

Tenth BIENNIAL

Heavy Alcohol and Drug Use

Among High School Students

2003-2004

California Attorney General's Office

Gregory Austin, Rodney Skager,
Jerry Bailey and Scott Bates

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California Student Survey 2003-2004

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Heavy AOD Use Among California Students

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Preface

This report explores the scope and nature of heavy or hardcore alcohol and drug use among California high school students based on data from the 10th biennial California Student Survey, conducted in the late fall and early winter of the 2003-2004 school year. Our main purpose is to identify subgroup differences within the population of users in 9th and 11th grade as they relate to level of use, adverse consequences, user characteristics, and risk and protective factors, and to estimate as best as possible the percentage of students who might be considered in need of intervention services. We focus on two populations of heavy users: High Risk Drug User and Binge Drinkers. Complete survey results for the general population of 7th, 9th, and 11th graders, and detailed information about the survey's methodology and instrumentation are available in the main 2003 CSS report (see Skager & Austin 2005).

The analysis was limited to high school students because the sample of heavy users in 7th grade was too small for subgroup analysis. This is not to discount the importance of identifying and treating those youth who already are heavily involved in substance use at this age. As this report shows, one of the characteristics of heavy users in high school is that they are early initiators of AOD use.

For the sake of convenience we refer to the survey as the 2003 CSS, because most students took the survey before the end of that year and the questionnaire asks about past behavior. Percentages in the tables include values of tenths of one percent, while the percentages are rounded to the nearest whole number in the narrative text.

Data Analysis and Measurement Issues



Prevalence Estimates

The unit of analysis is schools. The number of students assessed at a particular school, or within a particular region, is unlikely to be exactly proportional to overall enrollment. This is especially true because a set number of intact classrooms were surveyed regardless of total enrollment. A school enrolling 150 students at the 11th grade would contribute the same number of cases as a school enrolling 1,000 students. This discrepancy was compensated for through statistical weighting, adjusting the data first for school enrollment and second for enrollment within a region. This assured that neither schools nor regions would exert an influence in the final results that was disproportionate to the number of students they enrolled. The data were also weighted to correct for an overrepresentation of females.

Statistical Testing and Significance

Unless otherwise stated, the significance of statistical differences and associations was set at the 95% probability level; however, most effects were observed to be unlikely to happen by chance



less than one time in 10,000 assessments. Differences in the percentage were tested using χ^2 analyses, while Relative Risk Estimates of discrete outcomes (e.g., having unwanted or unprotected sex) were calculated via logistic regression. The prediction of continuous outcomes, such as the number of alcohol-related adverse consequences predicted by gender and/or classification as a High Risk User (HRU), was computed in terms of correlation, analysis of variance (to compare mean levels) or multiple linear regression analysis. Composite indexes, such as the sum of alcohol-related problems, were examined for cohesiveness/internal consistency and subjected to factor analyses to insure that these collections formed unitary measures or were parceled into sets of interrelated factors.

Acknowledgements

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We are indebted to the Office of the Attorney General and the Department of Alcohol and Drug Programs for their support of the CSS and this report, and their recognition of the importance of needing more information about, and raising more awareness of, the scope and nature of heavy substance use among California's youth. From the Attorney General's Crime and Violence Prevention Center, we wish to acknowledge the contribution of Daphne Hom, the *California Student Survey* Project Manager; Steve Jefferies, Assistant Director; and Nancy Matson, Director. We also received invaluable advice from Faith Boucher, the Department of Alcohol and Drug Programs (Kathy Jett, Director); and from Robin Rutherford, the California Department of Education, Safe and Healthy Kids Program Office (Meredith Rolfe, Administrator).

At WestEd, Kiku Annon and Brian McReynolds supervised the CSS administration. Bill Lee also contributed to writing this report. Special acknowledgment should be made to the advice provided by Jerry Bailey throughout the planning of the survey and data analysis.

Abbreviations

Surveys

CSS	The state-mandated biennial California Student Survey, sponsored by the Attorney General's Survey.
CHKS	California Healthy Kids Survey, sponsored by the California Department of Education for use by local schools and communities.
MTF	Monitoring the Future Survey, sponsored by the National Institute of Drug Abuse.
NSDUH	National Survey on Drug Use and Health (formerly National Household Survey of Drug Use), sponsored by the Substance Abuse and Mental Health Administration.
YRBS	Youth Risk Behavior Survey, sponsored by the Centers for Disease Control and Prevention.

Drugs and Drug-Related Behaviors

ABS	Abstainer from drinking alcohol or using drugs in the last six months.
Drink	One can/bottle of beer or wine cooler, glass of wine, mixed drink, or short glass of distilled spirits (liquor).
AOD (ATOD)	Alcohol (tobacco) and other drugs.
Binge Drinking	Consuming five drinks or more in a row on the same occasion at least once in the past 30 days.
CON	Conventional drug user: used alcohol and drugs in the past six months but did not meet HRU criteria
Drugs	In this report, illegal psychoactive substances other than alcohol or tobacco, such as marijuana.
HRU	High risk drug user: met any of four criteria of drug use in the past six months: (a) regular marijuana use, (b) cocaine, (c) a pattern of multiple or high frequency use, or (d) three or more occasions of polydrug use.
DSM-IV	American Psychiatric Association's <i>Diagnostic and Statistical Manual</i> , 4 th edition

Prevalence Measures

6-Month Use	Any use six months prior to the survey.
Lifetime Use	Any use over respondent's lifetime (i.e., ever use).
Current Use	Any use 30 days prior to the survey.
Weekly Use	Use once a week or more often based on the past six months.
Daily Use	Once a day or more often. For the past 30 days, calculated based on using 20 or more days.

Chapter 1

Introduction & Methods

This report assesses the scope, nature, and consequences of heavy or hard-core use of alcohol and other drugs (AOD) among 9th- and 11th-grade students who participated in the Tenth Biennial California Student Survey (CSS), conducted in the late fall and early winter of 2003-2004 under conditions of strict confidentiality and anonymity.¹ It examines both high-level and high-frequency use patterns, focusing on two categories of students, those classified as *high risk drug users* and those who self-report *binge drinking of alcohol*. These two heavy-user groups are compared with youth who use less often or heavily, as well as nonusers. Among the issues addressed are:

- To what extent do the measures of high-risk drug use and binge drinking define a heavy-user population?
- What are the characteristics of these heavy users and what subgroup differences exist?
- What variations are there in patterns and levels of use and use-related or other problems within these two groups?
- What is the estimate size of the population of high-risk drug users and binge drinkers, as well as the overall student population, that may be in need of treatment or other intervention services?

Background and Purpose

The origins of the study lie in the mixed results of the 9th biennial CSS in 2001. The state appeared to be making headway in reducing overall prevalence of alcohol and marijuana use among school-aged children. In contrast, indicators of heavy and regular AOD use had been stable at disturbingly high levels since 1997. We concluded the following in the 2001 survey report:

“What is most immediately striking — and troublesome — about the results is the high proportion of youth who report heavy and frequent (and thus likely problematic) use, and how little change has occurred since 1999.... Because abstinence is the overriding goal of

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national policy (as expressed in the principle of zero-tolerance), measures of total prevalence, lumping together youth who report use once in their lifetimes with peers who use weekly or even daily, are the main if not the virtually exclusive focus of both youth surveys and school programs. Yet, the most damage is caused by, and visited upon, the smaller numbers of youth who drink or use in problematic ways. In sum, this survey still finds relatively high percentages of students engaging in regular and heavy levels of substance use and thus placing themselves at risk for a variety of use-related problems.”

These concerns about better identifying and addressing the needs of heavy users were not new; similar conclusions were drawn in prior CSS reports as well, as far back as 1993.² But the mixed results in 2003 crystallized the concerns and led to the funding of this study, which has two main goals: (a) to raise awareness and understanding of the problem; and (b) to provide data to guide program decision making, policies, and practice designed to address it.

In the remainder of this Introduction we explore the issues that must be taken into consideration in assessing and analyzing heavy use and the questions or items in the survey that are useful in this process.

Defining Heavy Use

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The first challenge we faced was determining how to best define, measure, and estimate heavy use. The field of adolescent substance use research has long been challenged by the lack of a clear consensus on how to define heavy use, misuse, or abuse. These are relative concepts. Cultures and subcultures vary widely in the degree of tolerance for kinds of substance use. For example, some people consider any recreational drinking by youth to be "abuse" solely by virtue of its illegality. Complicating the determination of abuse among youth is the lag time in the development of persistent adverse physiological consequences that are typically used to identify abuse and dependency. For example, alcoholism is difficult to define for any population and it is rarely found among young people when measured by adult criteria.³ Drinking behaviors tend to be sporadic through adolescent development, and most alcohol use disorders take years to develop. Some indicators of abuse and dependency are not relevant to students developmentally, such as driving after drinking under the age of 16.⁴

Frequency rates, such as daily and weekly use, are helpful in identifying heavy users, but can by themselves be misleading because they overestimate the potential harm to young people who may use often, but in small amounts. This is especially a problem with alcohol (e.g., a small glass a wine might be consumed once a week with the family meal). Thus measures that combine frequency and level of use are more useful. Assessment of heavy drug use is even more complex because it is harder for users to gauge the amount consumed per session (the concentration of active ingredients in illegal drugs varies widely). It is equally difficult to come up with an accurate report venue; e.g., two small joints of “California Kind Bud” may carry more pharmacological clout than a whole eighth of “Mexican Dirt Weed.”

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In an effort to determine the level of alcohol misuse, Ellickson et al. (1996) used a panel of ten experts to provide guidance. Most of the panel felt that frequency and quantity should be considered together in determining misuse, and there was a general consensus that experiencing use-related problems or engaging in certain high-risk behaviors once or twice in the past year constituted misuse. But there was disagreement over what the cutoffs should be. Thus they looked at a range of definitions with different cutoffs.⁵

In most studies, four types of data are typically used to estimate heavy use: (a) high-risk patterns of use; (b) use-related problems; (c) dependency-related experiences; and cessation-related efforts. The 2003 CSS provided data in all four areas, drawing as a guide from the criteria used to clinically diagnose substance-use dependency and abuse in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) (American Psychiatric Association [APA], 1994). Even though adolescents rarely are clinically dependent, criteria for assessing treatment need or clinical diagnosis of dependency can provide a framework for approaching this problem.

Risky Patterns of Use

Some behaviors are intrinsically risky and associated with abusive patterns of use. For example, two common demarcations of heavy drug use are: (a) frequent use of marijuana (once per week or more often); and (b) any use of other “hardcore” illicit drugs (e.g., methamphetamine), because they are more dangerous and less socially acceptable and available, thus indicating a greater level of drug involvement. Binge drinking typically falls into this category, as discussed in Chapter 3. Three other typical indicators assessed by the CSS are frequency of intoxication or drunkenness, polydrug use, and use at school.

Drunkenness and Intoxication

One approach has been to ascertain the frequency of drunkenness, intoxication, or being “high” based on student self-report. In the CSS, students are asked: “During your life, how many times have they been: (a) very drunk or sick after drinking alcohol; and (b) “high” (loaded, stoned or wasted) from using drugs?” In these measures, respondents interpret for themselves what constitutes intoxication or drunkenness. Such self-perceptions are fraught with interpretive difficulties. Even small amounts of alcohol, for example, may produce feelings that are interpreted as drunkenness by people who may have never actually gotten drunk as defined by their blood alcohol content or mental and physical changes. Still, how often this occurs may help to distinguish naïve from more seasoned. Students are also asked if they had ever experienced acute adverse pharmacological effects associated with consuming too much (e.g., blacking out, memory loss).

Polydrug Use

Heavy users typically engage in polydrug use, using two or more substances (excluding tobacco) at the same time in the past six months (e.g., alcohol and marijuana). Polydrug use is considered particularly risky because of the possible synergistic interactions that may result when different drugs are used together. It may produce unpredictable effects in users who are not mentally prepared for or emotionally mature enough to handle the combined pharmacological changes.

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Use at School

Another potential indicator of heavy involvement is using at school or during the school day. An inability to forego use during school, despite the inherent risks, suggests a level of involvement that may reflect psychological and/or physiological dependency, as well as disengagement from school. Even if an adolescent doesn't think he/she will get caught, it is high-risk behavior in any case, due to the potential administrative ramifications of getting caught, and the adverse pharmacological effects on learning are indisputable.

Use-Related Problems

A second common criteria for assessing the level of heavy use is to define it in practical terms of problem intervention: those students who manifest that use has become detrimental to themselves, others, and society and, therefore, warrant services to reduce or stop that use. In determining levels of abuse and dependency, most assessment tools rely on evidence of adverse consequences. It is not enough to determine intervention or treatment need based on frequency and level of use alone. In particular, a person in need of intervention has likely endured *repeated or multiple adverse consequences* as a result of using AODs. One consequence or mishap from use is not enough to establish a pattern. The limit of this approach for adolescents is that these are not clinical samples and some students who need AOD treatment may present very few consequences or behaviors that draw attention to their use.

The CSS assesses eleven negative consequences of alcohol or drug use (intoxication, memory loss/passing out; trouble with the police, schoolwork or school behavior; experiencing physical or mental health problems or injuries; and interpersonal problems, such as problems with friends). In a separate question, students are also asked about one of the most common indicators of alcohol abuse: drinking and driving. The results for these items are discussed in Section 4.

Dependency-Related Indicators

A third area of measurement relate to indicators suggesting dependency or a high level of involvement in a substance-use lifestyle. Drawing on such diagnostic tools as the DSM-IV, in 2003 we added a new question to the CSS asking students to identify whether they ever had any of seven experiences that are symptomatic of dependency or abuse. Although these may also be perceived as problems, the question itself is phrased neutrally. Students were asked to indicate whether they had any of the following experiences if they use alcohol or drugs:

- Had to increase how much uses to have the same effect as before) — a measure of tolerance.
- Frequently spent a lot of time getting, using, or being “hung over” from using alcohol or drugs — a measure of drug-use lifestyle or preoccupation
- Using after telling yourself that you weren't going to use, and using a lot more than intended — measures of losing control over use.

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- AOD use often kept respondent from going to school, working, or doing recreational activities or hobbies (sports, music, art etc.) — a measure of interference with significant life activities.

Two other items assessed psychological dimensions often associated with heavy involvement:

- Feeling better when using alcohol or drugs than when not, and
- Feeling depressed, uninterested in things, alone, or isolated.

Whereas each of these items sheds light on symptoms of heavy use, any one measure in itself should not be used as an indicator of dependency. As with use-related problem indicators, our primary interest is in those students who reported multiple indicators.

Cessation-Attempt Efforts

Another criterion for dependence in the DSM-IV is a persistent desire or unsuccessful efforts to cut down or control substance use. The CSS asks whether students have ever done any of the following six cessation-related experiences, ranging from contemplation to action.

- Thought about reducing (cutting down) or stopping use
- Ever felt you needed help (such as counseling or treatment) for AOD use
- Spoke with someone about reducing or stopping use
- Attended counseling, a program, or group to help reduce or stop use
- Had tried to quite or stop using alcohol or marijuana and how many times (separate questions)

Many youth who are heavily involved may never seek to stop use, just as they might not see they have a problem with use. On the other hand, the degree to which a current user seeks to stop or reduce use can serve as an indirect indicator of involvement. These items are also useful for determining the degree of unmet “treatment” need among the adolescent population.

Our Approach

Based on a review of the literature and the data available from the CSS, in consultation with state agencies, we determined that we should approach the task by focusing the analysis on two measures: High Risk Drug Use (HRU) and Binge Drinking (BNG). Both measures combine data on both the frequency and level of use.

- **High Risk Drug User.** Since 1987, the CSS has calculated the percentage of students that could be classified as High Risk Users (HRU) of drugs, based on their frequency and pattern of drug use *in the past six months*. Initial analysis of these user categories revealed that they constituted specific user groups that also reported very different levels of involvement in other risk behaviors and problems.⁶ Because this has been a

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main focus of CSS reporting, it was determined that a more in-depth analysis of the characteristics of users classified into these categories was warranted (see Chapter 2).

- **Binge Drinker.** To assess heavy alcohol use we focus on binge drinking, defined as consuming five drinks in a row (in a single setting or occasion) at least once *in the past 30 days*. This measure was selected because: (a) it is one of the most widely used indicators of heavy drinking in the adolescent substance use field, combining both frequency and quantity of use; (b) it is currently the focus of prevention efforts both in the state of California and the nation; and (c) considerable debate surrounds not only the appropriateness of using the term “binge” to describe this behavior but the extent to which it identifies a heavy drinking population (see Chapter 3).

For both heavy-user groups, we compare results, as appropriate, to groups of nonusers and occasional users.

- The HRU are compared to “conventional drug users” (CON) who used drugs in the past six months but did not meet the HRU criteria and to youth who totally abstained from alcohol or other drugs in this period (ABS). We refer to these as the HRU or Drug Group.
- Binge Drinkers (BNG) are compared to nondrinkers, who consumed no alcohol in the past thirty days (NACL), and to non-binge drinkers (NBNG), those who drank but didn’t binge. Because 5% of 9th graders and 12% of 11th further reported bingeing on three of the past 30 days — a substantial proportion — we also included them in the comparison as “regular binge drinkers” (RBNG). These are the BNG or Alcohol Group.

Overall Prevalence of Heavy Risk Drug Use and Binge Drinking

As summarized in Table 1.1, 9% of 9th graders and 17% of 11th were classified as HRU and 12% and 23% as Binge Drinkers. In other words, around one-in-ten freshmen are engaging in each of these behaviors and around one-fifth of juniors. Moreover, almost one-fifth and one-third are engaging in one or the other. In a classroom of 30 students, this amounts to 5.4 students in 9th grade and 9 students in 11th grade.

Although this report focuses on examining each of these behaviors separately, it is important to keep in mind how many students are being impacted by the adverse affects of one of these behaviors or the other: fully 18% of 9th graders and 30% of 11th met the criteria for HRU *or* binge drinking. Moreover, there is considerable overlap between these behaviors. Indeed, one of the primary findings of this study is that adolescents who are heavy users of alcohol are also likely to be heavy users of drugs. Reflecting this, 5% in 9th and 11% in 11th were classified as engaging in *both* HRU and BNG.

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Table 1.1
Prevalence of High Risk Users and Binge Drinkers, 2003

	9 th Grade	11 th Grade
	(%)	(%)
Drug Use Past 6 Months		
AOD Abstainer (ABS)	49.9	35.4
Conventional User (CON)	40.8	47.3
High Risk User (HRU)	9.3	17.3
Current Alcohol Use (30 Days)		
Nondrinker (NALC)	75.3	62.9
Nonbinge drinker (NBNG)	13.2	13.8
Binge Drinker (BNG)	11.5	23.3
Regular Binge Drinker, 3+ days (RBNG)	5.1	12.2
HRU or BNG	17.6	29.5
HRU and BNG	5.3	11.1

In interpreting the data, for some indicators the group differences are noticeably weaker for the BNG (Alcohol) Group than the HRU (Drug) Group, though there remains a consistent difference between nonusers and users. Two factors help account for this: the greater prevalence and acceptability of binge drinking and the shorter time frame in which it is examined (thirty days prior to the survey), compared to drug use/HRU (six months prior to the survey). Thus, whereas the Abstainers in the HRU analysis used no alcohol or other drugs for half a year, it is quite possible that the “nondrinker” could have consumed alcohol prior to the past 30 days and even used a drug during that 30-day period. However, as shall be shown, the differences between BNG and occasional drinkers (and nondrinkers) are still prominent.

Report Organization

In the next two chapters, we separately discuss the scope and nature of HRU (Chapter 2) and binge drinking (Chapter 3), including patterns of heavy use and dependency indicators exhibited by the youth who report these behaviors. Subsequent chapters deal with the following topics for both HRU and BNG together:

- Use-related problems that are experienced by heavy users, cessation efforts, and estimated intervention need (Chapter 4).
- Correlates of AOD use that may help explain why heavy use occurs and provide guidance for intervention programs, such as early onset or use among adults, including exposure to prevention programs, cessation efforts, and perceptions of school policies as they relate to levels of AOD use (Chapter 5).
- The relationship of heavy use to other risk behaviors and problems (e.g., school violence, academic grades, attendance) that may be related to heavy use and may need to be taken into consideration if intervention efforts are to succeed. A major concern is the impact of substance abuse on student achievement in an era in which schools are striving to improve academic achievement (Chapter 6).
- And gender differences among HRU and BNG (Chapter 7).

