATOD and firearms**—describes the perception of availability or access to alcohol, drugs, or firearms.

**Community transitions and mobility**—describes the extent to which individuals in a community move frequently.

***Protective factors:***

**Opportunities for positive involvement**—describes opportunities to participate meaningfully in activities in the community.

**Rewards for conventional involvement**—describes rewards for positive participation in activities.

The results in Exhibit 5-7 are quite similar to those reported by Gabriel et al. (1997), with the exception that in 1998 there was a decrease in the multiple correlation with 30-day smokeless tobacco use. The results in this exhibit show that:

- Student drug use was the most predictable of the health behaviors, followed by alcohol use, marijuana use, and violent behavior.
- Smokeless tobacco use was the least predictable of the health risk behaviors.
- Community risk and protective factors add two to three times the predictability over that provided by demographics alone.

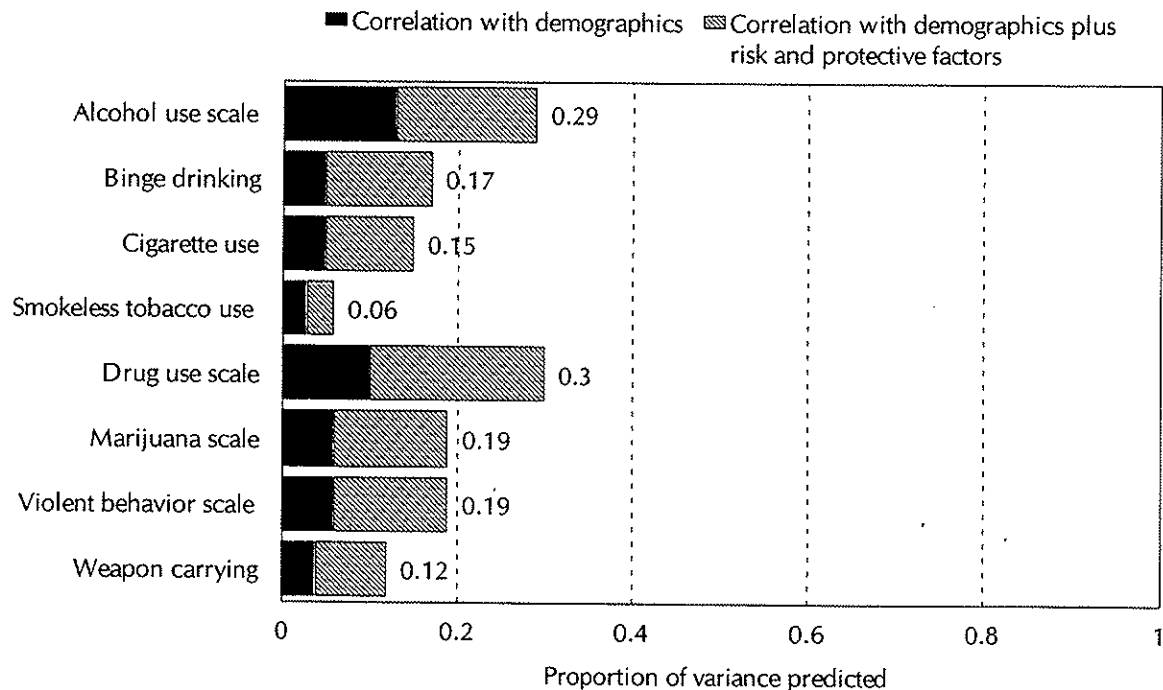
**Exhibit 5-7**  
**Magnitude of Multiple Correlations of Demographic and Risk and Protective Factors With ATOD Use and Violence in Community Domain**

	Multiple Correlation (and $r^2$ ) with Demographics Alone	Multiple Correlation (and $r^2$ ) After Adding Risk and Protective Factors	Sample Size
Alcohol use scale	.36 (.13)	.54 (.29)	12,073
Binge drinking	.22 (.05)	.41 (.17)	12,073
30-day cigarette use	.22 (.05)	.39 (.15)	12,073
30-day smokeless tobacco use	.18 (.03)	.25 (.06)	12,073
Drug use scale	.32 (.10)	.55 (.30)	12,073
30-day marijuana use	.25 (.06)	.43 (.19)	12,073
Violent behavior scale	.24 (.06)	.43 (.19)	12,073
Weapon carrying	.20 (.04)	.34 (.12)	12,073

Exhibit 5-8 illustrates the relationships detailed in the previous exhibit. The shaded area in each bar represents the proportion of variance in each health risk behavior predicted by

demographic characteristics alone, and the full bar represents the total proportion of variance predicted by demographics characteristics and risk and protective factors together. This exhibit shows that having knowledge about community risk and protective factors provides more information about the likelihood of engaging in health risk behaviors than knowledge only about background characteristics, although not as much as the risk and protective factors in the peer-individual domain.