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Chapter 8 provides a summary of the findings and a discussion of their implications for policy and practice. Our ultimate goal was to determine: (1) what proportion of these two groups of heavy users overall — and the total student population — appear to be so seriously involved in AOD use that immediate interventions are warranted; and (b) issues that intervention programs need to keep in mind in providing them services.

ENDNOTES

- ¹ For a complete description of the survey methodology, see Skager and Austin 2005.
- ² Austin & Skager 1996. In the 7th Biennial Report, we concluded the following in response to the continued high prevalence of heavy use: “We are not doing the job that the reality of the problem demands.”
- ³ Walker, Jasinska, & Carnes 1978:53; Flewelling et al. 2004; Martin and Winters, 1998; SAMHSA, 2002a.
- ⁴ Flewelling et al. 2004. Beyond the issue of defining abuse or dependency from survey data, identification is more difficult because few adolescents are living in an intimate relationship with a person (such as a husband or wife) who might complain about their drinking or drug use and parents are often unaware of the degree of involvement.
- ⁵ Ellickson et al. (1996).
- ⁶ Skager, R., and Frith, S. (1989). Identifying high-risk substance users in grades 9 and 11: A report based on the 1987-88 California Student Substance Use Survey. Sacramento: Office of the Attorney General.

Chapter 2

High Risk Drug Use

Since 1987, CSS results have been analyzed to determine the percentage of students who could be classified as *High Risk Drug Users (HRU)* based on their pattern and frequency of illegal drug use in the six months prior to the survey. Students are classified as HRU if they met any one of the following four criteria, each representing a pattern of drug use associated with elevated risk for developing use-related problems and/or involvement in a drug-use lifestyle.¹ The four HRU drug-use criteria are:

- Regular **marijuana** use, defined as weekly or more frequently in the past six months.
- **Cocaine** use in any form.²
- A pattern of multiple or high frequency use of **other illicit drugs** besides cocaine or marijuana. Based on a point system, this may range from using any other drug weekly to using up to four different drugs one or two times within the past 6 months.
- Three or more occasions of **polydrug** use, the consumption of two or more substances (excluding tobacco) at the same time, which is particularly risky behavior.³

Students who used any drugs in the past six months, but did not meet the HRU criteria, were classified as *Conventional Users (CON)*. Students were classified as *Abstainers (ABS)* if they did not use either alcohol or other drugs in the past six months, although they could have previously tried alcohol or a drug.

Trends in Prevalence

Table 2.1 illustrates that HRU rates rose in the early years of the survey, peaked and remained stable at about one-fifth of 9th graders and just over one-quarter of 11th graders through the mid-90s. They then sharply dropped in 1999, returning to the low levels reported in 1989 and 1990. This decline appears to be at least partly because of a change in the item's wording: the movement of the six-month time-frame designation ("in the past six months") from the end of the question to the beginning.⁴ However, a slight reduction in heavy drug use continued to occur. The HRU rate in 2003 was two points lower in 9th grade than in 1999, and four points lower in 11th grade than in 2001. Still, 9% of 9th graders and 17% of 11th graders currently are classified as HRU.

2. HIGH RISK DRUG USE

Table 2.1
High Risk and Conventional Drug Use, Abstention, Past Six Months, since 1989

	1989- 90 ^a (%)	1991- 92 ^a (%)	1993- 94 ^a (%)	1995- 96 (%)	1997- 98 (%)	1999- 00 ^b (%)	2001- 02 ^b (%)	2003- 04 ^b (%)
9th Grade								
High-Risk Drug Users (HRU)	13.5	11.4	21.2	20.2	20.3	11.0	10.4	9.3
Conventional Users (CON)	50.9	58.4	51.4	50.4	51.5	43.4	43.0	40.8
Abstainers (ABS)	35.5	30.2	27.2	29.4	28.2	45.6	46.6	49.9
11th Grade								
High-Risk Drug Users (HRU)	21.4	17.6	26.6	26.8	26.9	20.7	21.3	17.3
Conventional Users (CON)	55.0	60.9	51.2	50.6	50.4	50.5	43.5	47.3
Abstainers (ABS)	23.7	21.5	22.3	22.6	22.7	29.3	35.2	35.4

^a Passive parent consent required for participation; since 1995, active (written) consent required.

^b In 1999, the number of response options reduced upon which calculated and timeframe designation (past six months) moved from the end of the question to the beginning.

Patterns of AOD Use

As Table 2.1 also shows, the percentage of students classified as HRU rises with age as a proportion of the total user population. The older an adolescent drug user is the more likely he or she is to engage in the heavy-use patterns measured by the HRU index.

- In 9th grade, the rate for HRU is 22% of that for Conventional Use.
- In 11th grade, it rises to 36% of the CON. For most prior years since 1991, the percentage has been closer to 50%.

About six-in-ten HRU students met more than one of the HRU criteria, reflecting their high level of drug involvement. Of the four-in-ten who met only one criteria (41% in 9th grade and 36% in 11th), the two most prevalent were weekly marijuana use (16% and 14%, respectively) and polydrug use (13.5% and 15%).⁵

Weekly marijuana and polydrug use were exclusively located among the HRU, not a surprising finding as they constitute two of the criteria for HRU status. As shown in Table 2.2:

- **Weekly Marijuana Use.** The largest single factor contributing to HRU status was weekly marijuana use, which was reported by 60% of HRU in 9th grade and 62% in 11th. In the past 30 days, 39% of 9th graders and 54.5% of 11th used marijuana on three or more days, another gauge of weekly use.
- **Weekly Polydrug Use.** Weekly use of two or more substances at the same time, a risky behavior that places youth at risk of adverse drug interactions, was reported by over one-fifth of HRU (23% and 22%).

Table 2.2 also compares HRU and CON students across other individual heavy-use indicators for both alcohol and drugs (e.g., binge drinking, intoxication, use at school). Although HRU classification is based on number, type, and *frequency* of drug use, the HRU are much more likely

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to be higher — at least four times higher — than Conventional Drug Users on measures of the *level* of heavy use.⁶ Among 9th graders, on three measures the HRU were at least nine times higher than CON: high on drugs seven or more times, drunk or high at school three or more times, and current use of marijuana on school property. Among 11th graders, HRU were six times more likely to want to get very high on drugs, seven times more likely to ever be high or drunk at school on three or more occasions, and almost ten times more likely to use marijuana at school three or more of the past 30 days. Looking at specific measures:

- **Intent to Get “High”.** Almost four-in-ten HRU in both grades reported *liking to get very high* when they used drugs, compared to roughly 5% of CON.
- **Lifetime Intoxication.** Half (53%) of HRU in 9th grade and 66% in 11th had been *high on drugs* on at least seven occasions (vs. 6% and 12% of CON).
- **Use at School.** Some of the biggest group differences were for use at school. Around four-in-ten HRU in both grades had been *high or drunk at school* on three or more occasions (vs. 4% and 7% of CON). One-quarter reported seven or more occasions, whereas CON rates were negligible. Over one-third in 9th grade and one-quarter in 11th had used marijuana on school property in the past 30 days (vs. 4/5% of CON); 21% and 12% on three or more days (vs. 1% of CON).
- **Drug Sales.** Reflecting their drug involvement, 41% in 9th grade and almost half in 11th grade had *sold drugs* to someone in the past 12 months, about five times the CON.

The larger group differences and higher prevalence for AOD use at school among 9th graders compared to 11th indicate that youth already heavily engaging in substance abuse at an early age (the great majority were 14-years-old) are a population particularly at high-risk of both problems with substance abuse and school, as discussed further in Chapter 6.

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Table 2.2
Heavy Alcohol and Drug Use Involvement Indicators by HRU and CON status

	9 th Grade			11 th Grade		
	HRU (%)	CON (%)	ALL (%)	HRU (%)	CON (%)	ALL (%)
Heavy Drug Use Indicators						
Usually gets very high when using	38.2	4.8	5.7	36.1	5.9	10.6
Weekly marijuana use, past 6 months	59.4	1.9	6.2	54.9	0.8	10.6
Current marijuana use, 3 + days	39.0	4.8	7.0	54.5	4.9	12.8
Current marijuana use at school	34.9	3.8	5.5	25.7	4.5	7.2
Current marijuana use at school, 3+ days	20.6	1.0	3.0	11.7	1.2	3.4
Drunk/high at school, 3+ times	38.4	4.0	5.7	45.3	6.6	12.1
Drunk/high at school, 7+ times	22.9	1.4	3.1	24.6	3.0	6.9
High on drugs, 3+ times	69.5	13.1	12.4	81.8	23.3	26.3
High on drugs, 7+ times	53.1	5.9	7.8	65.7	11.9	18.2
Polydrug use, weekly past 6 months	23.4	0.2	2.2	21.8	0.0	4.5
Sold drugs, past 12 months	40.9	6.7	7.1	49.3	10.4	14.4
Heavy Alcohol Use Indicators						
Likes to get really drunk on alcohol	19.4	3.8	3.7	24.6	5.2	7.0
Drunk/sick on alcohol, 3+ times	33.7	8.3	7.3	55.7	19.7	19.6
Drunk/sick on alcohol, 7+ times	22.5	2.7	3.0	28.9	6.4	8.8
Current alcohol use at school	28.9	9.3	7.2	22.1	7.2	8.0
Current alcohol use at school, 3+ times	11.8	0.7	1.8	9.2	1.7	2.6
Current binge drinking	60.9	14.1	11.5	63.1	24.8	23.3
Current binge drinking, 3+ days	37.6	4.9	5.1	44.8	8.9	12.2

Alcohol Use

The HRU were also heavy drinkers.⁷ Group differences were not quite as large as with drug use, but the HRU were generally *three-to-five times* more likely than the CON to report each of the heavy alcohol use indicators in Table 2.2. The group differences were again larger in 9th and 11th grade, and increased with the frequency of heavy drinking.

- **Binge Drinking.** About six-in-ten HRU in both grades had engaged in current binge drinking. Four-in-ten reported regular binge drinking (on three or more of the past 30 days), eight times the CON rate in 9th grade and five times in 11th.
- **Lifetime Drunkenness.** One third of 9th graders and over half (56%) of 11th had been very drunk/sick from alcohol on *three or more occasions*. Almost one-quarter in 9th grade and one-in-three in 11th grade had been drunk/sick on *seven or more occasions*, constituting almost eight times the CON rate in 9th grade (22.5% vs. 3%) and five times in 11th (29% vs. 6%).
- **Alcohol at School.** HRU were three times more likely to report drinking on school property in the past 30 days (29% vs. 9% in 9th grade and 22% vs. 7% in 11th). This was only slightly lower than their marijuana use at school.

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- **Drinking Intent.** Almost one-fifth of HRU in 9th grade, and one-quarter in 11th, liked to drink alcohol until they get really drunk, five times the CON rates.

Dependency Indicators

Consistent with their higher frequency and level of use, HRU reported a much higher prevalence than the CON on each of the seven dependency-related indicators or experiences in Table 2.4, as well as the total number of indicators.

- Almost two-thirds of HRU in both grades reported *at least one indicator*. The majority of them — 30% of HRU in 9th grade and 42% in 11th — reported *two or more indicators*, over three times higher than CON rates (9% and 12%).
- HRU were six times more likely than CON to report *three or more indicators* (25% vs. 4% in 9th and 32% vs. 5% in 11th). Among 11th graders, this represents 51% of those who reported even one of these indicators, which shows that the dependency indicators are highly correlated.

Overall the HRU were three-to-five times more likely to select each indicator than the CON. Most indicators were each selected by about 17-24% of the HRU in 9th grade (vs. 4-8% of CON) and about 22-32% in 11th grade (vs. 4-12% of CON).⁸ Among 11th-grade HRU, about three-in-ten reported the three most-selected options: (a) increasing their use to obtain the same effect, (b) using alone, and (c) feeling better when they used than when they did not. Slightly over one-fifth reported each of the next three indicators — involved in a drug-using lifestyle, used a lot more than they intended, and often used when they weren't going to — indicating that they do not have control over their use. The biggest differences between HRU and CON were for involvement in a use-focused lifestyle, using a lot more than intended, and use interfering with normal activities, especially in 9th grade.

- **Increased Use for Effect.** Having to increase the amount of AOD use to get the same effect as before was the most-selected option for 11th graders (32%) and among the top three for 9th graders (23%), a possible indicator of the development of tolerance. CON were only one-quarter as high (6% in 9th grade and 8% in 11th).
- **Feeling Better.** Feeling better when using AODs than when not was among the next most-selected option, by 24% of HRU in 9th grade and 28% in 11th, which was three times higher than CON in 9th grade (8%) and over two times higher in 11th (12%). This reveals that all drug users tend to view their use as positive, but also that this is especially true of heavy users.
- **Using Alone.** Using when alone (by yourself) was selected by about the same percentages as feeling better among HRU, at 22% and 29%, over three times CON rates (7% in both grades).
- **Use-focused Lifestyle.** About one-fifth of HRU in both grades reported that they frequently spent a lot of time getting, using, or being “hung over” from using AODs, indicating that AOD use is a central part of their lifestyle. Although not among the

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top three options, it is one for which the group differences were among the largest. HRU percentages were *five times* higher than those of CON (4% in both grades).

- **Used More than Intended.** Almost one-quarter of HRU (24% in 9th grade and 22% in 11th) had “used alcohol or drugs a lot more than [they] intended,” four times CON rates (about 5%). This was one of the options for which HRU rates and group differences were higher in 9th than 11th grade. This may be because younger students are less able to regulate their consumption than older students, who also report higher rates for usually getting high (see Table 2.2), so they are less likely to use more than intended.
- **Interference with Normal Activities.** Among the least-selected dependency-related experiences is that use interfered with going to school, working, or doing recreational activities or hobbies, normal activities for youth. Moreover, the percent drops by almost half between 9th and 11th grade, from 17% to 9%, the only indicator for which this occurs. This drop may be because by 11th grade drugs have become so integrated into the heavy user’s life that they are less likely to be perceived as interference, or youth are better able to function under the influence. In contrast, the percentage of CON that selected it was negligible, only 1-2%, the least-selected option by them.
- **Unplanned Use.** Using after telling yourself you were not going to use, another indicator of loss of control, was the least-selected option by HRU in 9th grade and the one with the greatest increase in 11th grade (13% vs. 22%). While CON rates were lower, at 5% and 7%, the group differences were smaller than for other options, suggesting this commonly occurs among all users.

The three indicators for which the HRU rates among 11th graders were highest compared to 9th graders were “increased use for the same effect,” using alone, and unplanned used. All three may reflect the growth of tolerance and dependency. However, the similarity between grades in the percentages for the majority of the indicators (drug lifestyle, using a lot more than intended, feeling better when using than not), as well as for having at least one problem, reflect that even in 9th grade HRU are on a trajectory for abuse or dependence.

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Table 2.4
Dependency-related AOD Use Experiences, by Drug Use Status

	9 th Grade			11 th Grade		
	HRU (%)	CON (%)	ALL* (%)	HRU (%)	CON (%)	ALL* (%)
Increased use for same effect	22.9	6.4	4.9	32.0	7.9	9.4
Felt better when using than not	24.4	8.4	6.0	28.1	12.0	10.8
Used a lot more than intended	24.1	4.6	4.0	22.4	5.7	6.9
Used alone	22.0	6.9	4.9	28.8	7.6	8.3
Involved in AOD lifestyle**	17.4	3.6	3.2	21.0	4.2	5.4
Use interfered with normal activity***	16.6	1.4	2.0	8.8	2.3	3.0
Wasn't going to use but did	13.4	4.9	3.3	22.1	7.2	
1 of above	64.8	24.5	16.7	63.4	30.8	26.5
2 of above	30.1	8.6	6.2	41.7	11.8	12.6
3 or more of above	24.8	4.2	3.8	32.3	5.4	7.9

*Total Sample

** Spent a lot of time finding, using, or being "hung over" from the use of alcohol or drugs.

*** Use interfered with going to school, working, or doing recreational activities or hobbies

Discussion

These results confirm that the HRU category is a clear indicator of the prevalence of heavy drug use among California high school students, compared to the more occasional conventional drug use category.⁹ Although this measure is based on *frequency* of drug use, HRU reported high rates across indicators of *level* of use and dependency, including such indirect measures as using at school. Most striking, about one-quarter of HRU in 9th grade and one-third in 11th — who are almost 2.5% and 6%, respectively, of all students — reported three or more dependency indicators.

Although the overall percentage of HRU is much lower in 9th grade than 11th, the results for 9th graders are equally if not more troubling. Among 9th graders, HRU prevalence has declined only two percentage points over the past four years and their rates on several indicators of heavy use are equivalent to, if not higher than, those of 11th graders. They were higher for liking to get very high on drugs, use interfering with a normal activity, and using a lot more than intended, and using marijuana and alcohol at school. They were equivalent for current binge drinking and feeling better when using. There is also often a greater group difference on the heavy-use measures between HRU and CON in 9th grade than in 11th. This suggests that 9th graders who are already heavy drug users are a marginal population particularly at risk. That use at school and use interfering with normal activities (such as school) were two measures for which rates were highest in 9th grade compared to 11th also suggests the risk applies to school problems as well as AOD use. As will be shown, these conclusions are supported by the survey results for use-related and other problems.

Another striking finding, though not necessarily surprising, is the high level of heavy alcohol use among the HRU, particularly binge drinking. The program implications of this wide-ranging heavy AOD use are clear: Interventions targeting heavy drug users must address alcohol as well.

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Nevertheless, what characterizes the HRU most is their heavy drug use. In both grades, the percent of HRU that had been “high” seven or more times on drugs is double that for the same frequency of drinking alcohol. The HRU percentage for liking to get very high on drugs was double that for getting very drunk in 9th grade (38% vs. 19%) and 1.5 times greater in 11th (36% vs. 25%). Some heavy-users do have a preference for drugs that intervention programs need to take into consideration as well.

ENDNOTES

- 1 Alcohol consumption at least a few times in the past six months is also required as a validity check. For an explanation of this origin of this measure, see: Skager & Frith 1989.
- 2 As noted in the introduction, any use of an illicit drug other than marijuana is considered a defining characteristic of heavy use. When the HRU index was developed, cocaine was specifically identified because it was the primary drug of concern in the mid-1980s. Although the popularity of cocaine is now surpassed by methamphetamine, ecstasy, and other drugs, it is retained as a marker for consistency.
- 3 See the discussion of polydrug use in the Introduction section.
- 4 The change was part of the alignment of the CSS with the California Healthy Kids Survey. Time-frame designations were placed at the beginning of all questions. This change appears to have resulted in more accurate reporting.
- 5 About 13% met the criteria based only on their use of drugs other than marijuana.
- 6 CON rates are generally consistent with those of the total sample, which reflects the high proportion of conventional drug users among students (41% of 9th graders and 47% of 11th).
- 7 HRU classification only requires that alcohol be consumed a few times in the past six months as a validity check.
- 8 One exception is use interfering with normal activities.
- 9 See Skager & Frith 1989.

Chapter 3

Binge Drinking

Different students use alcohol in different ways. This chapter explores the scope and nature of so-called binge drinking, measured by the consumption of five or more drinks in a row (within a couple of hours) in the 30 days prior to the survey. The consumption of five or more drinks in one sitting has long been considered a meaningful threshold for evaluating the social harm associated with adult drinking.¹ It has become a standard indicator for the prevalence of heavy drinking. This kind of drinking is considered particularly dangerous for adolescents, many of whom have limited drinking experience and low body weight, which makes them more susceptible to a variety of acute alcohol-related problems (e.g., violence, driving while intoxicated, and unprotected or unwanted sex). It has further been argued that the binge-drinking threshold for adolescent females should be set at four drinks in a row, in order to account for their lower weight and slower rates of alcohol metabolism.² Despite these concerns, most research and attention has focused on binge drinking among college students and adults.³ The CSS results reveal that bingeing is the predominant pattern of alcohol use among older adolescents, making it one of the most pressing adolescent substance abuse problems that we must address.