**Exhibit 5-8**  
**Predictable Variance in Selected Health Risk Behavior Due to Demographic and Community Risk and Protective Factors**



***Alcohol use***

Exhibit 5-9 details the results of the MLR for the alcohol use scale and binge drinking. The results in Exhibit 5-5 are similar to those reported in Gabriel et al. (1997) and show that:

- Gender is a significant predictor of binge drinking, with males more likely than females to engage in this behavior (this result was not seen in 1995). Grade level is

a significant predictor of both alcohol use scale and binge drinking—once all risk and protective factors are taken into account, older students are more likely than younger students to use alcohol or binge drink.

- As in 1995, the community risk and protective factors with the strongest relationship with alcohol use are perceived availability of ATOD and firearms and laws and norms favorable toward drug use.
- As with alcohol use, the community risk and protective factors with the strongest relationship to binge drinking are perceived availability of ATOD and firearms and laws and norms favorable toward drug use. These were the two strongest predictors in 1995, although their order was reversed and they were nearly equal in the strength of their relationship, whereas in 1998 perceived availability is a notably stronger predictor than favorable laws and norms.

**Exhibit 5-9**  
**Regression Weights of Demographic and Risk and Protective Factors in**  
**the Prediction of Alcohol Use**

Community Domain

	Alcohol Use Composite			Binge Drinking		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-.01	-1.84	.07	.04	4.29	<.01
Minority	.00	.12	.91	.02	2.05	.04
Grade level	.15	16.37	<.01	.05	4.98	<.01
<b>Risk and Protective Factors</b>						
Low neighborhood attachment	.03	3.06	<.01	.02	2.01	.04
Community disorganization				.05	5.60	<.01
Personal transitions and mobility	.05	5.81	<.01	.05	6.23	<.01
Laws and norms favorable toward drug use	.18	19.92	<.01	.16	17.00	<.01
Perceived availability of ATOD and firearms	.32	33.92	<.01	.24	23.39	<.01
Community transitions and mobility	-.02	-2.15	.03			
Rewards for conventional involvement (p)	-.04	-5.31	<.01			
Opportunities for positive involvement (p)	-.04	-4.80	<.01	-.06	-6.63	<.01
<b>Total Multiple Correlation (Squared)</b>		.54 (.29)			.41 (.17)	

<sup>1</sup>Statistically significant predictors (p < .01) are in bold.

***Tobacco use***

Exhibit 5-10 details the results of the MLR for cigarette and smokeless tobacco use in the past 30 days. As in the peer-individual domain, these are the least predictable of the health risk behaviors presented in this section. The results in Exhibit 5-10 are rather similar to those reported in Gabriel et al. (1997) and show that:

- Gender and grade level are significant predictors of both forms of tobacco use and minority status is a significant predictor of smokeless tobacco use (in 1995 gender

was a significant predictor of smokeless tobacco use and grade level was a significant predictor of both forms of tobacco use). After accounting for all other community risk and protective factors, females were more likely than males to smoke cigarettes, males were more likely than females to use smokeless tobacco, whites were more likely than nonwhites to use smokeless tobacco, and older students were more likely to use either form of tobacco than younger students.

- The strongest predictors of cigarette use were perceived availability of ATOD and firearms, laws and norms favorable toward drug use, and personal transitions and mobility (in 1995 the strongest predictors were laws and norms, perceived availability, and transition and mobility).
- The strongest predictors of smokeless tobacco use were laws and norms favorable toward drug use and perceived availability of ATOD and firearms (both risk factors were equally predictive). These two risk factors were the strongest predictors in 1995 as well, although laws and norms was twice as predictive as perceived availability.

**Exhibit 5-10**  
**Regression Weights of Demographic and Risk and Protective Factors in**  
**the Prediction of Tobacco Use**

Community Domain

	Cigarette Use Composite			Smokeless Tobacco		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-.04	-4.46	<b>&lt;.01</b>	.10	11.12	<b>&lt;.01</b>
Minority	-.01	-1.01	.31	-.03	-2.99	<b>&lt;.01</b>
Grade level	.07	6.94	<b>&lt;.01</b>	.06	5.30	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Low neighborhood attachment	.03	3.07	<b>&lt;.01</b>			
Community disorganization	.05	5.73	<b>&lt;.01</b>	.02	2.21	.03
Personal transitions and mobility	.09	10.29	<b>&lt;.01</b>	.04	3.97	<b>&lt;.01</b>
Laws and norms favorable toward drug use	.15	15.23	<b>&lt;.01</b>	.10	10.31	<b>&lt;.01</b>
Perceived availability of ATOD and firearms	.20	19.25	<b>&lt;.01</b>	.10	9.38	<b>&lt;.01</b>
Community transitions and mobility						
Rewards for conventional involvement (p)	-.02	-2.42	.02			
Opportunities for positive involvement (p)	-.05	-5.83	<b>&lt;.01</b>	-.02	-2.42	.02
<b>Total Multiple Correlation (Squared)</b>		<b>.39 (.15)</b>			<b>.25 (.06)</b>	

<sup>1</sup>Statistically significant predictors (p < .01) are in bold.

**Drug use**

Exhibit 5-11 details the results of the MLR for the drug use scale and marijuana use in the past 30 days. The results in Exhibit 5-11 are somewhat similar to those reported in Gabriel et al. (1997) and show that:

- Minority status and grade level are significant predictors of the drug use scale and 30-day marijuana use (in 1995 gender was a significant predictor of marijuana use and minority status was not a significant predictor). After accounting for all other



community risk and protective factors, nonwhites were more likely than whites to use drugs or marijuana, and older students were more likely to use drugs or marijuana.

- As in 1995, the community risk and protective factors that were strongest predictors of drug use were perceived availability of ATOD and firearms and laws and norms favorable to use.
- As with drug use, the strongest predictors of 30-day marijuana use were perceived availability of ATOD and firearms and laws and norms favorable to use. In 1995 the single strongest predictor of marijuana use in this domain was community laws and norms.

**Exhibit 5-11**  
**Regression Weights of Demographic and Risk and Protective Factors in**  
**the Prediction of Drug Use**

Community Domain

	Drug Use Composite			30-Day Marijuana Use		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-.01	-.95	.34	.02	1.92	.06
Minority	.03	3.22	<b>&lt;.01</b>	.06	2.71	<b>&lt;.01</b>
Grade level	.08	8.83	<b>&lt;.01</b>	.07	7.18	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Low neighborhood attachment	.03	3.49	<b>&lt;.01</b>	.02	2.59	.01
Community disorganization	.04	4.74	<b>&lt;.01</b>	.04	4.13	<b>&lt;.01</b>
Personal transitions and mobility	.07	8.53	<b>&lt;.01</b>	.07	8.34	<b>&lt;.01</b>
Laws and norms favorable toward drug use	.20	22.42	<b>&lt;.01</b>	.17	18.22	<b>&lt;.01</b>
Perceived availability of ATOD and firearms	.34	36.36	<b>&lt;.01</b>	.24	23.26	<b>&lt;.01</b>
Community transitions and mobility	-.02	-2.36	.02			
Rewards for conventional involvement (p)	-.05	-6.41	<b>&lt;.01</b>	-.05	-5.37	<b>&lt;.01</b>
Opportunities for positive involvement (p)	-.05	-5.73	<b>&lt;.01</b>	-.04	-4.14	<b>&lt;.01</b>
<b>Total Multiple Correlation (Squared)</b>		.55 (.30)			.43 (.19)	

<sup>1</sup>Statistically significant predictors ( $p < .01$ ) are in bold.

***Violent behavior***

Exhibit 5-12 details the results of the MLR for the violent behavior scale and 30-day weapon carrying. Again, the composite index is more highly predictable than the single behavior since it includes several different related behaviors. The results in Exhibit 5-12 are quite similar to those reported in Gabriel et al. (1997) and show that:

- All three demographic variables are significant predictors of violent behavior and weapon carrying once risk and protective factors are taken into account (the only difference with 1995 is that grade level was not a significant predictor of weapon

carrying that year). After accounting for community risk and protective factors, males are more likely than females, nonwhites are more likely than whites, and younger students are more likely than older students to engage in violent behavior or weapon carrying.

- As in 1995, the community risk and protective factors that were the strongest predictors of both violent behavior and weapon carrying were perceived availability of ATOD and firearms, laws and norms favorable toward drug use, and community disorganization.

**Exhibit 5-12**  
**Regression Weights of Demographic and Risk and Protective Factors in the Prediction of Violent Behavior and Weapon Carrying**

Community Domain

	Violent Behavior			Weapon Carrying		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	.20	23.77	<b>&lt;.01</b>	.16	18.87	<b>&lt;.01</b>
Minority	.06	7.36	<b>&lt;.01</b>	.06	6.78	<b>&lt;.01</b>
Grade level	-.14	-14.11	<b>&lt;.01</b>	-.12	-11.62	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Low neighborhood attachment	.03	3.05	<b>&lt;.01</b>	.09	9.82	<b>&lt;.01</b>
Community disorganization	.11	12.98	<b>&lt;.01</b>	.05	5.52	<b>&lt;.01</b>
Personal transitions and mobility	.07	8.76	<b>&lt;.01</b>	.10	10.01	<b>&lt;.01</b>
Laws and norms favorable toward drug use	.13	13.67	<b>&lt;.01</b>	.19	17.84	<b>&lt;.01</b>
Perceived availability of ATOD and firearms	.23	22.43	<b>&lt;.01</b>	.03	3.25	<b>&lt;.01</b>
Community transitions and mobility	.03	3.46	<b>&lt;.01</b>	-.02	-2.26	.02
Rewards for conventional involvement (p)	-.03	3.04	<b>&lt;.01</b>	-.05	-5.17	<b>&lt;.01</b>
Opportunities for positive involvement (p)	-.05	-6.14	<b>&lt;.01</b>			
<b>Total Multiple Correlation (Squared)</b>	<b>.43 (.19)</b>			<b>.34 (.12)</b>		

<sup>1</sup>Statistically significant predictors (p < .01) are in bold.