The Definition Controversy

Despite the attention that has been focused on this behavior, considerable definitional controversy surrounds the labeling of this five-drink measure as “binge drinking.” In its original, clinical definition a “binge” refers to an extended bout of drinking, often operationalized as at least two days, in which a person neglects other activities in order to drink. It usually is conceived as solitary, self-destructive, and involving loss of control. Critics have charged that use of the term to refer to the five-drink measure is inappropriate for young adults because it: (a) is misleading; (b) has “problematized” drinking behavior that is common on college campuses, turning it into a pathology; and (c) assumes that a person is being irresponsible based solely on the amount of drinks consumed during an occasion, regardless of the other factors that affect blood alcohol level.

Because of this definitional confusion, the *Journal of Studies on Alcohol* has requested that authors use the terms “heavy drinking” or “heavy episodic drinking” rather than binge to refer to the five-drink measure. But there is no consensus on the use of these terms either. Flewelling, Pascall, & Ringwalt (2004) use “heavy drinking” for 5 drinks in a row whereas SAMHSA (2004), analyzing the same survey data, calls this “binge drinking” and defines heavy drinking as 5 drinks in a row for five or more days (which Flewelling calls “frequent heavy drinking”). The five-drink

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measure is variously described as both “heavy drinking” and “occasional heavy drinking” in *Monitoring the Future* survey reports, and as “episodic heavy drinking” in the Youth Risk Behavior Survey reports (the Centers for Disease Control).

One of the reasons this measure has become so popular is that it provides a concrete definition for heavy drinking behavior that combines both quantity and frequency and can be compared across surveys. The term “binge drinking” provides a practical label that can be used to distinguish this measure from other heavy drinking behaviors. Because of this, the prevention field has generally adopted the binge label, a convention this report follows.

Whatever term is used for the measure, the fundamental question is whether the binge-drinking benchmark truly represents for adolescents a threshold that identifies heavy drinkers likely experiencing adverse alcohol-related consequences. Much of the research supports that risk of health problems, physical injury, and risk-behavior involvement are significantly higher among adults and young adults who report binge drinking.⁴ Very little research has been conducted on binge drinking among adolescents. One of the purposes of this report is to fill that gap, to clarify how serious a problem binge drinking is among California’s high school students. To this end, we analyzed results across the following four groups of students based on their self-reported current drinking in the 30 days prior to the survey.

- Nondrinker: did not drink any alcohol in the past 30 days (NAL).
- Nonbinge drinker: consumed alcohol in the past 30 days but did not binge drink (NBNG)
- Binge drinker: consumed five drinks in a row in the past 30 days (BNG).
- Regular binge drinker: binge drank three or more of the past 30 days (RBNG).

These groups are not as clear-cut as with the HRU-CON-ABS comparisons, because the use time-frame is shorter (30 days versus six months). It is possible that a student categorized as a current nonbinge drinker could have previously engaged in binge drinking (just not in the past 30 days), or that a nondrinker did previously drink. Because of this, along with the greater social acceptability of drinking, group differences in results are often less pronounced among the drinking groups than the drug-use groups. Nevertheless, the results clearly show that binge drinkers are distinct from nonbinge drinkers in their level of alcohol consumption and the effects of that consumption and that there are pronounced differences between all three groups in other reported problem behaviors.

Prevalence & Frequency of Binge Drinking

Table 3.1 provides the frequency of any current (past 30 days) alcohol use and binge drinking for the past three surveys. Table 3.2 shows how the frequency of binge drinking varies by overall drinking status. Among high school students, overall prevalence rates of binge drinking did decline in 2003, but only modestly, by two-to-three points, from the levels of 1999 and 2001. Still, 11.5% of 9th graders and 23% of 11th were binge drinkers. There are more current binge drinkers in 11th

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grade than marijuana users (20%) and High Risk Users of drugs (17%), as there has been since 1999.⁵

The likelihood that a drinker will binge increases markedly with age, so that bingeing is the predominant pattern of drinking among 11th graders. Binge drinking triples between 7th and 9th, and then doubles between 9th and 11th grade. In contrast, the level of nonbinge drinking remains stable, at around 13%.⁶ As shown in Table 3.2, among current drinkers (any alcohol in the past 30 days), binge drinking at least once was reported by four-in-ten in 9th grade (43%) and nearly six-in-ten in 11th grade (59%).

For the majority of binge drinkers — and a substantial minority of all drinkers — this is not occasional behavior. *Regular binge drinking* on three or more of the past 30 days — an indicator of weekly bingeing — was reported by 5% of 9th graders and 12% of 11th graders.⁷ It occurs among the majority of binge drinkers (52% in 9th grade and 56% in 11th) and 21% and 29%, respectively, of all current drinkers (Table 3.2).

There is a clear association between frequency of any alcohol use and the likelihood of bingeing. Among regular drinkers (those that drank on three or more of the past 30 days), 72% in 9th grade and 80% in 11th reported bingeing. About half of these regular drinkers — 48% in 9th grade and 56% in 11th — binged three or more days. The percentage of California juniors who drank alcohol on *ten or more days* was almost the same as reporting binge drinking at the same frequency (5% vs. 4%, respectively).⁸

Table 3.1
Frequency of Current (Past 30 Days) Use of Any Alcohol and Binge Drinking

	9 th Grade			11 th Grade		
	1999-00 (%)	2001-02 (%)	2003-04 (%)	1999-00 (%)	2001-02 (%)	2003-04 (%)
Alcohol						
1-2 days	16.5	18.1	16.0	23.3	19.3	19.1
3-9 days	8.4	6.3	6.3	13.4	13.6	12.9
10+ days	4.2	4.9	2.5	7.1	7.8	5.1
Total	29.2	29.3	24.7	43.8	40.7	37.1
Binge Drinking						
1-2 days	7.2	6.2	6.4	12.0	12.3	11.1
3-9 days	3.6	4.8	3.2	9.7	8.9	8.0
10+ days	2.5	2.4	1.9	4.5	5.1	4.2
Total	13.3	13.4	11.5	26.2	26.2	23.3

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Table 3.2
Binge Drinking among Current Drinkers (past 30 days)

	9 th (%)	11 th (%)
Any binge drinking among current drinkers	43.0	58.5
Any binge drinking among regular drinkers (3+ days)	72.0	79.7
Regular binge drinking (3+ days) among current drinkers	20.6	29.1
Regular binge drinking among binge drinkers	52.2	49.1
Regular binge drinking among regular drinkers (3+ days)	48.3	56.3

Heavy Drinking Indicators



Table 3.3 reports on the results for three indicators of heavy use — drinking style, frequency of drunkenness, and drinking at school — among the three groups of current drinkers (nonbinge, binge, and regular binge drinkers), as well as the total sample. Percentages for binge drinkers (BNG) were significantly higher than for nonbinge drinkers (NBNG) on all measures. The differences increased for regular binge drinkers, but the fundamental group difference was between whether a current drinker reported any binge drinking or not, indicating that this is a significant threshold in drinking behavior. On most indicators, group differences were larger among 9th than 11th graders, reflecting that early onset of binge drinking is especially high-risk behavior. These results are similar to those for drinking among HRU (Table 2.2).

Preference for Getting Drunk

Over one-fifth of BNG in both 9th and 11th grades reported that they liked to drink alcohol until they “get really drunk or sick.” In 9th grade, their rate is eight times that of NBNG (23% vs. 3%); in 11th grade, over five times (21% vs. 4%). Among RBNG, the rates rose to 35% in 9th and 29% in 11th grade, over nine times higher than for NBNG. Consistent with this preference, BNG were eight times more likely in 9th grade, and six times in 11th grade, compared to NBNG, to have passed out, forgotten what happened, or lost control from drinking (see Table 4.3).

Frequency of Drunkenness

Consequently — and logically, given the nature of binge-drinking — 45% of BNG in 9th grade and by 57% in 11th had been very drunk or sick from alcohol *three or more times*. For 9th graders, this is over 5.5 times higher than for NBNG (45% vs. 8%). For 11th graders, almost three times higher (59% vs. 21%). Among RBNG, the rates rose to 60% in 9th grade and 70% in 11th. They were 7.5 times as likely to be drunk three or more times than NBNG in 9th grade and over 3 times more likely in 11th grade. Roughly one-quarter of high school BNG, and one-third of RBNG, had been drunk/sick *seven or more times*. This compares to only 2.5% of NBNG in 9th grade and 8% in 11th.

Use at School

Over one-third of BNG in 9th grade and almost one-quarter in 11th reported using alcohol at school in the past 30 days. This is over two times the percentage for NBNG in 9th (35.5% vs. 16%) and three times as high in 11th grade (24% vs. 8%). As found for the HRU, the use-at-school

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percentages are much higher (i.e., ten points) in 9th grade than in 11th. In addition, about one-third (33% in 9th and 30% in 11th) had been drunk or high on drugs at school on *three or more occasions*, about four times higher than NBNG in 9th and three times in 11th (7.5% and 11.5%).

Table 3.3
Patterns of alcohol use by binge drinker

	All (%)	Non-binge Drinker (NBNG) (%)	Binge Drinker (BNG) (%)	Regular Binger (RBNG) (%)
9th Grade				
Likes to get really drunk	3.7	3.3	23.1	35.3
Ever drunk 3+ times	7.3	8.2	45.0	59.8
7+ times	3.0	2.5	22.2	30.9
Used alcohol at school, past 30 days	7.2	16.0	35.5	39.7
3 or more days	1.8	2.4	12.2	20.7
Ever drunk/high at school, 3+ times	5.8	7.5	33.4	41.1
7+ times	3.1	4.9	19.1	24.6
11th Grade				
Likes to get really drunk	7.0	4.1	21.2	28.7
Ever drunk 3+ times	19.6	20.9	56.8	70.1
7+ times	8.8	7.9	26.9	36.9
Used alcohol at school, past 30 days	8.0	5.9	23.6	29.8
3 or more days	2.6	1.0	7.7	9.6
Ever drunk/high at school, 3+ times	12.1	11.5	30.4	37.5
7+ times	6.9	5.1	17.3	21.1

Other Drug Use

The heavy use pattern of binge drinkers is not just limited to alcohol. As shown in Table 3.7, BNG also reported higher drug use than NBNG, generally at least two or three times higher. Percentages for nondrinkers were much lower than NBNG. This is not a surprising finding given the high prevalence of binge drinking among the High Risk Users of drugs. But whereas the heavy alcohol use rates among HRU and BNG are similar, the percentages across heavy drug use measures among BNG tend to be substantially lower than among HRU. RBNG were much more similar to HRU in their heavy drug use. For most indicators, 9th graders were similar or higher than 11th.

- **High Risk Use of Drugs.** In both grades, almost half (47%) of the binge-drinking population was also HRU, about 2.5 times the proportion of NBNG (17-18%). This is less than the proportion of HRU who binge (61-63%), but the overlap is still substantial and increases with the frequency of drinking. Almost two-thirds (63%) of RBNG were HRU, over three times the NBNG. If no alcohol was consumed, the level of HRU was negligible.
- **Current Marijuana Use.** Nearly half (49%) of 11th-grade BNG reported current marijuana use (past thirty days), 1.5 times the NBNG rate (31%) and eight times the rate for nondrinkers (6%). Current marijuana use among RBNG rose to 61%, twice as

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high as among NBNG and ten times higher than among nondrinkers. For using *three or more days* (weekly use), BNG rates were about three times higher than NBNG in both grades (38% vs. 20% in 9th and 32% vs. 13% in 11th).

- **Marijuana Use at School.** Marijuana use in the past 30 days at school was reported by 27% of 9th and 17% of 11th graders, about three times the rates of NBNG in both cases (9% and 6%).
- **Polydrug Use.** Use of two or more substances at the same time were reported by 17% in 9th grade and 11% in 11th, four and five times higher than NBNG (4% and 2%). Rates among RBNG were the same as HRU in 9th grade and only slightly lower in 11th.
- **Lifetime Intoxication.** As would logically follow, over half of BNG reported three or more instances of ever being high or loaded on drugs. In 9th grade, their rate was over twice as high as the NBNG (51% vs. 23%). In 11th grade, over 1.5 times as high (56% vs. 31%). For RBNG, the percentages rose to 60% and 73% by grade. About four in ten (38% in 9th grade and 43% in 11th, reported being high/loaded *seven or more occasions*, about three times higher than BND (12.5% and 16%).
- **Preference for Getting High on Drugs.** BNG were about three times more likely to report liking to get very high when they used drugs than NBNG (27% vs. 9% in 9th grade and 17% vs. 6% in 11th. Percentages were only slightly higher among RBNG. These rates are eleven points lower than by HRU for getting very high on drugs in 9th grade, and nineteen points lower in 11th. This may reflect a broader range of reasons for drinking, particularly more social reasons, than for using drugs (see Chapter 6).
- **Involvement in Drug Sales.** BNG appear to be involved in a drug-focused lifestyle that extends beyond use. Over one-third (35%) of 11th-grade BNG reported having “sold drugs to someone,” three times the rate for NBNG (15%), and five times higher than nondrinkers (7%). This same pattern is present among 9th graders, with 30% of BNG reporting drug sales. Percentages rose ten points in both grades among RBNG, to 38% and 46%.

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Table 3.4
Drug-use Correlates of Binge Drinking

	All (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade				
Likes to get very high on drugs	6.8	9.0	28.6	34.3
Marijuana use, past 30 days	12.4	25.2	56.6	68.1
3 or more days	7.0	9.6	28.1	48.8
Used marijuana at school, 30 days	5.5	9.0	27.1	30.1
3 or more days	3.0	3.2	18.7	23.9
Ever high/loaded, 3 or more times	12.4	23.1	50.5	60.1
7 or more times	7.8	12.5	37.6	47.2
Classified as HRU	9.3	18.0	46.7	62.8
Polydrug use, weekly	2.2	3.7	17.2	23.6
Sold drugs to someone	7.1	11.3	29.7	38.4
11th Grade				
Likes to get very high on drugs	10.6	12.2	24.3	32.7
Marijuana use, past 30 days	19.8	30.8	48.7	61.1
3 or more days	12.8	13.4	32.2	46.8
Marijuana use at school	7.2	5.9	17.2	20.4
3 or more days	3.4	2.5	7.5	10.9
Ever high/loaded, 3 or more times	26.3	30.9	56.0	72.6
7 or more times	18.2	16.3	42.8	53.3
Classified as HRU	17.3	16.9	46.5	63.3
Polydrug use, weekly	17.3	1.7	11.1	18.1
Sold drugs to someone	14.4	15.0	35.1	46.4

Dependency-Related Indicators

Table 3.5 shows the results for the seven dependence-related indicators among the three groups. As with the HRU, there is a clear progression in the percentages reporting these dependency-related experiences as the level of alcohol use increased. Differences between grades were less significant than between drinker groups.

Number of Experiences

The percentages reporting at least one dependence-related experience increased from NBNG to BNG and to RBNG. The difference between NBNG and BNG also increased as the number of reported experiences increased.

- The majority of BNG, almost six-in-ten, reported *at least one experience* in both 9th and 11th grades, about 1.5 times as high as NBNG (35.5% and 41%).
- Moreover, 25% of BNG in 9th and 33% in 11th reported *two or more*, almost twice the rate of NBNG among juniors (17%).
- In 11th grade, 22% of BNG reported *three or more indicators*, three times the rate for NBNG (7%). The rate in 9th grade was 17%, twice as high.

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- Among RBNG, the rates for three or more problems increased to 22% in 9th grade and 29% in 11th grade.

Specific Experiences

BNG were generally about twice as likely as NBNG to report each of the seven indicators, with percentages ranging from about 11% to 22% among 9th graders and from 15% to 25% among 11th. The biggest difference between BNG and NBNG, three times, was for using a lot more than intending to do in 9th grade (22% vs. 4%).⁹ These percentages are lower than for HRU, but the pattern of results is very similar, undoubtedly in part because of the high rate of binge drinking among the HRU. BNG most frequently selected the same three options as did the HRU: “felt better when using,” “increased use for same effect,” and used alone. These options were endorsed by about one-fifth of BNG in 9th grade and one-quarter in 11th.

- **Feeling Better.** In both grades, among the two most selected options was feeling better when you were using alcohol or drugs than when not, by 20% and 25% of BNG. In 11th grade this is almost twice the proportion of NBNG (13%).
- **Increased Use.** The same percentages of BNG (20% in 9th and 25% in 11th) reported that they had increased how much they used to have the same effect as before, a possible indicator of the development of tolerance. This was over twice the proportion of NBNG (7% and 11%, respectively).
- **Using Alone.** Almost as many BNG reported using alcohol or drugs when they were alone (18.5% and 22%), twice the rates for NBNG (9% and 11%).
- **Use-Focused Lifestyle.** At a lower tier, 13% of BNG in 9th grade and 17% in 11th grade reported that they frequently spent a lot of time getting, using, or being “hung over” from using alcohol or drugs. As found in the HRU-CON analysis, group differences were relatively large, with the BNG rate being two times higher than the NBNG rate in 9th grade (6.5%) and three times higher in 11th (5.5%).
- **Used More than Intended.** The proportion reporting that they had used alcohol or drugs a lot more than they intended was 22% in 9th grade and 15% in 11th. This is only one of two options in which 9th grade percentages were higher. The BNG was almost five times higher than among NBNG in 9th grade (4%), compared to 1.5 times higher in 11th (9%).
- **Unplanned Use.** Among the least selected and smallest group differences was using after not planning to use, at 12% in 9th grade and 15% in 11th, compared to 8% and 13% of NBNG.
- **Interference with Normal Activities.** Overall, use interfering with normal activities for youth (e.g., going to school, working, or doing recreational activities or hobbies) was the least selected indicator. It was only selected by 11% of BNG in 9th grade, dropping to 6.5% in 11th, but still over twice the rates for NBNG (5% and 2%, respectively). This was the only other option besides using more than intended in which rates dropped with age. These results are very similar to those for HRU.

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Generally, the percentages for BNG were not only somewhat lower than those for HRU, but the differences between NBNG and BNG were smaller than between HRU and CON. This may be related to the prevalence of frequent but not necessarily heavy drinking. In contrast, the rates among the RBNG are very close to the HRU, and higher in some cases in 9th grade. The frequency of bingeing is thus related to the risk of dependency. The biggest RBNG-BNG differences were for increasing use to achieve the same effect and for feeling better when using than not, the two most-selected options. This perhaps reflects the development of tolerance and drinking as self-medication as binge frequency increases.¹⁰

As was the case with HRU, reports of dependency-related experiences generally increased with age as the level of binge drinking increased. The two indicators for which percentages declined in 11th grade were use interfering with normal activities and using more than intended, among the three least-selected options. As we previously speculated, this may reflect that: (a) older students report higher rates for wanting to get high, so they are less likely to use more than intended; and (b) by 11th grade use has become so integrated into their lifestyle that it is not perceived as an interference, or users are engaging in denial.

Table 3.5
Dependency-related AOD Use Experiences, by Alcohol Use Category

	9 th Grade				11 th Grade			
	All (%)	NBNG (%)	BNG (%)	RBNG (%)	All (%)	NBNG (%)	BNG (%)	RBNG (%)
Increased use for same effect	4.9	7.4	19.8	28.1	9.4	11.3	25.1	32.1
Felt better when using	6.0	17.2	20.4	31.2	10.8	13.4	25.4	32.0
Used a lot more than intended	4.0	4.4	22.1	31.1	6.9	9.4	15.0	18.2
Used alone	4.9	8.6	18.5	17.4	8.3	11.1	22.1	25.2
Involved in AOD lifestyle*	3.2	6.5	13.3	18.6	5.4	5.5	17.1	23.1
Wasn't going to use but did	3.3	8.3	11.9	12.7	7.5	12.9	15.2	17.3
Use interfered with normal activities**	2.0	5.0	11.1	12.2	3.0	1.9	6.5	10.7
1 of above	16.7	35.5	57.6	66.2	26.5	41.2	57.3	63.6
2 of above	6.2	15.2	25.3	34.6	12.6	16.7	32.7	38.3
3 of above	3.8	8.6	17.2	22.1	7.9	7.4	22.2	29.1

* Spent a lot of time finding, using, or being "hung over" from the use of alcohol or other drugs.