## **School risk and protective factors**

Exhibit 5-13 details the magnitude of the multiple correlation for the two stages of the regression analyses for the eight criterion variables using the three demographic variables and the two risk factors and two protective factors in the school domain. As in the previous section, the multiple correlations due to the demographic variables are shown, as well as the multiple correlations using all of the predictor variables (demographic characteristics and risk and protective factors). The squared multiple correlations are also shown, which indicate the proportion of shared variance between the predictors and criterion.

The current survey included two risk factors and two protective factors in the school domain:

### ***Risk factors:***

**Academic failure**—Children fail in school for many reasons, but research indicates that the very experience of failure, regardless of whether the failure is linked to the student's ability, places him or her at higher risk of negative behavior.

**Little commitment to school**—When young people cease to see the school role as viable, they are at higher risk of engaging in the health risk behaviors.

### ***Protective factors:***

**Opportunities for positive involvement**—When young people are given more opportunities to participate meaningfully in important activities at school, they are less likely to engage in problem behaviors.

**Rewards for conventional involvement**—As in the community domain, when young people are recognized and rewarded for their contributions at school, they are less likely to be involved in health risk behaviors.

The results in Exhibit 5-13 are quite similar to those reported by Gabriel et al. (1997), with the exception that in 1998 there was a small increase in the multiple correlation with the

alcohol use scale and a small decrease in the multiple correlation with 30-day cigarette use. The results in this exhibit show that:

- Student alcohol use was the most predictable of the health behaviors, followed by drug use.
- Cigarette use was the least predictable of the health risk behaviors.
- School risk and protective factors add two to three times the predictability over that provided by demographics alone.

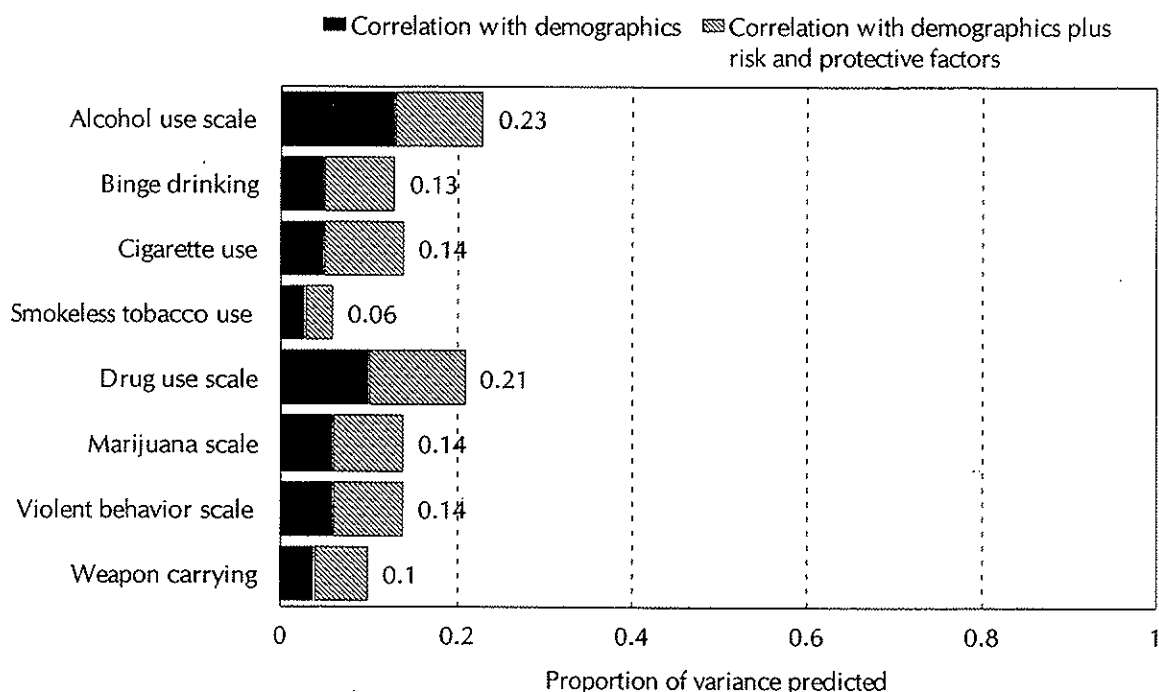
**Exhibit 5-13**  
**Magnitude of Multiple Correlations of Demographic and Risk and Protective Factors With ATOD Use and Violence in School Domain**