** Use interfered with going to school, working, or doing recreational activities or hobbies

National Comparisons

For binge drinking, we can compare results in California with three other major national surveys of adolescent drug use: Monitoring the Future (MTF), Youth Risk Behavior Survey (YRBS), and National Survey of Drug Use and Health (NSDUH, formerly called the National Household Survey on Drug Abuse). Comparing California youth to their peers nationally yields encouraging findings. Small declines in binge drinking have been reported in both the MTF and YRBS, as in the CSS, but it appears that California youth overall report a lower prevalence. Binge drinking by students in national samples recently has been stable at about 12% of 8th graders, rising to 30% of 12th graders.¹¹

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Comparison with Monitoring the Future results are complicated by two factors: (a) it surveys different grades than the CSS; and (b) it assesses binge drinking in the past two weeks than past thirty days. However, the differences are illuminating. In the 2003 MTF, binge drinking was reported by 12% of 8th graders, 22% of 10th graders and 29% of 12th graders.¹² Thus MTF 8th and 10th graders are reporting rates of use close to California students who are one grade older (11.5% of 9th and 23% of 11th graders). This suggests lower use among same-age California youth, especially as MTF prevalence rates for a shorter time period (2 weeks vs. 30 days) are higher than those on the CSS.

In the 2003 YRBS, which surveys the same grades with the same binge-drinking question as the CSS, 20% of 9th graders were BNG and 32% of 11th graders. These prevalence rates are twice as high as CSS in 9th grade and 1.4 times as high in 11th grade.

NSDUH rates are closer to those of the CSS. In 2003, binge drinking was reported by 12% of youth at age 15, 18% at age 16, and 24.5% at age 17. These results are essentially the same as found in 2002 and previously. But it is generally recognized that the household interview method used in this survey results in lower prevalence rates among adolescents than self-report methods in school-based surveys.

California also appears to have a lower proportion of binge drinkers *within* the current alcohol-using population. The proportion was 43% among CSS 9th graders and 58.5% among 11th graders. In contrast, in the 2002 NHSDA, at age 14 (9th grade) more than half of drinkers were bingeing.¹³ In the 2003 MTF, the rate was already 60% among 8th graders and 63% among 10th. In the 2003 RYBS, it was 56% among 9th graders and 69% among 11th.

Discussion

The US Department of Health and Human Services (DHHS) has made the reduction of binge drinking one of the national Healthy People 2010 objectives. In California, the Department of Health Services is engaged in a Binge Drinking Surveillance Project, funded by the federal Centers for Disease Control, and the Department of Alcohol and Drug Programs is engaged in a federally-funded binge drinking reduction program.

That adolescent binge drinking has declined slightly since 1999 and is now lower compared to the nation is a positive sign. Nevertheless, what is most striking in the CSS results reviewed above is the ‘normative’ nature of bingeing, how embedded and persistent it remains in youth culture. By the 11th grade, California BNG are the majority of current drinkers and exceed the percentage of marijuana users and of youth categorized as HRU. Although BNG-group differences were often smaller than found for the HRU group, the pattern of differences was very similar.

These CSS findings support a growing body of research showing that adolescents typically drink less often than adults, but they consume larger amounts when they do drink, and those who are frequent drinkers are also frequent bingers. Adult drinkers are much less likely to be heavy drinkers than are drinkers in middle-to-late adolescence.¹⁴ This CSS analysis further indicates that

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engaging in any binge drinking is a fundamental threshold defining a heavy drinking population. Rates for other measures of heavy drinking, including dependency, did increase with the frequency of bingeing. Nevertheless, binge drinkers as a whole, compared to current drinkers who did not binge, were significantly more likely to report higher rates across all indicators of heavy drinking and dependency-related experiences. Just over one-fifth of 11th-grade binge drinkers reported that they liked to get really drunk when they drink (21%) or experienced three or more dependency indicators (22%). As binge drinkers constitute 23% of 11th graders, this amounts to at least 5% of the total population of juniors.

Adolescent binge drinkers in California are also much more likely to be heavy drug users (e.g., HRU) than their nonbingeing peers. About half of binge drinkers in both 9th and 11th grades were HRU, were current marijuana users, and had been high/loaded on drugs at least three times. About three in ten were weekly marijuana users.¹⁵ Although this overlap is not as great as that for heavy drinking among HRU, it appears that adolescents who are heavy users of one type of psychoactive substance are likely to use another, regardless of their preferences. Given this overlap between HRU and BNG status, the similarities in the results for dependency-related experiences are not surprising. As we shall see, this also holds true for use-related problems and other risk behaviors.

Table 3.6
Comparison with National AOD Use Rates, Grades 8-10, since 2001

Substance Use	MTF 8 th Grade		CSS 9 th Grade		YRBS 9 th Grade		MTF 10 th Grade		CSS 11 th Grade		YRBS 11 th Grade		MTF 12 th Grade	
	2001 (%)	2003 (%)	2001 (%)	2003 (%)	2001 (%)	2003 (%)	2001 (%)	2003 (%)	2001 (%)	2003 (%)	2001 (%)	2003 (%)	2001 (%)	2003 (%)
Lifetime														
Alcohol ^a	50.5	45.6	48.2	42.0	73.1	65.0	70.1	66.0	65.3	63.2	80.4	78.6	79.7	76.6
Been drunk	23.4	20.3	22.0	21.4	NA	NA	48.2	42.4	43.1	40.6	—	—	63.9	58.1
Past 30 Days														
Alcohol ^b	21.5	19.7	29.3	24.7	41.1	36.2	39.0	35.4	40.7	37.1	49.3	47.0	49.8	47.5
Alcohol in school	13.2	11.9	7.8	7.2	5.3	5.1	—	—	9.1	8.0	4.7	5.0	—	—
Binge drinking ^c	13.2	11.9	13.4	11.5	24.5	19.8	24.9	22.2	26.2	23.3	32.2	31.8	29.7	27.9

^aCSS, full drink; MTF, any alcohol; YRBS, more than one or two sips. ^bCSS & YRBS, drink; MTF, any alcohol.

^cCSS & YRBS, past 30 days; MTF, past 2 weeks.

ENDNOTES

- ¹ Cahalan, Cisin, & Crossley 1969.
- ² Wechsler et al. 1994.
- ³ Binge drinking among college students has been a major concern since the mid-1990s, when it became the focus of the Harvard School of Public Health's ongoing College Alcohol Study (Wechsler et al. 1994).
- ⁴ Wechsler & Austin 1998; Wechsler 1994; Midanik et al. 1996; Wechsler et al. 1998.

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- 5 Among 7th graders, only 4% reported binge drinking, a negligible increase of less than one percentage point from the previous survey and still two points lower than in 1999.
- 6 Similarly the level of regular drinking (3 or ore days) doubles between 9th and 11th grade (9% to 18%), but drinking on only 1-2 days increases only three percentages points (16% to 19%).
- 7 This is only slightly lower (by 2 or fewer percentage points) than in the previous two surveys.
- 8 How does binge drinking compare to current use of marijuana, the most popular illicit drug? Similar percentages of binge drinking and marijuana use in 11th grade were reported for one or more days (23% vs. 20%, respectively) and three or more days (12% and 13%,). Where the two groups diverge is at higher frequencies. Binge drinkers were almost half as likely to report bingeing ten or more days than were marijuana users (4% vs. 7%). This probably reflects that daily use of marijuana is easier to conceal and less physically taxing than daily binge drinking.
- 9 The smallest differences between binge and nonbinge drinkers were for: (a) using after not intending to use in both grades; and (b) feeling better when drinking in 9th grade.
- 10 Nonbinge drinkers had rates similar to those of total sample, but they tended to be higher than was the case for Conventional Drug Users. Nonbinge drinkers were especially more likely than CON to use after deciding not to use, feel better when using than not, and feel use interfered with normal activities. As a result, the percentage of NBNG reporting one or more dependency experiences is higher than among CON. This difference may be due to the effect of frequent but not necessarily binge drinking.
- 11 Youth drinking trends stabilize, consumption remains high. NIH News, Tuesday, September 14, 2004.
- 12 There is reason to believe 8th graders over report binge drinking. (See MTF 1975-2000, Vol 1, chapter 4, footnote 27.
- 13 Flewelling, Pascall, & Ringwalt 2004.
- 14 Harford & Mills 1978; Ellickson et al. 1996; Flewelling, Pascall, & Ringwalt 2004; For example, in the National Survey on Drug Use and Health, by age 14 more than half of current drinkers reported that they binge drank, with the proportion increasing to 70% by ages 19 and 20. By age 22, the ratio of heavy drinkers to all drinkers is starting to decrease with age. Among 14- through 17-year-olds, binge drinking rates were over twice as high as the rate of frequent drinking, defined as any alcohol use on six or more of the past 30 days. The rate of frequent heavy drinking (five days of bingeing) was only moderately lower than that for frequent drinking.
- 15 Similarly, in the 2000 NSDUH, underage persons who reported binge drinking were seven times more likely to report past month use of any illicit drug than were their peers who did not binge drink (43% vs. 6%). Underage persons who reported current binge drinking were almost nine times more likely to report current use of marijuana and over six times more likely to have used any illicit drug other than marijuana compared with underage persons who did not binge drink (SAMHSA 2004).

Chapter 4

Use Problems, Cessation & Intervention Need

This section reports on the experiences of both HRU and binge drinkers vis-à-vis use-related problems and their own efforts to stop or reduce their AOD use, in comparison with occasional users.¹ In addition, based on the self-reported CSS dependence, problem, and cessation indicators, estimates are provided of the proportion of HRU and BNG, as well as the student population in general, that *may be* in need of treatment or other interventions.

Perceived Problems Related to AOD Use

One typical criterion for determining abuse, dependency, or treatment need is the adverse consequences from use. It is reasoned that high rates of AOD use alone do not constitute a sufficient index. Adverse consequences that result from use, particularly repeated consequences, must be considered. The 2003 CSS assessed eleven negative consequences of alcohol or drug use, including the pharmacological (memory loss/passing out), social (trouble with the police, schoolwork or school behavior), health (physical injuries or “health problems, strange ideas, weird feelings, suspicions of people, or lack of interest in doing things”), interpersonal (fighting with kids or damaging a friendship), and poor judgment (unwanted or unprotected sex), and “other.” There is also a response option for “used but never experienced any problems.” Tables 4.1-4.3 report the percentages reporting each option, as well as the total number of problems, from drug use, alcohol use, and any AOD use, respectively.² Those students who are the heaviest users can be expected to report more than one problem across these indicators.

A few caveats about the data need to be taken into consideration. The survey does not provide an indication of the degree to which students experienced each of these eleven problems. The question is also not time-sensitive. It asks if they have ever experienced each problem, not if they are currently experiencing them. In addition, perceptions of adverse consequences are likely to differ among newer than more experienced users. Some of the consequences are likely to occur when a person initiates use and is most susceptible to psychopharmacological effects (and before tolerance develops) and less experienced in dealing with them.

Another limitation of this analysis is that, with the possible exception of passing out, use-related problems are likely to be underestimated (or underreported) by students. For youth (or adults)

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whose AOD use causes significant problems to self and others, there is often a tendency either to deny use-related problems or fail to connect their problems to their AOD use. As shown below, this is evident in the relatively high percentage of HRU and BNG who say that they have never had a use-related problem.

Even with these limitations, the results summarized below underscore the degree to which adolescent heavy AOD use contributes to a broad range of health, academic, social, legal, and personal problems. Very few occasional users report any of these adverse consequences, but the numbers rise significantly among HRU and BNG. The adverse effects of alcohol and drug use among adolescents are concentrated in these two overlapping heavy-use populations.

Drug-related Problems among High Risk Drug Users

Table 4.1 shows that the HRU were about *seven times* more likely than the CON to have experienced most of the eleven problems measured by the CSS because of their drug use. The majority of the problems were reported by from one-sixth to one-fifth of HRU, versus about 2-3% of CON. CON rates were close to those of the total sample. Generally, percentages for most problems, as well as the total number of problems, are higher among HRU in 9th than 11th grade.

- **No Problems.** Despite their high level of use, 24% in 9th grade and 42% in 11th indicated that they used marijuana or other drugs but *never had any problems*.
- **Two or More Problems.** The percentages of HRU reporting two or more problems were 39% in 9th grade and 31% in 11th, six and 4.5 times the percentages for the CON, respectively. Moreover, 31% in 9th and 21% in 11th reported three or more problems. In contrast, only 6-7% of CON reported 2+ problems and about 4% reported 3+ problems.
- **Health Problems.** The most-selected problems by both HRU and CON were having physical or mental health problems (“have health problems, strange ideas, weird feelings, suspicions of people, or lack of interesting in doing things”). These were reported by 31% of HRU in 9th grade and 25% in 11th, about four and three times higher than CON, respectively (8% in both grades).
- **School Problems.** Among the next most-selected problem, and one for which group differences are especially large, were those related to school. In 9th grade, 23% reported both getting into trouble/missing school and hurting schoolwork, *seven times* the CON rate (3%). In 11th grade, results were similar for getting into trouble/missing school, at 18% vs. 2%. Trouble with schoolwork dropped by about half (to 12%), but this was still four times higher than among the CON (3%).
- **Pharmacological Problems.** Similar proportions reported forgetting what happened, passing out, or losing control after using drugs, at 22.5% and 18%, compared to 4% of CON.
- **Law Enforcement and Money Problems.** Only slightly fewer HRU indicated that they had drug-related problems with the police (20% in 9th grade and 15% in 11th, vs. 3-4% of CON) or with money (16% in both grades vs. 2% of CON).

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- **Fighting.** Among the biggest differences by grade was fighting with other kids and damaging a friendship, two indicators of interpersonal relationships. In 9th grade, the percentages (c. 21%) were twice those in 11th grade (7.5% and 10%). HRU rates were seven times those of CON.
- **Risky Sexual Behavior.** About one-in-ten HRU indicated that they had had unwanted/unprotected sex. This is the only problem whose rates *increased* meaningfully between 9th and 11th grade (from 9% to 12%), probably because it is more developmentally related to age. CON rates are negligible.
- **Physical Injury.** Among the least-selected problems was being physically hurt or injured. This is also a problem to which 9th graders seem especially sensitive, as the HRU rate dropped from 16% to 4% in 11th grade. This likely reflects that 9th graders are relatively lacking in experience with how to handle the pharmacological effects of AOD use.

Table 4.1
Specific Problems Ever Caused by Drug and Alcohol Use among HRU and CON

	9 th Grade			11 th Grade		
	Drugs		Alcohol	Drugs		Alcohol
	CON (%)	HRU (%)	HRU (%)	CON (%)	HRU (%)	HRU (%)
Health problems*	7.6	30.8	31.2	7.6	24.8	20.4
Trouble or problems with police	3.4	19.6	25.0	3.9	15.1	21.5
Money problems	2.2	16.1	12.0	2.0	16.4	7.0
Get into trouble or miss school	3.0	23.1	19.1	2.4	17.8	15.0
Problems with school work	3.3	22.8	20.3	3.0	12.3	9.4
Fight with other kids	3.1	21.8	21.1	1.2	7.5	17.2
Damage a friendship	3.0	20.6	21.0	3.0	10.4	12.4
Physically hurt or injure self	1.9	15.7	12.3	1.1	4.3	13.6
Unwanted/unprotected sex	1.4	9.0	14.2	1.7	11.7	17.7
Forget/pass out/lose control**	4.2	22.5	28.2	4.0	17.8	38.1
Other	3.6	11.9	11.5	3.8	9.6	10.2
Used but had no problems	17.7	24.1	27.3	26.9	41.9	34.1
One or more problem	19.1	64.1	71.4	18.1	57.7	64.2
Two or more problems	6.4	39.3	40.5	7.3	30.7	38.0
Three or more problems	4.5	30.8	32.2	3.8	21.3	27.3

*Have health problems, strange ideas, weird feelings, suspicions of people, or lack of interest in doing things

**Forget what happens, pass out, or lose control

Alcohol-related Problems among Binge Drinkers

Table 4.2 shows that BNG were generally two-to-three times more likely to report each of the alcohol-related problems than NBNG. Only about 6-10% of NBNG in 9th grade, and 3-7% in 11th grade, reported each problem, versus roughly 10-20% of BNG (with the exception of higher rates for passing out in both groups). Prevalence rates in 9th grade were often higher than in 11th grade, as found for the HRU, with the notably exceptions including passing out and risky sex. For BNG,

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they were higher for several problems (money, school, health) and only 4-5 points lower for most others (police, injury, sex).

- **No Problems.** Similar to the HRU, four out of ten BNG in both grades did not believe they had any problems because of their drinking.
- **Two or More Problems.** About one-third of BNG reported two or more problems, over twice the NBNG (13-14%). About one-quarter reported three or more problems, versus one-tenth of NBNG.
- **Pharmacological and Health Consequences.** The most frequently-selected problem, by 26% of 9th and 36% of 11th graders, was forgot what happened, passed out, or lost control, 2.5 times greater than for NBNG in 9th grade and almost two times greater in 11th. This is one of few problems that increased significantly between 9th and 11th grade (by ten points for both NBNG and BNG), reflecting the rise in intoxication frequency that occurs with age. This measure did not increase among HRU for drugs.
- **Health Problems.** Other health issues (“health problems, strange ideas, weird feelings, suspicions of people, or lack of interest in doing things”) were reported by 25% of 9th-grade bingers, declining to 18% in 11th grade, twice the level of HRU in both grades.
- **Law Enforcement Consequences.** Getting into trouble or having problem with the police was the next selected option, by 15.5% of BNG in 9th grade, rising to 19% in 11th grade. This is two times the NBNG rate in 9th grade and three times greater in 11th. At least in part this likely reflects of the high rate of drinking and driving among bingers, as discussed below. This also helps explain why the HRU rate for police problems from drugs is the same as BNG for alcohol in 9th grade but half as high in 11th.
- **School Consequences.** About one--sixth of BNG in 9th grade (15.5-17.5%), dropping to one-tenth in 11th grade (9-11%), reported drinking caused them to have problems with schoolwork and at school. Among the biggest differences by grade across problems was the drop in drinking hurting schoolwork, which declined by half in 11th grade (from 17.5% to 9%). These rates are over twice those for NBNG, four times greater in the case of problems with schoolwork in 11th grade.
- **Fighting.** Getting into a fight with other kids was similarly selected by 17% in 9th grade BNG, but fell in the mid range among 11th graders, at 14%. Whereas these results are only slightly higher than for NBNG in 9th grade, they are four times higher in 11th. They are twice as high as reported by HRU for drugs in 11th grade, but equivalent in 9th. This jump in alcohol-related fighting in 11th grade warrants further investigation, but may be related to altercations that occur at drinking parties.
- **Risky Sexual Behavior.** Experiences of unwanted or unprotected sex as a consequence of drinking was reported by 12% of binge drinkers in 9th grade and 17% in 11th, three and about 2.5 times the rates, respectively, for NBNG (3.5% 9th and 7% 11th). Among 11th graders, this is the most frequently-selected problem after the passing out, health, and police problems. The BNG percentages are higher than HRU.

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- **Physical Injury.** The percent that had been physically hurt or injured was 10% in 9th grade and 14% in 11th. These results are noticeably higher than for drug use among HRU (selected by only 4% in each grade).
- **Interpersonal Problems.** “Damage to a friendship,” was reported by around 11% of BNG in both grades, five times the percentage for NBNG in 11th grade. This relatively low ranking undoubtedly reflects the endemic nature of drinking within adolescent culture. In contrast, twice as many HRU in 9th grade selected this option for problems with drugs, although results were equivalent in 11th.
- **Financial Problems.** The least-selected option was money problems, by 8.5% in 9th grade and 7% in 11th. These rates are about half of those for drug use by HRU.

Alcohol-problem percentages were higher among BNG than drug-problem percentages among HRU in five categories: police, fighting, physical injury, unwanted sex, and passing out. As discussed further below, these are also problems that HRU report a higher prevalence from alcohol than drugs. These higher rates are likely related to the acute pharmacological affects of alcohol or, in the case of police trouble, to typical alcohol-related behavior such as boisterous partying or drinking and driving.

Regular Binge Drinkers

The number of RBNG (binged 3 or more of 30 days) is smaller, especially in 9th grade, and thus the percentages less reliable. Still, in 11th grade regular bingers constitute 12% of the student population and the results are consistently higher than for binge drinkers as a whole. About three-in-ten regular bingers in both grades reported *three or more problems*. In some cases the differences between RBNG and BNG are small (e.g., problems with health, damaging friendship, physical injury; police trouble in 11th grade). But RBNG percentages are four to eight points higher for forgetting/passing out, unwanted/unprotected sex, fighting, and trouble with school.

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Table 4.2
Problems Ever Caused by Alcohol or Drug Use, by Binge Drinking Category.

	9 th Grade				11 th Grade			
	ALCOHOL			DRUGS	ALCOHOL			DRUGS
	NBNG (%)	BNG (%)	RBNG (%)	BNG (%)	NBNG (%)	BNG (%)	RBNG (%)	BNG (%)
Health problems*	13.5	24.6	26.0	20.2	9.3	18.4	18.3	17.3
Trouble or problems with police	8.0	15.5	22.5	12.7	3.2	19.4	22.3	9.7
Money problems	6.0	8.5	15.9	10.7	1.2	6.6	10.0	9.4
Get into trouble or miss school	7.3	15.7	21.7	15.8	4.7	11.2	15.1	9.9
Problems with school work	7.0	17.5	22.4	16.1	1.4	9.3	11.9	8.8
Fight with other kids	13.2	16.7	24.9	9.9	3.2	14.1	19.6	4.5
Damage a friendship	5.9	10.9	11.7	9.7	3.4	10.9	13.8	4.7
Physically hurt or injure self	5.8	10.4	10.3	7.5	3.7	13.8	14.7	2.5
Unwanted/unprotected sex	3.5	11.9	17.5	4.9	6.7	16.7	21.3	9.6
Forget/pass out/lose control**	10.7	25.8	31.8	16.3	19.6	35.1	42.5	11.8
Other	4.7	8.4	10.2	7.5	7.9	11.4	12.2	5.6
Used but no problems	48.3	42.2	36.6	28.2	59.2	41.2	34.0	33.9
One or more problems	38.9	60.5	67.1	48.6	37.5	58.9	66.4	40.2
Two or more problems	14.1	32.6	38.7	25.3	13.0	36.6	43.4	21.1
Three or more problems	11.2	26.4	32.2	19.3	7.0	24.7	28.6	12.1

*Have health problems, strange ideas, weird feelings, suspicions of people, or lack of interest in doing things

**Forget what happens, pass out, or lose control

Overlap in AOD Problems

Because of the overlap between HRU and binge-drinking status, as well as the high rate of polydrug use among heavy users, we calculated how many alcohol-related problems were reported by HRU (Table 4.1), how many drug-related problems were reported by Binge Drinkers (Table 4.2), and then the total percentage of problems from any AOD use by both group (Table 4.3). The results illustrate that the HRU/BNG overlap is not just limited to patterns of drug and alcohol use but also involve use-related problems.

Alcohol-Related Problems among HRU

Table 4.1 shows that rates of alcohol-related problems among HRU were often just as high as for drug use in 9th grade, and generally higher in 11th grade. About four-in-ten HRU in both grades reported two or more alcohol-related problems, higher percentages than for drugs.³ Looking at specific problems, HRU in 11th grade were especially likely to report more problems from alcohol than drugs in the five categories higher among BNG from alcohol than among HRU from drugs: police, fighting, physical injury, unwanted sex, and passing out.

Drug-related Problems among Binge Drinkers

As shown in Table 4.2, use-related problems among BNG were also not limited to just alcohol: 25% of binge drinkers in 9th grade and 21% in 11th reported two or more drug-related problems, indicating they are using drugs at a level that can be characterized as problematic. In both grades, these percentages are about twice those of NBNG. In contrast to the results for alcohol problems among HRU, BNG generally reported lower percentages for each problem (and total problems)

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from drugs than alcohol, with the notable exception of money problems. This reflects that, although both groups are heavy users of both alcohol and drugs, HRU are more likely to drink heavily than BNG are to use drugs heavily. Still about one-out-of-ten or more of BNG reported 8 of the problems from drug use in 9th grade and 6 of the problems in 11th.

Total AOD-related Problems

As would be expected given these results, Table 4.3 shows that the problem rates from the use of *either* alcohol or drugs, as well as total number of problems, were higher than for alcohol and drugs individually. Two or more AOD problems were reported by over half of HRU (56% and 54%) and just under half of BNG (47% both grades). These rates were over 2.5 times greater than those for CON (around one-sixth).⁴ HRU rates in both grades exceeded BNG, with the exception of problems with schoolwork, injury, and unwanted/protected sex in 11th grade, for which they were more equivalent. The highest percentages were reported by 9th-grade HRU, indicating that they are the most prone to AOD-related problems, or at least most prone to report them.

Table 4.3
Problems Caused by Either Alcohol or Other Drug Use among BNG, HRU, CON, and the Total Sample

	9 th Grade				11 th Grade			
	ALL (%)	CON (%)	HRU (%)	BNG (%)	ALL (%)	CON (%)	HRU (%)	BNG (%)
Health problems*	8.4	11.8	39.2	31.1	11.6	11.8	33.0	25.7
Trouble or problems with police	5.5	6.1	33.1	21.3	8.4	8.1	27.5	24.1
Money problems	3.5	4.0	19.9	14.9	5.4	4.1	19.1	13.6
Get into trouble or miss school	4.7	5.8	26.2	20.3	6.8	5.3	22.8	16.9
Problems with school work	4.5	5.2	27.4	22.6	5.8	5.2	16.3	14.7
Fight with other kids	5.1	6.3	27.3	20.2	4.6	3.4	18.7	15.3
Damage a friendship	4.4	5.6	23.1	14.1	5.6	5.7	19.3	13.6
Physically hurt or injure self	3.7	4.9	18.2	13.7	4.2	4.4	14.9	14.7
Unwanted/unprotected sex	3.0	3.3	17.5	12.3	6.6	6.2	22.6	21.9
Forget/pass out/lose control**	7.7	10.4	34.1	30.2	14.6	15.9	41.5	36.9
Other	4.7	6.8	15.3	11.7	7.2	9.0	14.8	14.1
One or more problem	21.8	31.7	79.6	68.2	31.7	36.8	74.3	64.9
Two or more problems	11.6	14.6	56.2	46.5	18.0	18.6	53.6	46.7
Three or more problems	6.8	8.7	38.2	30.1	10.8	9.7	36.2	31.0

*Have health problems, strange ideas, weird feelings, suspicions of people, or lack of interest in doing things

**Forget what happens, pass out, or lose control

Discussion

A high proportion of these heavy substance users are putting themselves at risk of experiencing a wide-range of use-related problems that can adversely affect their schooling, their social and personal relationships, their physical and mental well-being, and their legal status. It is among these heavy-user groups that the social costs of adolescent substance use are concentrated. About half of both HRU and BNG in both grades reported two or more AOD-related problems, and about one-third, reported three or more problems — with rates being higher in 9th than 11th grade and higher among HRU than BNG.

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The Issue of Problem Denial

A substantial minority of both heavy-use groups — as much as four-in-ten of BNG in 9th grade and of both BNG and HRU in 11th grade — reported that they experienced no use-related problems, despite their heavy use. Indeed, heavy users were more likely to report having no problems than were occasional users. This suggests that intervention programs need to assist users in seeing how their problems are linked to their AOD use. As we shall see in the Section 6, heavy users also experience a wide range of other personal, social, and behavioral problems that undoubtedly are affected by their use.

Grade Factors

That these problems are already materializing in the 9th grade supports the need for middle-school programs targeting at-risk youth. That the prevalence of problems for both heavy-user groups were generally higher in 9th than 11th grade might appear curious. Heavy use increases dramatically between these ages and, because questions are framed in terms of lifetime frequency, one would anticipate an increase in cumulative percentages. There could be several explanations for this. Younger students may be more sensitive to problems because they are less experienced users and/or, in the case of alcohol, they are smaller and more susceptible to acute pharmacological effects. As they get older, they may be able to handle the effects of substance use better, and have fewer problems. This may partly explain why no-problem rates decrease in 11th grade as heavy use increases. An alternative explanation is that students who are experiencing AOD-related problems in 9th grade may no longer be in regular school by the 11th grade. Supportive of this, the drop in problem percentages between 9th and 11th grades was especially prominent for school-related problems. Consistent with this, as discussed in Section 6, heavy users report lower grades and school attendance than do occasional users. Most likely, all these factors play a role.

Substance-related Differences

The results for HRU and BNG are similar in several respects in the pattern and number of problems reported, reflecting the overlap between the two. Yet differences also emerged that indicate some problems are more associated with alcohol use and others with drug use.

The total-problem rates among binge drinkers were higher than among HRU in 11th grade, but lower in 9th. For two or more problems, in 9th grade BNG were six points lower than were HRU (33% vs. 39%), whereas in 11th grade they were six points higher (37% vs. 31%). This suggests that onset of heavy drug use in the 9th grade is associated with enhanced risk of use-related problems, but the rapid increase in binge drinking by the 11th grade may make it relatively more problematic.

In 11th grade, binge drinkers reported higher problem rates from alcohol than did HRU from drugs on five of ten indicators: passing out/forgetting, trouble with police, fighting with other kids, physical injury, and unwanted/unprotected sex. Fighting with other kids was twice as prevalent among BNG than HRU in 11th grade; the rate for unwanted/ unprotected sex, five points higher. The HRU also tended to report higher rates on these problems from their use of alcohol than from their use of drugs. All five of these problems are related to the acute pharmacological effects of alcohol in reducing judgment, fostering lack of control, and impairing one's physical abilities.

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That problems with the police are more related to alcohol than drugs in 11th grade is probably because two of the ways that students come to the attention of police for substance-related behaviors are boisterous drinking parties and drinking and driving. Consistent with this, the HRU were more involved in drinking and driving than even the BNG. These alcohol-related problems among the HRU further support the need to address alcohol use when dealing with heavy drug users.

In contrast, HRU reported a higher prevalence of problems involving friendships and money from drug use than did BNG (or the HRU) from alcohol, especially in 11th grade. This can be accounted for by the legal status of alcohol drinking among adults and the normative nature of it among teens, which makes its use cheaper than drugs and less likely to create a problem among friends. The relatively low rate of these problems for alcohol underscores the difficulty in reducing alcohol use.

School-Related Problems

School-related problems were among the most selected by both heavy user groups, with differences particularly large compared to occasional users. The two school-related problems were also among the categories that percentages declined the most between 9th and 11th grade, possibly reflecting that a good proportion of heavy users drop out of school before the 11th grade. That the HRU were even more likely than BNG to report them may be related to getting caught for drug possession at school and/or the affects on schoolwork of high frequency drug use versus a pattern of less-frequent heavy drinking (e.g., during the weekend).

Drinking and Driving

One of the most encouraging trends in CSS results in recent years has been the decline in involvement in drinking and driving, as measured by the frequency students report driving after drinking or being in a car in which a friend was driving after drinking (see main CSS Report). Results for heavy AOD users, however, are troubling. Table 4.5 reveals the extent to which both BNG and HRU are placing themselves at risk of physical injury from their own or a friend's drinking and driving. Half or more of them in both grades reported at least one instance. Not surprisingly, youth who did not use any drugs or alcohol in the past six months (the ABS) reported relatively small involvement in drinking and driving. Fewer than 10% in both grades reported one or more instances, and only about 3% reported three or more.

These results are particular disturbing. Even though overall prevalence rates are declining among 11th graders, about one-third of BNG and HRU have placed themselves at physical risk by involvement in drinking and driving on three or more occasions.⁵

Binge Drinkers in 11th Grade

In the 11th grade, when teens start driving on their own, 32% of binge drinkers reported *three or more instances* of drinking and driving involvement, and 16% reported *seven or more instances*. These rates are more than twice those of NBNG (15% and 7%, respectively). The percentages

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among RBNG are almost three times higher, at 42% for three or more instances and 20% for seven or more.

Binge Drinkers in 9th Grade

Among 9th graders, the results are even more striking. One-third (34%) of BNG reported *three or more instances*, almost three times the NBNG (13%). One-fifth reported seven or more instances (vs. 8% of NBNG). Once again, the prevalence rates and group differences are higher than among 11th graders, even though 9th graders are below the legal driving age. This high rate of drinking/driving involvement among binge drinkers at such an early age is likely related to drinking with older teens who do drive.

High Risk Users

For High Risk Users of drugs, the percentages are very similar to those of binge drinkers, reflecting their heavy alcohol use. Just under one-third in both grades reported *three or more* episodes, almost three times higher than the CON (c. 12%).

Table 4.4
Drinking and Driving Involvement

	9 th Grade						11 th Grade					
	ABS (%)	CON (%)	HRU (%)	NBNG (%)	BNG (%)	RBNG (%)	ABS (%)	CON (%)	HRU (%)	NBNG (%)	BNG (%)	RBNG (%)
Once	4.6	8.7	7.1	11.1	10.8	11.4	4.1	10.0	8.2	8.8	8.6	6.3
2 times	1.5	3.5	9.0	4.3	8.7	9.0	1.4	7.9	11.5	7.2	12.5	11.2
3-6 times	1.5	4.4	12.4	5.1	14.6	12.9	1.7	6.8	16.0	7.7	16.0	22.7
7 or more times	1.1	7.1	18.6	7.8	19.7	23.4	2.0	5.3	16.4	6.9	16.4	19.6
Total	8.7	23.7	47.1	28.3	53.8	56.7	9.2	30.0	52.1	30.6	53.5	59.8

Cessation Attempts

Given their level of heavy use and the prevalence of dependency and use-related problems among them, what proportion of HRU and BNG have made efforts to stop or at least reduce their use? Six questions on the survey provide information along a spectrum of cessation-related efforts, from contemplation to action. They ask students about the frequency of alcohol and marijuana cessation attempts and whether they had ever felt the need for help (treatment or counseling), thought about reducing or stopping use, talked to someone about it, and attended counseling or a program to help reduce or stop use. The resulting data also are another indicator of the level of use involvement, as recognition of the need for help or making an attempt to stop use are the typical indicators of drug abuse or dependency.

The results, reported in Table 4.5, reveal heavy users are more likely than occasional users to have thought about, and attempted to, stop or reduce their use. However:

- Cessation thoughts and efforts are greater among heavy drug users than heavy alcohol users.

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- A much higher proportion of 11th-grade heavy users reported contemplating or trying to stop alcohol or marijuana use than actually sought help.

Number of Cessation Questions Endorsed

From 55% to 58% of heavy users selected *at least one* of the cessation indicators, with the exception of 46% of 11th-grade BNG. In 9th grade, about three-in-ten HRU (31%) and BNG (29%) selected *two or more cessation indicators*, twice the level of occasional users (12% for CON and 14% for NBNG). In 11th grade, the HRU rate rose to 39%, over three times higher than CON (stable at 12%). The BNG rate declined slightly (27%) but is still 1.5 times higher than for NBNG (16.5%).⁶

Contemplation

Heavy users were about twice as likely as occasional users to have thought about reducing or stopping use. Among BNG, the rates were 17% in 9th grade and 21% in 11th (vs. 7% and 13% of NBNG). The percentage for HRU was similarly 15% in 9th grade (vs. 7% CON) and rose to 32% in 11th grade (vs. 16% CON).

Cessation Attempts

Among the BNG, about the same percentages as for contemplation reported *at least one attempt* to stop drinking, 25% in 9th grade and 19% in 11th. In contrast, 43% of HRU in 9th grade and 48% in 11th had tried to stop marijuana use, over 1.5 and 2.5 times higher, respectively, than the BNG. Three-in-ten HRU had tried *two or more* marijuana cessation attempts (5 times the CON), versus about one-in-ten BNG for alcohol (about the same as NBNG).

A relatively large proportion of both heavy user groups reported at least one attempt to stop both alcohol and marijuana use, reflecting the overlap in HRU and BNG behavior. Almost one-third of HRU in 9th grade (31%) and one-quarter in 11th (24%) reported at least one attempt to stop *drinking* (vs. 16% and 14% of CON). Similarly, about one-third of BNG had attempted to stop marijuana use.⁷ *Indeed, Binge drinkers were more likely to have tried to stop marijuana use than alcohol!* Regardless of group, heavy users were more likely to try to stop marijuana use than alcohol use.

Perceived Need for Help

The percentages reporting that they ever felt the need for help for their AOD use, such as treatment or counseling, were much lower than for contemplating or attempting to stop — and HRU and BNG were more similar in their responses. Only about one-tenth of BNG and HRU answered affirmatively, half the cessation-contemplation percentage. However, this compares with only 2-4% of CON and NBNG. Percentages were higher in 9th than 11th grades, nearly twice as high for binge drinkers (11% vs. 6% for BNG and 12% vs. 9.5% for HRU).

The “don’t know” response to this question is also of interest, as these youth may have at least considered that they needed help or had doubt about it (i.e., didn’t mark “no”), creating a larger pool of youth potentially considering help. In 9th grade, about one-third of both HRU and BNG selected either “yes” or “don’t know” on this question (2 and 1.5 times the NBNG and CON, respectively). In 11th grade, the combined rate dropped to 13% for BNG and 11% for HRU.

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Discussed Use Reduction

Percentages for having spoken to someone about reducing or stopping use were similar to those for perceived need for help, with HRU slightly higher than BNG. Among BNG, 10% in both grades had taken this action, compared to 5-7% of NBNG. Among HRU, the rate was higher at 14% in 9th and 15% in 11th, over three times the CON (4%). In 11th grade, these rates for both HRU and BNG were about half the percentage that had thought about stopping.

Sought Help

Only about five percent of both HRU and BNG in either grade had actually seen a counselor or joined a recovery group, about half the percentage who felt they needed help, although again this is double the occasional users.

Discussion

Overall, three conclusions stand out. First, there is an openness to intervention among heavy users. Substantial numbers of heavy users, more than occasional users, have worried enough about their AOD use to at least contemplate cessation or reduction.

Second, reducing heavy alcohol use poses a much greater challenge than reducing drug use. Both HRU and BNG were less likely to try stopping alcohol use than marijuana. The stop-alcohol rates declined with age, whereas the stop-marijuana rates increased among the HRU. In addition, in 11th grade the percentages selecting each cessation option were lower among BNG than HRU. This greater reluctance of heavy users to stop drinking than using drugs is undoubtedly due to the greater social acceptability and prevalence of alcohol.⁸

Third, relatively few heavy users went beyond contemplation or self-motivated efforts to stop/reduce use to actually seek help from another person. The percentages attending a program were about half of the percentages who felt they needed help to stop use.

It is not surprising that far fewer respondents felt they needed help or talked with someone about cessation than attempted to reduce/stop use on their own. There may be many reasons for reducing/stopping use other than an awareness of needing help. Moreover, sharing their problem with another person might be embarrassing or may even get them into trouble. Problematic drinkers and users must first admit to themselves that they need help, and this is usually a step that follows after unsuccessful private attempts at cessation. This underscores the need to provide support and help for users in this process, as is typically done by school-based Student Assistance Programs (see Conclusion).

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Table 4.5
Cessation Experiences: Binge vs. Non-Binge Drinkers

	9 th Grade				11 th Grade			
	NBNG (%)	CON (%)	BNG (%)	HRU (%)	NBNG (%)	CON (%)	BNG (%)	HRU (%)
1. Thought about reducing/stopping use	7.1	6.9	16.6	15.1	13.3	10.4	20.9	29.4
2. Tried to stop using alcohol	22.6	15.9	25.4	31.2	16.9	13.5	18.9	24.2
2 or more times	10.9	5.2	8.2	15.0	6.6	4.1	9.9	14.0
3. Tried to stop using marijuana	15.5	13.6	35.4	43.2	21.8	16.0	31.5	47.8
2 or more times	10.0	5.4	14.4	26.2	8.6	6.0	18.9	31.7
4. Spoke about reducing/stopping	4.7	3.5	10.0	13.8	7.0	4.1	9.6	15.8
5. Attended counseling, program, group	2.1	2.2	5.2	5.9	2.3	2.1	3.0	5.1
6. Felt needed help to stop use	4.1	2.4	10.6	12.1	2.6	2.2	5.9	9.5
Felt needed help + don't know	19.1	15.7	32.6	36.8	12.9	11.3	13.4	18.8
1 or more of 6 above	34.8	26.2	55.3	57.5	33.8	28.9	46.1	56.0
2 two or more of 6 above	13.7	12.3	28.7	31.1	16.5	12.5	27.1	39.4

Estimated Treatment and Intervention Need

The HRU and binge drinkers clearly constitute two groups of heavy substance users that are more likely than occasional users to report risky patterns of use, dependency indicators, use-related problems, and cessation or use-reduction efforts — the four main criteria typically used to define abuse or heavy use. That by 11th grade about one-fifth of students are engaging in each of these behaviors, and that three-out-of-ten are either HRU or BNG, should be of serious concern. However, the data also reveal that not all HRU/BNG use at the same level or experience the same degree of problems and dependency indicators. Although all HRU and BNG are at elevated risk of use-related problems and dependency, it does not follow that all are equally in immediate need of treatment or other form of intervention. There also may be other heavy substance users who don't fall within these two categories of users who warrant services.