	Multiple Correlation (and $r^2$ ) with Demographics Alone	Multiple Correlation (and $r^2$ ) After Adding Risk and Protective Factors	Sample Size
Alcohol use scale	.36 (.13)	.47 (.23)	11,813
Binge drinking	.22 (.05)	.36 (.13)	11,813
30-day cigarette use	.22 (.05)	.37 (.14)	11,813
30-day smokeless tobacco use	.18 (.03)	.24 (.06)	11,813
Drug use scale	.32 (.10)	.46 (.21)	11,813
30-day marijuana use	.25 (.06)	.38 (.14)	11,813
Violent behavior scale	.24 (.06)	.37 (.14)	11,813
Weapon carrying	.20 (.04)	.32 (.10)	11,813

Exhibit 5-14 illustrates the relationships detailed in the previous exhibit. The shaded area in each bar represents the proportion of variance in each health risk behavior predicted by demographic characteristics alone, and the full bar represents the total proportion of variance predicted by demographics characteristics and risk and protective factors together. This exhibit shows that having knowledge about school risk and protective factors provides more information about the likelihood of engaging in health risk behaviors than knowledge

only about background characteristics, although not as much as the risk and protective factors in the peer-individual domain.

**Exhibit 5-14**  
**Predictable Variance in Selected Health Risk Behavior Due to Demographic and School Risk and Protective Factors**



### ***Alcohol use***

Exhibit 5-15 details the results of the MLR for the alcohol use scale and binge drinking. The results in Exhibit 5-5 are similar to those reported in Gabriel et al. (1997) and show that:

- Gender is a significant predictor of binge drinking—once all risk and protective factors are taken into account, males are more likely than females to engage in this behavior. Minority status is a significant predictor of binge drinking, with non-whites more likely than whites to engage in this behavior (this result was not seen in 1995). Grade level is a significant predictor of both alcohol use scale and binge drinking, with older students more likely than younger students to use alcohol or binge drink.

- The school risk factor most predictive of alcohol use is little commitment to school, followed by academic failure (although these were the top two predictors in this domain in 1995, their order was reversed).
- The school risk factor most predictive of binge drinking is little commitment to school, followed by academic failure (these were the top two predictors in this domain in 1995, although they were more equally predictive than in 1998).

**Exhibit 5-15**  
**Regression Weights of Demographic and Risk and Protective Factors in the Prediction of Alcoholism**

School Domain

	Alcohol Use Composite			Binge Drinking		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-.02	-2.15	.03	.03	3.84	<.01
Minority	.02	2.21	.03	.04	4.42	<.01
Grade level	.31	37.08	<.01	.17	19.31	<.01
<b>Risk and Protective Factors</b>						
Academic failure	.11	13.12	<.01	.13	14.24	<.01
Little commitment to school	.21	22.61	<.01	.19	20.23	<.01
Opportunities for positive involvement (p)	-.06	-6.07	<.01	-.07	-7.59	<.01
Rewards for conventional involvement (p)	-.06	-6.85	<.01			
<b>Total Multiple Correlation (Squared)</b>		.47 (.23)			.36 (.13)	

<sup>1</sup>Statistically significant predictors (p < .01) are in bold.

**Tobacco use**

Exhibit 5-16 details the results of the MLR for cigarette and smokeless tobacco use in the past 30 days. The results in Exhibit 5-16 are rather similar to those reported in Gabriel et al. (1997) and show that:

- Gender and grade level are significant predictors of both forms of tobacco use (in 1995 gender was not a significant predictor of cigarette use). After accounting for all other school risk and protective factors, females were more likely than males to smoke cigarettes, males were more likely than females to use smokeless tobacco, and older students were more likely to use either form of tobacco than younger students.
- The strongest predictors of cigarette use were little commitment to school and academic failure (these were the two strongest predictors in 1995, although their order was reversed).
- The strongest predictors of smokeless tobacco use were little commitment to school and academic failure. These two risk factors were the strongest predictors in 1995 as well (they were equally predictive that year).

**Exhibit 5-16**  
**Regression Weights of Demographic and Risk and Protective Factors in the Prediction of Tobacco Use**

School Domain

	Cigarettes			Smokeless Tobacco		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-.05	-5.31	<.01	.10	10.63	<.01
Minority	.01	1.33	.18	-.02	-2.12	.03
Grade level	.17	19.43	<.01	.11	12.14	<.01
<b>Risk and Protective Factors</b>						
Academic failure	.17	19.14	<.01	.10	10.41	<.01
Little commitment to school	.18	18.60	<.01	.11	11.21	<.01
Opportunities for positive involvement (p)	-.08	-8.87	<.01			
Rewards for conventional involvement (p)						
<b>Total Multiple Correlation (Squared)</b>	.37 (.14)			.24 (.06)		



## ***Drug use***

Exhibit 5-17 details the results of the MLR for the drug use scale and marijuana use in the past 30 days. These results are somewhat different than those reported in Gabriel et al. (1997) with regard to demographic factors, but are rather similar with regard to risk and protective factors. The results in Exhibit 5-17 show that:

- Gender is not a significant predictor of the drug use scale and 30-day marijuana use. Minority status and grade level were significant predictors of these behaviors—after accounting for school risk and protective factors, nonwhites were more likely than whites and older students were more likely than younger students to engage in these behaviors. (In 1995 gender was a significant predictor of marijuana use, minority status was not a significant predictor, and grade level was a significant predictor of both behaviors).
- The school risk and protective factors that were strongest predictors of drug use were little commitment to school and academic failure (these were the two strongest predictors in 1995, although their order was reversed).
- As with drug use, the strongest school predictors of 30-day marijuana use were little commitment to school and academic failure (these were the two strongest predictors in 1995, although they were equally predictive that year).