Taken as a whole, the range of problem, dependency, and cessation questions on the CSS enabled us to provide more precise estimations of intervention need than has been previously possible. In this section, we turn to answer three questions. Beyond the self-reported cessation-related efforts, what percentage of HRU and BNG could be considered as having a substance use problem serious enough that they might be dependent (or at risk) and in need of some form of treatment? What percentage have a less serious problem but still might be abusers in need of some form of other intervention designed to help them stop or at least reduce use or slow the rate of escalation? Third, what percentage of the total student population in addition to HRU/BNG might be similarly classified, which would constitute an estimate of the total potential intervention-need population?

Because there was no consensus as to the best estimation method, as discussed in the Introduction, we undertook several approaches to see how consistent the results would be. Based on the research literature, we determined that: (a) the criteria should include evidence of current use in the face of problems, dependency indicators, or cessation efforts; and (b) no person should be

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included in the intervention population based on only one indicator, because of the possibility that a single response marking could be a random error or not sufficient in and of itself to constitute evidence of intervention need. First, we looked at different combinations of multiple markings of the three types of indicators. We then used an estimation model based on the American Psychiatric Association's *Diagnostic Statistical Manual*. The results are provided in Table 4.6.

Multiple Indicator Estimations

We first determined what percentage of HRU and BNG reported at least *two or more problems* from any AOD use *or* two or more dependency indicators. We label the heavy users that met these criteria **HRU-Plus** and **BNG-Plus**. We then eliminated the overlap between the two groups (i.e., those who were both HRU-Plus and BNG-Plus) to determine the total percentage that were either HRU-Plus or BNG-Plus (the **HRU/BNG-plus**). Problems from either alcohol or drugs were used as the criteria because of the high rate of both heavy alcohol and drug use (including polydrug use) among both groups. Given this, students might experience difficulty in determining whether any use-related problem they were experiencing was related to alcohol or another drug. Two problems or two dependency indicators were used as the criteria to remove inclusion based on a stray mark and because, consistent with research literature, more than one indicator should be necessary to qualify for inclusion in an intervention group. Table 4.6 shows that of the total sample in each grade:

- 4.5% of 9th graders and 8.7% of 11th were HRU-Plus.
- 4.9% were in 9th grade and 11.2% in 11th were BNG-Plus.
- 6.3% of 9th graders and 13.3% were either HRU-Plus or Binge-Plus.⁹
- 3.1% and 6.6%, respectively, were both HRU-Plus and Binge-Plus, or roughly half of those who were one or the other.¹⁰

In other words, of all students that are either HRU *or* BNG — 18% of 9th graders and 30% of 11th — one-third and 43%, respectively, met these criteria. Of the 5% of 9th graders and 11% of 11th graders who were both HRU and BNG, about six-in-ten were both HRU-Plus and BNG-Plus, confirming this is a population with a serious substance use problem.

If we increase the cutoff point to *three or more problems or dependency indicators*, 4.5% of 9th graders and 9.4% of 11th graders were HRU or BNG and met these criteria. This constitutes 25% of HRU/BNG in 9th grade and 31% in 11th. Again, about half were both HRU *and* Binge (2.4% and 5.4% for the total population). Analysis of the data indicated that these results were influenced more by the number of problems reported than the number of dependency indicators. The percentages for HRU and BNG individually in each grade were virtually the same, as we found for other more restrictive criteria as well.

Using the even more restrictive criteria of marking *at least two problems AND two dependency indicators* resulted in an estimate for HRU or BNG of 3.2% of all 9th graders and 6.4% of 11th, or 18% and 21%, respectively, of the HRU/BNG population. These percentages are about half of those found for 2+problems OR 2+ dependency indicators. Under these criteria, the percentages

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reported individually for HRU and BNG are virtually the same as for the combined HRU or BNG. About 2% (9th) and 4% (11th) were HRU and BNG. Only about 1% of BNG who met this criteria were not HRU as well.¹¹

Finally, we calculated the percentages that marked *at least one problem, one dependence, and one cessation indicator* — to establish a minimum — plus at least one other problem or dependence indicator (for a total of four points across these indicators). This method, by making a cessation effort required, arguably identifies that component of the population that is both most in need of, and amenable to, intervention. By this method, almost exactly the same results are achieved as for 2 problems and 2 dependency indicators: 3.7% HRU *or* BNG in 9th grade and 6.2% in 11th (and 2% and 4% of HRU *and* BNG) — almost exactly the same as found for two problems and two dependency indicators.

These four estimation methods suggest that about 3.5% of 9th graders and 6% of 11th are HRU or BNG and in need of serious intervention, with about half of these being in greatest need as they are both HRU and BNG. As much as an additional 3% of 9th and 7% of 11th graders may have experienced less serious problems but still warrant some level of intervention, resulting in a total intervention-need estimate among the HRU and BNG of 6.5% for 9th and 13% for 11th.

Table 4.6
Estimates of Intervention Need Population among Total Sample, HRU, and BNG

	9 th Grade					11 th Grade				
	ALL (%)	BNG (%)	HRU (%)	BNG or HRU (%)	BNG & HRU (%)	ALL (%)	BNG (%)	HRU (%)	BNG or HRU (%)	BNG & HRU (%)
2+ AOD problems OR 2+ dependency	10.3	4.9	4.5	6.3	3.1	19.3	11.2	8.7	13.3	6.6
3+ AOD problems OR 3+ dependency	7.2	3.5	3.4	4.5	2.4	12.9	7.8	7.0	9.4	5.4
2+ AOD problems AND 2+ dependency	4.9	2.5	2.5	3.2	1.8	8.4	5.5	5.1	6.4	4.4
1 AOD problem, 1 dependency, 1 cessation	4.9	2.9	2.8	3.7	1.9	8.8	5.2	5.0	6.2	4.0
DSM Dependency	4.3	2.2	2.2	2.8	1.6	8.4	4.7	5.0	6.0	3.7
DSM Abuse	6.0	3.2	2.8	4.0	1.9	10.0	7.0	5.0	8.4	3.7

Estimates Based on DSM Criteria

As discussed in the Introduction, to make the survey more useful for determining heavy use and intervention need, we turned for guidance to the criteria recommended by the American Psychiatric Association for clinically diagnosing abuse and dependence, as specified in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (DSM-IV) (American Psychiatric Association [APA], 1994). These criteria, listed in Table 4.8, include indicators of drug use tolerance, withdrawal, lack of use control, cessation efforts, heavy involvement in a drug use lifestyle, experiencing adverse effects on life, and continuing the use in the face of persistent

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use-related problems. Questions are included in the survey that map on to all these criteria, except withdrawal, as shown in Table 4.8.

According to the DSM-IV, a person receives a diagnosis of dependence if he or she experiences within the past 12 months at least three of the six criteria if withdrawal data are not available. Similarly, using CSS items, we categorized a student as potentially dependent and in need of treatment if he or she answered positively to questions related to three of the same six areas as in the DSM. The following lists the six DSM criteria followed by the CSS criteria:

- DSM-IV: Evidence of tolerance to use
CSS: Increased use for same effect;
- DSM-IV: Lack of use control
CSS: Used a lot more than intended or used when wasn't planning to use;
- DSM-IV: Time-consuming substance use lifestyle
CSS: Spent a lot of time finding, using recovering from AOD use;
- DSM-IV: Important activities given up/reduced because of AOD use.
CSS: Use interfered with normal activity, like school, recreation/hobby, or work;
- DSM-IV: Persistent or recurrent physical or psychological problems
CSS: Reported two or more of the 12 problems from AOD use; and
- DSM-IV: Attempted cessation or tried treatment.
CSS: Met one or more of following four criteria: reported 2 or more efforts to stop use, felt need for treatment, talked to someone about use, or attended a counseling or treatment session, or participated in a cessation activity.

Substance *abuse*, considered a less severe problem than dependency, is determined in DSM-IV by not being dependent but engaging in recurrent use with one or more of following problems in past 12 months. For CSS, we identified the percentage of current users (past 30 days) who answered positively to at least one of the following:

- DSM-IV: Results in failure to fulfill major role obligations (work, school)
CSS: AOD caused money, school, or normal activity
- DSM-IV: Using in situations which are physically hazardous
CSS: Drinking and driving or AOD use ever caused physical injury, unwanted/protected sex, or passing out
- DSM-IV: Related legal problems (arrests)
CSS: AOD use ever caused trouble with the police
- DSM-IV: Persistent or recurrent social or interpersonal problems caused or exacerbated by use effects (physical fights etc.)
CSS: AOD use ever caused a fight with other kids or damaged a friendship.

There are limitations to this approach. The applicability the DSM dependency criteria to adolescents has been questioned because of the low prevalence rates of certain alcohol abuse and

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dependence symptoms (e.g., legal problems, withdrawal symptoms) among adolescents, as discussed in the Introduction of this report.¹² Moreover, some indicators of abuse such as driving after drinking may not be relevant for young adolescents, as discussed in the Introduction. Thus, DSM-IV criteria may be less reliable and valid indicators of abuse and dependence for youthful drinkers than adult drinkers. The DSM criteria by themselves have also been criticized as too restrictive; that they excluded several important user populations not classified as needing treatment, as well as a high percentage of persons who received treatment.¹³ Problems alone should not be single criteria, as some use patterns are inherently indicative of heavy use. Also, as we have seen, some heavy users report no problems due to use, possibly from denial or a failure to recognize the connection between problems being experienced and their AOD use. Adolescents are thus likely to underestimate use-related problems. Finally, CSS self-report data can only approximate a formal clinical diagnosis, so at best this method should be viewed as only one means to approximate the size of the intervention-need population.

Nevertheless, the proximity of these CSS questions to the DSM criteria for dependency and abuse makes them useful as one approach for attempting to address the difficult task of estimating how many youth are so seriously involved in problematic substance use that they may need intervention services at some level. The *National Survey on Drug Use and Health* has thus used a similar approach to estimating dependency and abuse. As shown in Table 4.6:

- About 2% of students in 9th grade and 5% in 11th grade met the criteria for dependence and were also HRU or BNG.
- 2.8% in 9th and 6% 11th met the dependency criteria and were *either HRU or BNG*, and 1.6% and 3.7%, respectively, were both HRU *and* BNG.
- For abuse, 2.8% of 9th graders met the criteria and were HRU, 3.2% were BNG, 4% were either HRU or BNG, and 1.9% were HRU and BNG. In 11th grade, 5.1% were HRU, 7% were BNG, 8.4% were HRU or BNG, and 3.7% were HRU and BNG.
- The total percentages that were either HRU or BNG and met the DSM criteria for either dependency or abuse were thus 6.8% in 9th grade and 14.4% in 11th. This constitutes 38% of the HRU/BNG population in 9th grade and 48% in 11th grade.

This suggests of the entire student population, 6.8% in 9th grade and 14.4% in 11th might be in need of some form of intervention, with 2.8% and 6%, respectively, warranting treatment for dependency. The 1.6% and 3.7% who were both HRU and BNG are likely most in need.

In other words, in both grades, about one-quarter of HRU and one-fifth of BNG, may be dependent, as well as one-sixth of the combined group of HRU or BNG. Of those who were both HRU and BNG, the percentages were 32% in 9th and 38% in 11th.

General Population Estimates

Although the HRU and BNG criteria define a heavy user population, it does not follow that there are not other heavy users that may be in need of intervention that do not fall within these two

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categories of users. For example, Table 4.6 also shows estimates for the total sample of students. These results reveal that:

- Using the most restrictive multiple-indicator criteria (2 problems + 2 dependency; 1 problem, dependency, cessation effort), yielded a treatment-need estimate of 5% in 9th grade and about 8-9% in 11th. This means about 2% of 9th and 2% 11th graders met the criteria who were not HRU or BNG.
- Using the most liberal criteria (2 problems or 2 dependency indicators) results in upper-range estimates of 7-10% in 9th grade and 13-19% in 11th.

Applying the DSM criteria to the total sample of 9th and 11th graders resulted in very similar estimates:

- 4% of 9th graders and 8% of 11th might be classified as dependent on alcohol or illicit drugs, and
- 3% and 10% might be additionally classified with abuse, for a total intervention-need estimate of 10.3% in 9th grade and 18.4% in 11th.

As found for HRU/BNG estimates, the total DSM estimates for dependency or abuse are very similar to the proportion who reported two AOD problems or two or more dependency indicators. The percentage for DSM dependency is very similar to those for the two most restrictive estimates using individual problem, dependency, and cessation indicators. There is a high degree of consistency in these estimates that suggest:

- An upper-end of 10% in 9th grade and 18-19% in 11th for total intervention-need population; with
- 4-5% in 9th and 8% in 11th for the dependency-risk subgroup.

Thus about 1% of students in 9th grade and 2% in 11th might be dependent but not HRU or BNG.

These estimates are consistent with other heavy-user indicators, as summarized in Table 4.7. For example, looking at 11th graders:

- Just *under one-tenth*, the estimated size of the dependent-risk population (8%), reported alcohol use and marijuana use at school, drunk/high at school seven or more times, liking to get really drunk, ever drunk/sick seven or more times,
- Just *over one-tenth* (11%-13%) reported regular binge drinking and marijuana use (3 or more days in the past 30), weekly marijuana use in the past six months, getting drunk or high on school property three or more times, and usually getting very high on drugs, drunk/high at school three or more times and involve in drinking/driving three or more times.
- Just *under one-fifth*, the size of the combined dependency and abuse groups, reported weekly drinking, use of a drug other than marijuana in the past six months, having been high or loaded on drugs seven or more times. This is also a percentage close to the prevalence of HRU.

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Table 4.7
Summary of Heavy Use Indicators, Grades 9 & 11

	9 th Grade (%)	11 th Grade (%)
Ever high 7+ times	8	18
Drug other than marijuana, past six months	13	17
Weekly drinking, past six months	7	16
Regular marijuana use (3+ of past 30 days)	7	13
Polydrug use, three+ times	6	13
Drunk/high at school, 3+ times	6	12
Regular BNG (3+ days of the past 30)	5	12
Drink/Drive Involvement, 3+ times	9	12.5
Weekly marijuana use, past 6 months	6	11
Usually gets very high on drugs	6	11
HRU and BNG	5	11
Alcohol at school, past 30 days	7	8
Alcohol at least a few times week, past 6 months	4	8
Likes to get really drunk when drinks	4	7
Polydrug use, past 6 months, monthly	3	8
Drunk/sick 7+ times	3	9
Marijuana use, 10+ of past 30 days	4	7
Methamphetamine use, past 6 months	4	7
Marijuana at school, past 30 days	5.5	7
Drunk/high at school 7+ times	3	7
Drink & drive 7+ times	5	6
Alcohol 10+ days of past 30	2.5	5

Discussion

The DSM-derived results are consistent with estimates nationally as well. As in the CSS, the *National Survey on Drug Use and Health* (NSDUH) includes questions that operationalize the DSM-IV criteria, many of which are the same as in the CSS, which it used similarly to calculate dependency and abuse estimates. For the ages covered by the CSS, 2003 NSDUH estimated that 2.6% of 14-year-olds (grade 9) met the criteria for substance dependency and 4.4% for abuse, each about 1.5 points lower than CSS estimates. For age 16 (11th grade), the rates have risen to 7% for dependency and 9% for abuse, each about one point lower than the CSS estimates.¹⁴ As other CSS substance-use indicators have been shown to be lower than comparable national estimates, this possibly indicates that the CSS items used in these estimates produce a slight overestimation of the total intervention-need population. But even allowing for some overestimation, the size of the dependence-abuse risk population among HRU, BNG, and the total school samples is substantial and needs to be addressed.

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Table 4.8

DSM-IV Criteria for Substance Use Dependency and Abuse, with relevant CSS Questions

DEPENDENCY	DSM-IV Criteria	California Student Survey Question
Tolerance	Need for markedly increased amounts to achieve intoxication or desired effect; or Markedly diminished effect with continued use of same amount.	84B. Ever found you had to increase how much you use to have the same effect as before.
Lack of Use Control	Substance often taken in larger amounts or over a longer period than intended.	84D. Ever used alcohol or drugs a lot more than intended, or 84J. Ever told yourself you were not going to use but found yourself using anyway.
Cessation Effort	Persistent desire or unsuccessful efforts to cut down or control substance use.	86-87. Has tried to quit or stop using alcohol or marijuana — at least twice. 56. Ever felt need for help (treatment, counseling) for AOD use. 84I. Ever thought about reducing (cutting down) or stopping use. 84K. Ever spoke with someone about reducing or stopping use. 84L. Ever attended counseling, a program, or group to help you reduce or stop use.
Drug Use Lifestyle	A great deal of time spent in activities necessary to: obtain substance, use substance or recover from effects.	84C. Ever frequently spent a lot of time getting, using, or being “hung over” from using alcohol or drugs.
Adverse Life Effects	Important social, occupational, or recreational activities given up/reduced because of use.	84G. Your use of alcohol or drugs often kept you from going to school, working, or doing recreational activities or hobbies (sports, music, art etc.).
Problem Persistence	Use continues despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance	82/3 B. Has using alcohol/marijuana or other drugs ever caused <i>you</i> to: have health problems 84F. If use, ever felt depressed, uninterested in things, alone, or isolated
ABUSE		
Life problems	Serious problems at home, work, or school.	82/3. AOD use ever caused to: D. Have money problems E. Get into trouble in school or miss school. F. Have problems with schoolwork. 84G. AOD use kept from doing normal activity (Criteria: two or more)
Use in physically hazardous situations	Used regularly and did something that might put you in physical danger.	55. During your life, how many times have you <i>ever</i> driven a car when you had been drinking alcohol or been in a car driven by a friend when he or she had been drinking? (Criteria: two or more times) 82/3. AOD use ever caused to: I. Physically hurt or injure yourself: J. Have unwanted/protected sex K. Forget what happened, pass out, or lose control (Criteria: two or more)
Use-related legal problems	Used caused repeated trouble with law.	82/3C. AOD use ever cause you to: Get into trouble or have problems with the police
Social/inter-personal problems	Had problems with family or friends probably caused by use.	82/3. AOD use cause to: G. Fight with other kids, or H. Damage a friendship

Dependency criteria: 3 of six indicators

Abuse Criteria: not dependent but recurrent use with at least one problem in DSM; not dependent but current use with at least one problem for CSS

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ENDNOTES

- 1 Six-month abstainers and 30-day nondrinkers, although they could have experienced problems earlier in their lives, are not included in the comparisons because the likelihood is low and in order to focus on problems experienced by the current user population.
- 2 Because the no-problem response is a separate option in the question, and the total problems percentages were calculated based on the responses to each response option, the percent for no problems and for one or more do not add to 100 percent, as would be expected.
- 3 These percentages are five times those for CON in 9th grade (8%) and three times higher in 11th (13%). Even among CON, the number of problems is higher for alcohol than for drugs, almost twice as high, underscoring the adverse effects of alcohol among all students.
- 4 This table only includes Conventional Drug Users as a comparison group because the results for nonbinge drinkers were so similar to those for the CON.
- 5 Consistent with these findings, in a study of over 3,000 high school seniors, Copeland, Shope, & Waller 1996 found that frequent binge drinking (reported by about half of students) was one of two variables that were most consistently and powerfully a factor in self-reported driving after drinking frequency.
- 6 Similarly, at least one cessation effort was endorsed by almost six-in-ten HRU (56-58%) in both grades (over twice the rate of the CON) and by the BNG (55%) in 9th grade (over 1.5 times the NBNG). But in 11th grade the BNG rate dropped to 46%, whereas the NBNG stood at 34%.
- 7 Two or more attempts to stop alcohol drinking occurred among 15% and 14% of HRU; and two or more attempts to stop marijuana use by 14% and 19% of BNG.
- 8 The declines between 9th and 11th grade for alcohol at first seem odd, given the rise in use that occurs. This may be in part due to attrition of problematic drinkers between grades and/or reduced anxiety based on experience, whether justified or not. It may also be a reflection of the extent to which bingeing and other forms of heavy drinking have become endemic among older teens. That both binge drinkers and HRU were more likely to have tried stopping use of marijuana than alcohol is consistent with the results we have found with the total sample of users in the CSS. In 2003, 49.5% of marijuana users in 11th grade reported at least one cessation attempt compared to 22% for alcohol drinkers.
- 9 Determined by adding together the percentage that were HRU-Plus and the percentage that were Binge-Plus but not also HRU sample.
- 10 In addition, 1.8% and 4.6% were Binge-Plus but not HRU-Plus. Thus less than half of the Binge-Plus population were not also HRU-Plus, consistent with the overlap in prevalence.
- 11 The majority of the hardcore HRU or BNG-Plus group were students who reported bingeing three or more days. Restricting the analysis to just these regular binge drinkers (not shown in table), about half the bingeing population, reduces the total intervention pool to 5.1% in 9th grade and 10.6% in 11th (HRU/RBNG-Plus) for reporting 2+ problems or 2+ dependency.¹¹ At the 2+ problems AND 2+ dependency cut off, the combined totals are 2.7% and 5.7%, about half again, essentially the same found for the total binge population, because all of bingers that meet this criteria are also HRU.
- 12 Flewelling et al. 2004; Martin & Winters 1998; SAMHSA 2002a.
- 13 Epstein & Gfroerer 1998.
- 14 For ages 12-17, the total rate was 8.9%, among whom 60.5% were for illicit drug use. Total dependence/abuse on illicit drugs was 5.1% and alcohol 5.9%. The percentage of adolescents dependent on or abusing both alcohol and illicit drugs was 2.5%, illicit drugs only was 2.8%, and alcohol only was 3.5%.

Chapter 5

Risk & Protective Factors

In this section, we explore group differences in regard to factors that have been shown to influence the course of heavy substance use and that prevention programs and policies might need to take into consideration. Five known AOD use risk factors are analyzed: (a) early initiation of use, (b) perceived reasons for use, (c) perceived harm; (d) peer disapproval and perceived use; (e) use among adults known to the respondents. In addition, we examine differences in regard to environmental assets in the school and community that research has indicated are protective factors (ameliorate risk factors) that are link to resilience. Finally, we present information on how groups differed in their exposure to and perceptions of school prevention strategies and policies. The responses of 9th graders on these questions are particularly of interest as they reflect the attitudes of heavy users at an age when prevention and intervention programs might prove effective in stopping further escalation of use.

The results show fundamental group differences. HRU and BNG initiated use earlier than occasional users; they significantly differed from both occasional users and nonusers in their attitudes about why adolescents use drugs and how harmful AOD use is; they were more exposed to substance use among adults and peers; and they had fewer environmental supports in their lives, although this is true more for the HRU than BNG. Finally, they differed in their response to prevention efforts. Fewer heavy users reported being influenced by prevention programs, or perceived the school as a helping environment.

Early Use Initiation

Table 5.1 compares across substance-using groups the retrospective recall of 9th graders for first having consumed an alcoholic drink and tried marijuana by age 12.¹ *HRU and binge drinkers were much more likely than occasional users to report early onset.* Among 9th graders, onset of both alcohol and marijuana use by age 12 was reported by about six-in-ten heavy users, 1.5 times the occasional users.

- **Alcohol Onset.** In grade 9, 61-62% of HRU and Bingers had had an alcoholic drink by age 12, versus four-in-ten CON and NBNG. The highest rate was reported by

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RBNG (3 or more days in the last 30) at 66%, compared to 51% among those who binged on only one or two occasions.

- **Drug Onset.** Percentages were almost as high for early initiation of marijuana use among HRU. Over half (56%) of 9th-grade HRU had tried marijuana by age 12, compared to 36% of CON. The rate among BNG was nine-points lower and only moderately higher than NBNG (47% vs. 43%). However, RBNG again reported the highest rate, at 58.5%.

That these group differences held for both early alcohol use among the HRU and early marijuana use among the BNG supports that the pattern of multiple substance use that characterizes heavy users begins at an early age. Similar percentages of both HRU and BNG initiated alcohol use by age 12. Early use of marijuana occurred among almost half of BNG (47%) and it was even higher among RBNG than HRU.

Significantly more 9th graders reported early initiation than did 11th graders, reflecting that recollection of precise age of first use is less accurate as a person ages.² However, the same pattern is evident, with HRU and BNG two times more likely to report early marijuana onset than NBNG and CON. HRU are also twice as likely to have started drinking, and BNG 1.5 times more likely.

Research has established that the earlier a youth initiates AOD use (regardless of the substance), the more likely it is that the youth will later engage in heavy or frequent use. Early initiators are also more likely to later experience adverse use consequences, to engage in other risk activities (including violence, delinquency, risky sexual behavior), and to have more school problems. To cite some of the research:

- Young people who initiate alcohol and drug use before the age of 14 are twice as likely to have school and substance use-related problems during their lifetime, compared to those who wait until age 18.³
- The risk for progression to the “next stage” of substance use (e.g., from alcohol to marijuana) is dramatically increased for those who start using substances before age 15.⁴
- Individuals who began drinking before the age of 15 have been found to be four times more likely to become alcohol dependent than those who do not drink before age 21, and they have the highest prevalence of lifetime alcohol abuse. From age 15 on, the risk of future alcohol dependence decreases by 14% with each passing year of abstinence.⁵
- Early and frequent lifetime marijuana use has been associated with highly persistent use and rapid progression to marijuana-related harm.⁶
- Young people who initiate drug use before the age of 14 are estimated to be at twice the risk of having use-related problems during their lifetime when compared to those who wait until after the age of 18. Likelihood of lifetime drug abuse and dependence is reduced by 4% to 5% for each year initiation is delayed.⁷

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- Early adolescent marijuana use (mean age 14) increased the risk in late adolescence (5 years later) of not graduating from high school, delinquency, having multiple sexual partners, not always using condoms, perceiving drugs as not harmful, having problems with cigarettes, alcohol, and marijuana; and having more friends who exhibit deviant behavior.⁸
- School- and learning-related problems, including failure to graduate, have been consistently associated with early onset. The school dropout rate is substantially higher for students who use alcohol and drugs at an early age. Early alcohol use has also been associated with lower cognitive performance on objective tests.⁹

Does early use cause later heavy use and other problems? Early use may not be a cause of later heavy involvement as much as a reflection of the multiple risk factors in the lives of students. Youth who begin use early in life may be predisposed genetically, psychologically, or socially to use problematically. Such predispositions might include family problems, child abuse, neglect, and conflict; parental AOD use (e.g., children of substance abusers); and a propensity for risk taking. These predisposing factors may motivate them to start use earlier and engage in other risk behaviors.¹⁰ However, the research also suggests that early onset exacerbates these problems and that even delaying use onset can have benefits. What is clear is that elementary prevention programs need to identify and target youth who demonstrate early onset.

Table 5.1
Onset of Use of Alcohol and Marijuana by Age 12 among 9th Graders, by User Groups

	Alcoholic Drink (%)	Marijuana (%)
Conventional [Drug] Users	43.3	35.8
Nonbinge Drinkers	42.5	43.1
High Risk [Drug] Users	61.4	55.9
Binge Drinkers	61.6	47.3
Binge Drink 1-2 days	50.8	35.6
Regular Binge Drink 3 or more day	66.0	58.5

Reasons Youth Use Alcohol or Other Drugs

Students were given a list of six reasons for why “kids your age” might use alcohol or drugs and asked to check all that applied. The six responses fall into three categories: (1) *positive* motives for use (“See what it’s like” or curiosity and “To have fun” or recreation); (2) *negative* motives (“Get away from problems” or escapism; “To feel better” or avoiding negative emotions; and “Bored, nothing to do”); and (3) *social* motive (“Because friends use”). For this analysis, nondrinkers are not discussed because their results were so similar to the ABS, in which they are included.

As shown in Table 5.2, the percentages for each option are generally higher among the BNG than HRU. The same is also true for NBNG compared to CON. This likely reflects the wider

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prevalence and social acceptability of drinking across youth.¹¹ But even more striking, HRU and BNG respondents had a similar pattern of responses (likely reflecting the overlap between the two groups), and they differed from ABS on all of the alternatives in grade 11 and most of them in grade 9.

- Heavy users endorsed each reason in higher proportions than did nonusers, and in most cases their occasional-using counterparts, reflecting that the origins of heavy use are multiple.
- Consistent with this, they were half as likely as ABS to mark that they *didn't know* what their reasons for use were.
- Heavy users were also particularly more likely than even their occasional-using counterparts in both grades to endorse the two reasons which most reflect a view of substance use as *beneficial* (i.e., that it leads to having fun or feeling better), with the exception of binge drinkers compared to nonbinge drinkers in 11th grade.

Have Fun

Reflecting the social nature of adolescent substance use, the most common reason for heavy users was “*to have fun*”— reported by an average six-in-ten 9th and seven-in-ten 11th graders. Heavy users were generally twice as likely to endorse this reason than ABS, with occasional users in the mid-range. This is the one reason for which percentages of HRU and BNG were consistently higher than CON and NBNG. The highest percentages were reported by BNG, who peaked at 75% in 11th grade, reflecting the social nature of bingeing.

For abstainers, this is the reason that showed the greatest difference between grades: it is among the least-selected options in 9th grade and the most-selected in 11th. This suggests that as all students get older they increasingly come to see AOD use, especially drinking, as having fun. One of the characteristics of heavy users, as early initiators, appears to be that they adopt this perspective early.

Problem Avoidance (Escapism)

Getting away from problems as a reason dropped dramatically between 9th and 11th grade among heavy users — the only option for which this occurred. It increased between grades among abstainers and NBNG, and remained stable among CON.

- In grade 9, just over half of HRU, BNG, and NBNG respondents, compared to 45% of abstainers, thought that avoidance of personal problems was a reason for use. HRU also exceeded CON by five points (52% over 47%). Among all groups, but especially heavy users, this was the second most-selected option.
- In 11th grade, it fell in the mid-range and the pattern was reversed. Almost half of abstainers and CON (47% for both) still chose avoiding problems, whereas among BNG and HRU it dropped to 44% and 40%. The highest rates were reported by NBNG (56%).

In speculating about the reasons for these findings, many heavy users in 9th grade may be turning to alcohol and drug use as a form of self-medication for their troubles. As reported below, heavy

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users are also more likely than occasional users to be at risk of depression. One explanation for the decline in percentages endorsing this reason in 11th grade might be that youth whose use is linked to problem avoidance (or to experiencing problems) may be more likely to have dropped out of school by 11th grade.

Feel Better

In the mid- to low range among all groups was the reason “to feel better.” It was selected by about four-in-ten bingers and HRUs in both grades, compared to about three-in-ten nonusers and occasional users, except 47% of NBNG in 11th grade (the highest rate of all groups). The results may indicate that heavy users experience negative emotional states, which they want to avoid. This self-medication explanation is consistent with their high rate of selecting the escapism reason. However, most likely respondents associate “feeling better” with feeling “high,” having a good time rather than as medication for feeling bad. Either way, using drugs to feel better reflects a positive attitude driving drug use.

Peer Influences

“Because friends use” was the *least-selected* option by HRU, about one-third of them in both grades. It was also among the least-selected by BNG, by 37% in 9th grade and 44% in 11th. In contrast, abstaining students most-frequently selected this option, about half of them. ABS clearly give more weight to perceived peer influence than do heavy users.

Curiosity

Groups differed relatively little in regard to “seeing what it’s like” as a reason (range 40.5-46% in 9th grade and 44-54% in 11th). Still, heavy users were lower than occasional users in 9th grade. This is probably because HRU and BNG are by definition already experienced users.

Boredom

“Bored, nothing to do” was among the least-endorsed reason by all groups. But group differences still existed. It was checked by almost four-in-ten heavy users, and about one-third of occasional users, compared to 22%-29% of abstainers. The NBNG were more similar to the heavy users than the CON.

Overall, clear group differences emerged that may have programmatic implications. Heavy users were the most likely, and abstainers least likely, to select beneficial reasons, such as having fun and feeling better. Abstainers saw friends’ use as a reason far more than heavy users, as was true for problem avoidance in 11th grade. Results were mixed for curiosity (see what it’s like). Across options, occasional users tended to be in the middle in 9th grade, with NBNG percentages higher than CON. In 11th grade, CON percentages were higher than HRU for problem avoidance, curiosity, and friends’ use; and lower for fun, feel better, and bored. NBNG were higher or equivalent for all reasons, except having fun. In other words, HRU and BNG are less likely to perceive the reasons for use in terms of curiosity or peer pressure, and more likely to view them in terms of recreation and positive benefits.

Overcoming such positive perceptions of use needs to be a major focus of prevention and intervention programs. Findings from this study can be used to inform programs about evidence of the adverse effects of heavy use and about ways to counter motives for using. For instance, the

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high endorsement of “having fun” by heavy users suggests that no-use messages may be perceived as appeals to not have fun. This is not likely to be a compelling message. This is particularly true for BNG, among whom this was the most selected option. Even NBNG exceeded HRU in 11th grade. This reflects that teen drinking is predominantly a social activity. It is common at parties, although not all partygoers do it. Because it is perceived as fun among those who do, persuading them to abstain, or even drink moderately, may have little chance of success.

The relative unimportance of “friends use” among HRU and BNG respondents, in contrast to abstainers, suggests that social influence and resistance skill programs may be questionable as prevention tactics for heavier users. Peer pressure resistance training is one of the most common strategies used by prevention programs for all youth. However, more abstainers than heavy users report learning from prevention lessons about resisting peer pressure, as discussed below (see Table 5.8). Thus, such strategies may be more effective for light- and non- users, who consider peer influence more strongly and are less likely to have positive reasons for use, than they are for heavy users.

Table 5.2
Reasons for Using Alcohol or Other Drugs

	9 th Grade					11 th Grade				
	ABS (%)	CON (%)	NBNG (%)	HRU (%)	BNG (%)	ABS (%)	CON (%)	NBNG (%)	HRU (%)	BNG (%)
Get away from problems	44.8	46.9	51.2	51.6	51.6	47.3	46.4	55.8	39.7	43.5
See what it's like	43.3	44.3	40.5	42.6	45.7	49.4	51.1	54.1	43.7	50.7
Because friends use	48.8	37.8	35.8	32.9	36.9	53.9	46.2	50.2	34.3	44.3
Have fun	32.4	45.3	53.0	58.8	61.6	53.0	63.7	68.3	66.6	75.7
To feel better	28.4	27.3	32.8	38.4	43.0	35.6	35.7	47.1	40.1	44.0
Bored, nothing to do	22.0	26.8	33.6	39.0	37.3	29.0	33.7	37.9	37.7	38.3
Don't know	20.1	11.9	8.5	7.7	10.1	10.9	8.3	8.4	7.1	5.0

Perceived Harm

Table 5.3 provides the percentages of students who considered frequent use of marijuana and alcohol, and occasional use of methamphetamine and ecstasy, as *harmless*. Frequent use was defined as “daily or almost daily,” and occasional use as “once in awhile.” The question uses a five-point scale of “extremely harmful” to “harmless.”¹² The percent for harmless reported in Table 5.3 consists of those students who selected the last two options: “mainly harmless” and “harmless.” Heavy users were much more likely to not see harm in use.

- **Frequent Alcohol Use.** In 9th grade, about 20% of both HRU and BNG considered frequent alcohol use harmless, four-five times higher than occasional users and twice that of nonusers. In 11th grade, heavy-user rates dropped to about 13%, but were still three times higher than nonusers and twice that of occasional users.

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- **Frequent Marijuana Use.** Over one-third of HRU in 9th grade (36%) thought frequent marijuana use was harmless, ten times more than abstainers and six times more than CON. This rate was also twice the HRU rate for frequent alcohol drinking. Binge Drinkers, at 22%, were five times higher than nondrinkers and twice as high as NBNG. In 11th grade, group differences narrowed, but HRU were still five times greater than ABS and BNG 2.5 times greater than nondrinkers.
- **Occasional Methamphetamine and Ecstasy Use.** HRU were about three times more likely than ABS or CON to perceive *occasional (once in a while)* use of methamphetamine and ecstasy as harmless. In 11th grade, the percentages for all groups drop dramatically, but HRU (at 6-7%) still exceeded other groups by a factor of about two. Results among the binge groups were almost exactly the same.¹³

There is a strong correlation between the level of use and perceived harm. The more alcohol or other drugs used, the less harm seen, although in some cases differences between nonusers and occasional users is slight or nonexistent. On the whole, the HRU groups and BNG groups reported similar percentages; the biggest difference was that frequent marijuana use was considered much more harmless among HRU than BNG.

Among both HRU and BNG, and to a lesser extent occasional users, the perceived harm of all behaviors increased in 11th grade (percentages for harmlessness declined). In contrast, among nonusers it remained about the same. This may be a product in part of the attrition of heavy users from the sample over time. It may also be because awareness of harm increases among heavy users over time, possibly as a result of the adverse use-related experiences they are experiencing as early as 9th grade (see Chapter 4). Helping youth connect their use with specific problems they may have experienced might affect their perceptions of harm and their behavior.

Table 5.3
Perceived Harmlessness (Harmless or Mainly Harmless) from Alcohol and Drug Use

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade							
Frequent marijuana use	3.2	5.9	35.6	5.0	13.3	25.5	24.5
Frequent alcohol use	4.7	8.4	19.1	4.9	9.7	23.3	21.7
Occasional methamphetamine use	4.2	4.4	14.1	4.9	8.0	11.9	13.9
Occasional ecstasy use	5.1	3.5	15.2	5.1	6.8	12	14.6
11th Grade							
Frequent marijuana use	4.5	5.2	22.1	6.0	7.1	15.8	18.9
Frequent alcohol use	4.3	4.5	12.9	4.4	6.1	12.6	11.0
Occasional methamphetamine use	2.8	3.7	6.0	3.9	1.5	6.0	6.1
Occasional ecstasy use	2.5	3.9	6.6	3.4	1.8	5.3	5.9

Peer Use and Perceived Attitudes

▼

To assess the peer environment, students were asked: (a) how much their friends would disapprove if they used alcohol or marijuana and (b) how many students had ever tried marijuana. The results in Table 5.4 reveal that as the level of respondents' AOD use increases so do the percentages of those who felt their friends would "not at all" disapprove of their use and those who estimated that 50% or more of their peers had tried marijuana. Heavy use is associated with greater likelihood of perceiving use as normative.

- **Disapproval of Alcohol Use.** In 9th grade, three-in-ten HRU, and four-in-ten BNG, did *not* think their friends would disapprove of their using alcohol, twice the rates for nonusers. Occasional users were in between. By 11th grade, the rate had increased to five-in-ten for both HRU and BNG, over four times greater than ABS and 2.6 times greater than nondrinkers.
- **Disapproval of Marijuana Use.** Four-in-ten HRU, and three-in-ten BNG, felt the same about marijuana use, over twice the rate for nonusers. These results mirror those for alcohol, again illustrating that there is overlap between the groups. But HRU have a preference for drugs and BNG for alcohol. In 11th grade, the rates increased only slightly for all categories.
- **Perceived Peer Marijuana Use.** Estimates that 50% or more of students had ever tried marijuana increased with level of use: from 35% of ABS to 66% of HRU, and from 39% of nondrinkers to 60% of both NBNG and BNG and 64% of RBNG. In 11th grade, estimates increased for all grades but the proportions were about the same, peaking at 82% of HRU and 60% of RBNG.

These peer supports raise questions about the viability of normative education, one of the most common prevention strategies in use today for influencing heavy drug users or youth at risk. Normative education teaches students to resist use by emphasizing that drug use is not the norm. Yet among the peers of heavy users, it clearly is.

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Table 5.4
Perceived Peer AOD Disapproval and Use of Marijuana

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade							
Friends disapprove alcohol, not at all	16.4	26.5	31.4	19.6	28.1	41.3	39.7
Friends disapprove marijuana, not at all	16.9	22.1	39.8	18.0	25.7	33.1	37.3
50% plus students tried marijuana	34.5	54.5	65.9	39.3	61.0	59.4	64.3
11th Grade							
Friends disapprove alcohol, not at all	12.3	30.7	46.5	18.5	39.2	49.0	58.2
Friends disapprove marijuana, not at all	11.2	19.9	44.6	16.6	28.1	34.2	41.4
50% plus students tried marijuana	54.5	71.1	81.6	43.0	51.0	55.5	60.2

Use by Adults



Respondents were asked to estimate how many adults they knew who regularly used marijuana, cocaine, or methamphetamine.¹⁴ Table 5.5 provides the responses for “many” to “most or all” adults. *The level of both alcohol and drug use was positively correlated with exposure to use among adults.* In both grades, HRU rates for marijuana use by many/all adults were over twice the CON rates and six times the ABS rates. Even among binge drinkers, the rates were over 1.5 times greater than NBNG and three-four times greater than nondrinkers.