**Exhibit 5-17**  
**Regression Weights of Demographic and Risk and Protective Factors in the Prediction of Drug Use**

School Domain

	Drug Use Composite			Marijuana		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	-.01	-1.42	.15	.01	1.30	.19
Minority	.05	5.59	<.01	.04	4.93	<.01
Grade level	.26	30.92	<.01	.20	22.78	<.01
<b>Risk and Protective Factors</b>						
Academic failure	.16	19.25	<.01	.14	15.46	<.01
Little commitment to school	.22	23.44	<.01	.20	20.21	<.01
Opportunities for positive involvement (p)	-.07	-7.50	<.01	-.06	-7.17	<.01
Rewards for conventional involvement (p)	-.03	-3.49	<.01			
<b>Total Multiple Correlation (Squared)</b>		.46 (.21)			.38 (.14)	

***Violent behavior***

Exhibit 5-18 details the results of the MLR for the violent behavior scale and 30-day weapon carrying. Again, the composite index is more highly predictable than the single behavior since it includes several different related behaviors. The results in Exhibit 5-18 show that:

- All three demographic variables are significant predictors of violent behavior and weapon carrying once school risk and protective factors are taken into account (in 1995 grade level was not a significant predictor of violent behavior or weapon carrying). After accounting for community risk and protective factors, males are more likely than females, nonwhites are more likely than whites, and younger students are more likely than older students to engage in violent behavior and weapon carrying.

- The school risk and protective factors that were the strongest predictors of both violent behavior and weapon carrying were little commitment to school and academic failure. In 1995 the same two school risk factors were the strongest school predictors of violent behavior, although their order was reversed; the strongest predictor of weapon carrying was academic failure.

**Exhibit 5-18**  
**Regression Weights of Demographic and Risk and Protective Factors in the Prediction of Violent Behavior and Weapon Carrying**

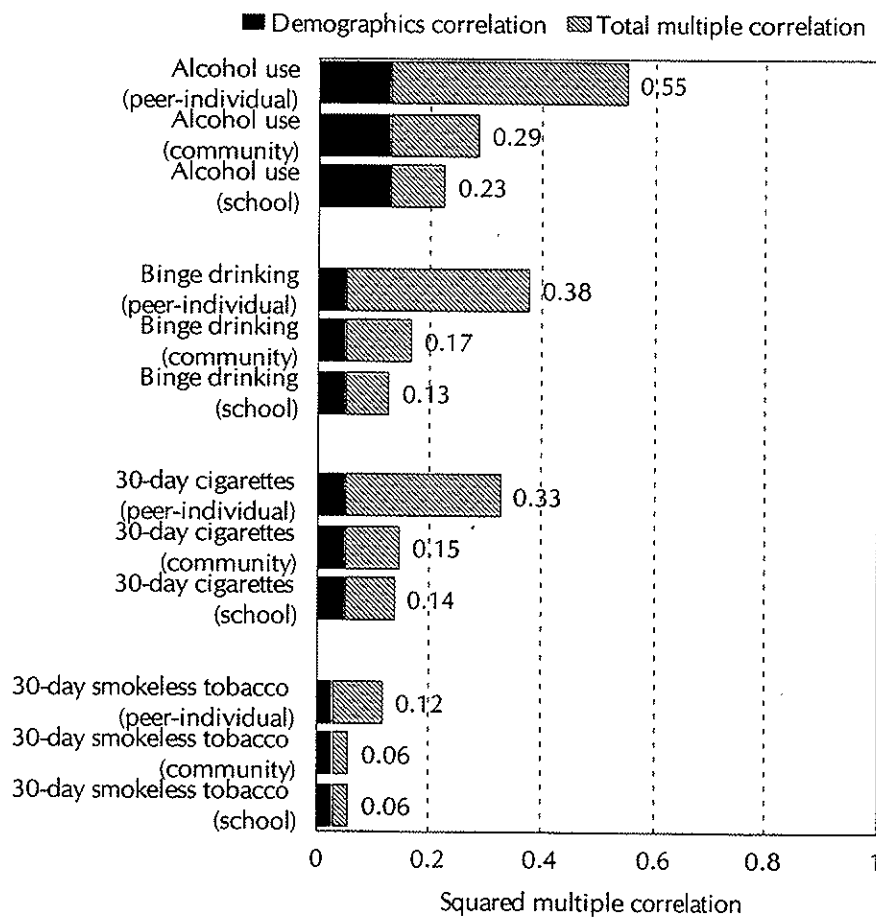
School Domain						
	Violent Behavior			Weapon Carrying		
	Regression weight	t-statistic	Significance level (p) <sup>1</sup>	Regression weight	t-statistic	Significance level (p) <sup>1</sup>
<b>Demographics</b>						
Gender	.20	22.65	<b>&lt;.01</b>	.16	18.15	<b>&lt;.01</b>
Minority	.09	10.55	<b>&lt;.01</b>	.08	9.11	<b>&lt;.01</b>
Grade level	-.03	-3.28	<b>&lt;.01</b>	-.03	-3.76	<b>&lt;.01</b>
<b>Risk and Protective Factors</b>						
Academic failure	.13	14.36	<b>&lt;.01</b>	.12	12.74	<b>&lt;.01</b>
Little commitment to school	.17	16.99	<b>&lt;.01</b>	.14	14.55	<b>&lt;.01</b>
Opportunities for positive involvement (p)	-.07	-7.72	<b>&lt;.01</b>	-.06	-6.38	<b>&lt;.01</b>
Rewards for conventional involvement (p)	-.05	-5.23	<b>&lt;.01</b>	-.03	-3.45	<b>&lt;.01</b>
Total Multiple Correlation (Squared)	.24 (.06)			.32 (.10)		

## Summary

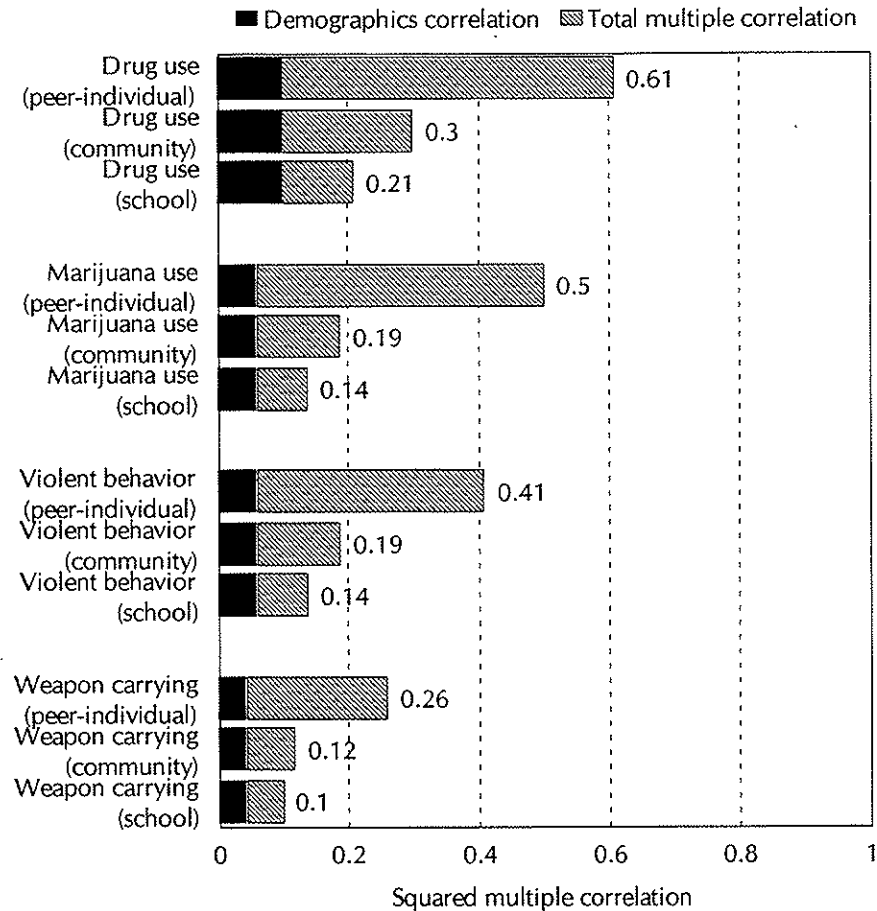
This chapter replicated one of the studies conducted by Gabriel et al. (1997) as part of their additional analyses of the 1995 WSSAHB. The results from the current replication are generally similar to those found in 1997 and therefore lend support to the strength of the findings.

As initially seen in the analytic reports from 1995 and 1998, peer-individual risk and protective factors are most strongly related to the health risk behaviors under study, followed by community and then school factors. As illustrated in Exhibits 4-19a and 4-19b, peer-individual risk and protective factors are one-and-one-half to two times as predictive of these behaviors than community or school factors.

**Exhibit 5-19a**  
**Squared Multiple Correlations of Alcohol and Tobacco Use With Risk and Protective Factors by Domain**



**Exhibit 5-19b**  
**Squared Multiple Correlations of Drug Use and Violent Behavior**  
**With Risk and Protective Factors by Domain**



As in 1997, a supplementary multiple linear regression was conducted to see if including risk and protective factors from all domains would increase the predictability of the health risk behaviors beyond that achieved through each domain separately (as presented in this chapter). Once again the results were dramatic in that while the predictability of the eight health risk behaviors by community and school factors was significant in and of themselves, they added virtually nothing to the predictability of the peer-individual factors alone.

The influence of demographic factors showed some interesting patterns. Grade level was a significant predictor across the risk and protective factor domains of all eight health behaviors. Older students are more likely than younger students to use alcohol, tobacco, and other drugs. However, younger students are more likely than older students to engage in violent behaviors or carry weapons, with this behavior peaking in eighth grade (a consistent finding in 1995 and 1998). Gender differences were consistently seen in tobacco use and violent behaviors: females were more likely than males to smoke cigarettes, males were more likely than females to use smokeless tobacco, and males were more likely than females to engage in violent behavior or carry a weapon. Minority status was consistently a significant predictor in violent behavior and weapon carrying, with nonwhites more likely than whites to report these behaviors.

Within each domain, specific risk factors consistently emerged as predictive of several health risk behaviors:

- Within the peer-individual domain, the risk factor of antisocial behavior was a strong predictor of health risk behaviors. The risk factors of early initiation of problem behavior, attitudes favorable toward drug use, and interaction with antisocial peers were also highly related to several of these behaviors. This result is entirely consistent with that observed in 1995.
- Within the community domain, the risk factors of laws and norms favorable to drug use and perceived availability of ATOD and firearms were strong predictors of all eight health risk behaviors. Again, this result is entirely consistent with that observed in 1995.
- Within the school domain, the risk factors of academic failure and little commitment to school were strong predictors of all eight health risk behaviors. Yet again, this result is entirely consistent with that observed in 1995.
- As in 1997, the protective factors were generally less predictive of health risk behaviors than were the risk factors.

## Chapter 6: Conclusion

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This report presented four sets of analyses designed to reveal relationships among the health risk behaviors and associated risk and protective factors that were measured by the 1998 administration of the Washington State Survey of Adolescent Health Behaviors. These analyses provide information beyond that presented in the analytic report of the survey results.

The first analyses in this report provided information about the relationship between student characteristics and ATOD use. Although there is some variation at different grade levels, in general, lifetime prevalence and current ATOD use was similar among males and females, although males were more likely to have ever tried smokeless tobacco, be current users of smokeless tobacco, report binge drinking in the past two weeks, and to be frequent users of alcohol and other drugs. Females were more likely than males to be current cigarette smokers. Similarly, there was little difference in lifetime prevalence or current ATOD use between students in urban and rural settings, except that cigarette use was higher among rural students at some grade levels and smokeless tobacco use was higher among rural students in eighth grade and higher. At some grades, students who began using alcohol, tobacco, or marijuana at an early age were more likely than students who began using at a later age to be current users of that substance. Students who earn good grades in school were less likely than those who earn poor grades to report ATOD use. No ethnic group is immune from the impact of alcohol and other drugs. However, Native Americans tended to report the highest, and Asians tended to report the lowest, lifetime and 30-day prevalence rates for ATOD use (although this was not the case for every substance). Among sixth and eighth grade students Native Americans reported the highest rates of binge drinking, and Asian and white students reported the lowest rates of binge drinking. Among tenth grade students Hispanics reported the highest rates of binge drinking and Asian students reported the lowest rates of binge drinking.

The second analyses provided information about the relationship between student characteristics and violence-related behaviors. In general, males were more likely than females to report that they engage in violence-related behaviors. Among eighth and tenth grade students, females were more likely than males to be high on a depression scale. In general, students in urban and rural settings exhibited similar levels of violence-related behaviors. Having best friends who have been members of a gang was clearly associated with one's own gang membership. Finally, students who use alcohol or other drugs were more likely than those who do not to engage in violent or delinquent behaviors. The results for weapon carrying, gang membership, the violent behavior scale, the delinquent behavior scale, and the depression scale for students who are members of different ethnic groups varied by item and it is therefore difficult to identify a consistent pattern across the selected violence-related behaviors.

The third analyses provided information about the relationship between the number of hours students work each week and ATOD use. Students who work more than 20 hours per week were more likely than those who do not to have skipped school during the past four weeks. Students who work a greater number of hours per week are more likely to have ever tried alcohol or other drugs or to be current ATOD users.

The fourth analyses provided information about predicting ATOD use and violence-related behaviors given knowledge about risk and protective factors. Peer-individual risk factors were the strongest predictors of health risk behaviors, followed by community and school risk factors. Within the peer-individual domain, the risk factor of antisocial behavior was a consistently strong predictor of health risk behaviors. The risk factors of early initiation of problem behavior, attitudes favorable toward drug use, and interaction with antisocial peers were also highly related to several health risk behaviors. These analyses replicated work by Gabriel et al. (1997) and yielded strikingly similar results. This consistency provides strength to the findings.



The results presented in this report will be useful to program planners as they make decisions regarding state and local alcohol, tobacco, other drug, and violence prevention and intervention programs.

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