- **Drug Use (HRU) Groups.** In 11th grade, 45% of HRU reported many/all adults regularly used *marijuana*, twice that of CON and over five times that of ABS (23% and 8%). For 9th graders, the percentages were slightly lower but with the same pattern (37%, 16% and 5%, respectively). Less than half as many HRU in grade 11 knew adults who used *cocaine or methamphetamine* (18% for both drugs). However, the percentages for CON and ABS were negligible (most around 2%). A similar pattern held for grade 9, but even the HRU were below 10%.
- **Alcohol Use (Binge) Groups.** In 9th grade, the alcohol groups reported equivalent rates to the drug groups for *marijuana*. Over a third (35%) of BNG reported many/most adults used it, 1.5 times the NBNG and 4 times the nondrinker rates. In 11th grade, the BNG prevalence rate was slightly lower, but at 32% was still three times higher than for nondrinkers (11%). For *other drugs*, binge drinkers were lower and group differences smaller.

That HRU so exceed abstainers in knowing adult users is not surprising. Nor, perhaps, should be the high rates of exposure to adult drug use among binge drinkers, given the overlap between the two heavy-use groups. What is most relevant is the progression of adult-use exposure as the level of adolescent substance use increases. It is unlikely that substance use among youth would be as extensive were it not for widespread use among adults, who give it an appearance of legitimacy. Not only are adults role models for AOD use, but also their involvement supports the pervasive distribution system that makes psychoactive substances available to adolescents. In such an environment, prevention education faces an uphill journey.

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Table 5.5
Student Knowledge of AOD Use by Many or Most Adults

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)
9th Grade						
Marijuana/hash	5.1	16.1	36.6	8.2	20.8	35.0
Cocaine or crack	2.4	4.7	8.6	2.9	8.2	5.1
Methamphetamine	1.0	2.7	9.1	1.4	4.5	4.8
11th Grade						
Marijuana/hash	7.9	23.3	45.2	11.3	19.2	31.8
Cocaine or crack	2.9	4.8	17.7	4.3	7.7	11.3
Methamphetamine	1.6	1.8	18.1	2.9	6.8	8.7

Perceived Environmental Assets

Research has linked the degree to which students have three essential environmental assets in their lives — **caring relationships, high expectations, and opportunities for meaningful participation** — to lower involvement in substance use and other health compromising (risk) behaviors, as well as to greater resilience, well-being, and academic success, even among children growing up in environments characterized by multiple risk factors.¹⁵ The 10th biennial CSS measured whether students were high, moderate, or low in these three environmental assets in their schools and communities, using three-item scales from the California Healthy Kids Survey (CHKS).¹⁶ Table 5.6 present the percentages of 9th and 11th graders who were classified as *low* in each scale and total environmental assets. The results for 9th graders are especially important because of the potential that early promotion of protective factors among younger students might play a significant role in prevention.

- There is a clear correlation between level of drug use and low assets, with HRU generally 1.5 to 2 times more likely to be low than ABS. CON are consistently in the mid-range, though often closer to HRU.
- For alcohol, group differences were small and not as consistent as for the drug groups, particularly in 9th grade. But nondrinkers consistently had the least low assets, and RBNG in 11th grade consistently had the most.
- Across groups, students were moderately more likely to be low in school assets than in community assets.

Caring Relationships

Caring relationships with adults is arguably *the single most important of the three assets* and a powerful motivator for academic success. Resilience research has found that a caring relationship with any adult, and especially a teacher, can make a significant positive difference in a child's life. These results led former U.S. Secretary of Education Richard Riley to declare that “the number one priority of schools should be making sure that every student is connected to a caring adult in the school.” The CSS measures caring relationships by asking student perceptions

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whether there is an adult who really cares about them, who notices when they are not there, and listens to them.

- **High Risk Users.** In 9th grade, 31% of HRU had low Caring Relationships in school, 1.5 times greater than the ABS (19%), with CON at 28%. Low community assets showed a similar pattern: HRU were almost twice as likely to be low than the ABS (21% vs. 12%). In 11th grade, HRU continued to have the most low assets in school and community (31% and 21%). For school, ABS had the least low assets, half as much (15%), while CON was intermediate (19%). For the community, CON had the least low assets (12%), while ABS was intermediate (14%)
- **Binge Drinkers.** For alcohol, there was not as clear association between level of use and Caring Relationships. For instance, in 9th grade nondrinkers had the least low assets for school and community (22% and 13%). BNG and RBNG were higher for school (24% and 25%) and community (14% and 20%). But NBNG had the most low assets for school (29%) and almost as much as RBNG for low community assets (19%). In 11th, the only pattern that emerged was for low Caring Relationships in school: RBNG had the most (27%), followed by BNG (19%), and nondrinkers and NBNG each had the least (at 17%).

High Expectations

This asset refers to an adult communicating direct and indirect messages that adolescents can and will succeed, as measured by whether there is an adult who always wants them to do their best, who believes they will succeed, and who tells them when they do a good job. For the school domain, these were the lowest low-asset scores of the three assets.

- **High Risk Users.** In 9th grade, almost three-in-ten HRU (27%) were low in High Expectations at school, almost twice as likely as ABS (14%). For the community domain, HRU was almost three times more likely to score Low than ABS (33% vs. 11%). CON was intermediate for both domains (at about 18%). In 11th grade, HRU had more Low scores for school and community (25% and 19%), compared with ABS and CON (13-15% for both domains).
- **Binge Drinkers.** In 9th grade RBNG had the highest Low scores and nondrinkers had least both at school (24% vs. 17%) and in the community (25% vs. 12%), while BNG was intermediate (18% and 15%). In 11th, the only evident pattern was that RBNG were more likely to have low expectations at school (24% vs. 14-16% for others).

Meaningful Participation

To assess opportunities for meaningful participation, students were asked about their engagement in activities that were interesting, involved responsibility (helping decide things like or make rules), and made a contribution (doing things that make a difference or helping people). For all groups in both grades and both domains, low amounts of this asset were reported more than for any other asset. This is the resilience factor most lacking in the lives of all students, but particularly among heavy users.

- **High Risk Users.** In 9th grade, about six-in-ten HRU (57%) scored Low in Meaningful Participation in school, with 43% in the community domain — levels that

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were 1.6-1.8 times that of ABS (36% school; 24% community). CON were intermediate (40% and 28%). The pattern was similar in 11th: HRU had the most scoring low levels in school and community (54% and 36%), CON were intermediate (38% and 23%), and ABS had the fewest (36% and 20%).

- **Binge Drinkers.** In 9th grade, RBNG had more Low scores than nondrinkers in both school (50% vs. 36%) and community (32% vs. 25%). BNG was in between for school (38%) and community (27%). The pattern was much the same in 11th grade.

Table 5.6
Low in Environmental Assets in the School and Community

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade							
School							
Caring Relationships	19.2	28.1	30.8	22.2	29.1	24.1	25.4
High Expectations	14.0	18.6	27.1	17.4	20.9	18.3	23.6
Meaningful Participation	36.1	40.0	57.4	36.3	42.6	38.0	49.7
Community							
Caring Relationships	11.6	17.1	20.5	12.5	19.2	14.4	20.3
High Expectations	11.1	17.5	33.2	12.1	21.2	14.9	25.0
Meaningful Participation	23.8	28.1	43.5	24.8	39.5	26.8	32.4
11th Grade							
School							
Caring Relationships	15.4	18.7	22.3	17.3	17.2	18.9	27.4
High Expectations	13.4	14.8	24.9	14.2	16.4	15.9	24.0
Meaningful Participation	36.2	38.4	53.8	36.6	42.5	39.7	50.4
Community							
Caring Relationships	14.2	11.5	17.1	12.9	13.7	12.7	12.4
High Expectations	13.6	13.3	19.8	13.3	16.0	13.9	15.9
Meaningful Participation	20.2	22.7	36.0	22.1	26.7	24.1	33.1

Total Assets in 9th and 11th Grade

Table 5.7 compares high and low Total Asset Scores for the school and community, as well as the combined environments. These summary scores were calculated by combining and averaging the scores for each of the three developmental assets, and then calculating a total score for each environment (school and community), and then an average for both combined. The total school assets scores can be viewed as an indirect measure of school connectedness. One reason for low school connectedness is low external assets in the school. In this regard, the findings for school assets are very consistent with those for the school connectedness scale reported in Chapter 6.

Across scales and environments in both grades, HRU are lowest and abstainers most asset-rich. There is a clear association between level of drug use and assets. The same pattern is not as evident for the BNG groups, but group differences are more pronounced in 11th than 9th grade, and nondrinkers are highest in assets while regular binge drinkers are the lowest.

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In another general pattern, across groups High Asset percentages for the community are much higher — and Low Assets much lower — than for the school domain, with the exception of the HRU in 9th grade. This may reflect the inclusion of the family as part of the community in the minds of students. Looking at specific environments for high risk drug users:

- For **Total School Assets** in 9th grade, Low scores for HRU are about double those of ABS (38% vs. 21%) whereas High scores for HRU are about half those of ABS (14% vs. 29%). A similar pattern held in 11th, with over one-third of HRU having Low School Assets (36%) and under a fifth having High School Assets (18%).
- For **Total Community Assets**, results were similar. In 9th grade, Low scores for HRU are about double those of ABS (36% vs. 14%) and High scores are about half (33% vs. 60%). Put differently, for ABS High Asset scores are more than four times the Low Asset scores, but for HRU High Asset scores are just below the Low Asset scores. In 11th, ABS again show High scores that are four times the Low scores (14% Low vs. 59% High), but HRU make gains, with High scores about double the Low scores (21% Low vs. 47% High).

As with the individual asset scores, on average, binge drinkers were only slightly lower in assets across summary scores than were nondrinkers. Differences were much greater between nondrinkers and regular binge drinkers, whose percentages in 11th grade were very similar to those of the HRU.

- For Total School Assets in 9th grade, Low scores for RBNG are greater than for nondrinkers (29% vs. 23%) whereas High scores are lower (14% vs. 25%). A similar pattern held between RBNG and nondrinkers in 11th (33% vs. 22% for Low scores and 21% vs. 30% for High scores).
- For Total Community Assets in 9th grade, results were similar: RBNG had greater Low scores than nondrinkers (23% vs. 14%) but fewer High scores (36% vs. 57%). Differences were attenuated by 11th, with RBNG having only slightly greater Low scores than nondrinkers (18% vs. 13%) and slightly fewer High scores (53% vs. 58%).

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Table 5.7
Total Environmental Assets in the School and Community

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade							
Low School Assets	20.7	29.3	38.1	22.9	35.1	25.1	28.9
High School Assets	29.0	19.6	14.3	25.5	14.8	22.8	14.0
Low Community Assets	13.6	17.1	36.1	13.8	27.4	16.4	23.0
High Community Assets	60.3	47.1	33.2	57.3	40.4	52.4	35.7
Low School + Community	12.4	18.6	31.1	13.0	27.6	16.7	19.5
High School + Community	43.8	31.0	19.3	39.1	29.2	35.1	18.1
11th Grade							
Low School Assets	18.7	23.1	36.4	21.6	22.5	23.5	33.0
High School Assets	31.9	25.3	18.3	29.7	24.2	26.6	21.1
Low Community Assets	13.7	12.0	21.1	13.1	16.2	13.7	17.6
High Community Assets	58.7	57.9	47.4	58.4	51.1	55.9	53.1
Low School + Community	11.8	11.9	26.1	12.1	14.8	13.4	23.4
High School + Community	44.1	40.2	25.6	42.1	32.4	38.9	32.2

Exposure to Prevention Programs

Students were asked to identify what they learned in school about alcohol or other drugs from a list of eleven options. These options encompass the usual content of prevention curricula, as well as options for no effect, a “boomerang” effect (“Made more interested in trying drugs”), and self-determination not to use rather than in response to a prevention program (“Had already decided on my own not to use alcohol or other drugs”). These results are reported in Table 5.8.

The percentage of students who could not recall having received prevention or anti-AOD instruction in a class or program was very low across groups (13% of the total sample in grade 11 and 16% in 9th). There were no significant differences in overall exposure between users and nonusers. However, heavy users responded differently to specific prevention strategies or options than did occasional users and abstainers. HRU and BNG rarely reported positive effects from prevention education. They were less likely to report receiving lessons than nonusers and, to a lesser extent, occasional users, and more likely to report learning nothing.

No Effect

Compared to abstainers, significantly higher percentages of all user groups claimed that prevention classes did not affect them or teach them anything. Heavy users also exceeded occasional. HRU rates were about twice that of CON, and BNG 1.6 times that of NBNG. Across grades, “no effect” was selected by 22-23% for HRU and 16%-19% for BNG, compared to 9-12% of CON and only 4-5% of ABS.¹⁷ The rates all increased slightly between 9th and 11th grade except for HRU, which remained flat.

Perceived Harm

Learning that AOD use is harmful, a central theme of school-based drug education was the most frequently selected response by all user groups, but percentages for HRU were the lowest.

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Roughly four-in-ten of most other groups except HRU endorsed this alternative, with percentages higher in 11th grade than 9th. In contrast, the HRU rates were only 24% in 9th grade (half that of ABS) and 32% in 11th (vs. 48% of ABS). These results are consistent with the data on perceived harm reported in Table 5.3: the general decline in “harmless” percentages for marijuana between 9th and 11th grades, but also that HRU see less harm in marijuana than other groups.

Use Avoidance

Heavy users were much less likely to report that they learned how to resist alcohol or drugs. Resistance learning was endorsed by only around 16-17% of HRU and 21-26% of Binge. In contrast, ABS rates were about twice as high (by 20 percentage points or more). CON and NBNG were in the mid-range, with similar percentages. All groups were less likely to select avoidance of alcohol use than drug use, with the exception of HRU and BNG in 9th grade, who reported equivalent percentages. *This suggests that prevention programs tend to focus more on drug use than alcohol use*, a major limitation given the evidence on binge drinking in this report.

Resistance of Peer Pressure

One of the most common prevention strategies is teaching skills to resist peer pressure. HRU and BNG were about half as likely to select resistance skills than CON or ABS. The lowest rates were reported by HRU, around 10%, compared to about one-quarter of ABS and CON. Results were similar for BNG in 9th grade. In 11th grade, the percentage increased among BNG to 19%, 1.5 times higher than nondrinkers.

Talking with Parents

Despite the frequent calls for parent involvement, few respondents across groups reported that these programs prompted them to talk about use with their parents, but heavy users (2-3%) were still half as likely as other groups (5-6%).

Self Determination

Not surprisingly, ABS respondents were the most likely to cite that they had decided on their own not to use or drink (30.5% in 9th grade and 47% in 11th). CON and NBNG rates were half or less those of ABS. In contrast, only 3-4% of HRU and 4-7% of BNG selected this.¹⁸ That any heavy users selected this option may reflect their cessation efforts, as reported below.

Boomerang Effect

Heavy users were ten times more likely than abstainers to report that prevention education had made them *more interested* in trying alcohol or other drugs. Around 20% of HRU and slightly fewer BNG endorsed it at both grade levels, compared to 2% of ABS and 8-10% of CON. BNG rates were 1.7 times higher than NBNG in 11th grade, but only slightly higher in 9th.

Use Reduction Assistance

Current prevention programs influence only a tiny minority of students — only 2-4% even among HRU and BNG — to seek help for their AOD use, such as treatment or counseling. This may help explain why relatively few heavy users reported that they felt they needed help.

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To summarize, although their overall exposure to programs was similar across groups, heavy users of both alcohol and drugs differed significantly in their responses to these program strategies compared to abstainers and, to a lesser extent, occasional users.

- HRU and BNG are much more likely to report that they learned little from the programs and that the programs increased their interest in using (by about one-quarter to one-fifth),
- They were less likely to report that they had been taught how to avoid use of drugs, especially with respect to alcohol, and to resist peer pressure.
- The HRU and BNG in 9th grade were less likely to endorse that they had been taught about harm associated with AOD use than other groups.
- Only about 2-4% of heavy users reported that school programs helped them seek treatment or counseling or to speak about it with their parents, half the rates for occasional users (except for bingers in 11th grade).

That even CON and nonbinge drinkers differ from abstainers, and in general reported rates in the mid-range, indicates that responses to prevention programming vary by level of use. Prevention education in its current form appears to be preaching to the choir rather than to the sinners, who appear to be not receiving, comprehending, or accepting the same messages from the programs.

Table 5.8
Effects of AOD Education, Grade 9 and 11

What Learned	9 th Grade					11 th Grade				
	ABS (%)	CON (%)	NBNG (%)	HRU (%)	BNG (%)	ABS (%)	CON (%)	NBNG (%)	HRU (%)	BNG (%)
Avoid alcohol use	45.3	28.9	24.3	17.4	21.0	38.4	22.8	15.8	12.6	18.2
Avoid other drug use	48.9	36.2	38.8	16.6	21.8	40.6	33.8	30.6	15.7	26.7
Resist pressure from friends	25.9	21.1	21.8	11.3	9.6	23.6	24.9	28.2	11.3	18.6
Alcohol/drugs harmful to health	45.7	38.9	33.6	23.9	34.0	47.8	46.5	43.7	31.8	44.8
To seek help (treatment/counseling)	4.6	3.2	4.2	3.6	2.3	5.0	4.3	3.5	2.2	3.8
To talk with parents about your use	6.3	5.4	6.6	1.9	2.4	6.8	5.3	4.8	3.1	6.1
Not affected me, taught nothing	3.8	9.1	10.6	23.1	16.0	4.7	12.1	11.7	21.9	19.3
Already decided not to use or drink	30.5	14.6	6.9	2.8	2.9	46.8	16.4	14.1	3.9	7.0
Made more interested in trying AODs	2.2	10.7	14.8	20.5	18.0	2.1	7.7	9.7	20.1	17.0
Never had classes/programs	16.8	15.5	17.4	17.7	16.3	11.7	12.9	10.7	15.4	9.9

School Policies

Two questions in the survey explored student perceptions of school policies related to AOD use: whether the school would provide cessation-related help to users; and what punishment would happen to a student who was found using or possessing alcohol or another drug at school.

Perceived Help from School

Respondents were asked how likely it would be that a student who wanted to stop AOD use would find help at their school, as shown in Table 5.9. Relatively few thought it likely, regardless

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of their level of substance use. Those who thought it was least likely were the HRU and BNG, at very close to the same rates.¹⁹

- All groups, but heavy users more than nonusers, most frequently responded that cessation-related help at their schools was *not likely* to be available. In 9th grade, it was chosen by 43% of HRU and 49% of BNG, compared to 34% of ABS. Eleventh graders were even more skeptical, with *not likely* endorsed by over half of HRU and BNG and 46% of ABS.
- On the other end of the continuum, the least-selected option was *very likely*. In 9th grade, only 13% of HRU and about one-fifth of all other groups endorsed it. In 11th grade, percentages dropped to just over one-tenth for both HRU and BNG and around one-sixth for ABS.

In other words, the HRU and BNG percentages for *not likely* are three times higher than for *very likely* in 9th grade, and almost five times higher in 11th grade. That older students who are more likely to be aware of any help-related services, also are more likely to think that help is not available underscores a fundamental weakness in the service system to meet their needs.

Also of interest is the percentage of students who marked “don’t know.” In any school where such helping services exist, everyone should be aware of it, particularly the substance users. Schools should educate students about their services (including the guarantee of anonymity and privacy) to promote self-referrals. Thus a “don’t know” response suggests that helping services are not available. In 9th grade, when providing help might succeed in interrupting the escalation of use and related problems, one-quarter of HRU and one-sixth of BNG didn’t know if help was available. While the percentage was lower by more than half in 11th grade (10% HRU and 5% BNG), this is because higher percentages marked “not likely.” About two thirds of HRU and BNG in both 9th grade (69% and 66%) and 11th (63% and 64%) marked either “don’t know” or “not likely.”

Table 5.9
Likelihood Students Will Find Help at School for Stopping AOD Use, Grades 9 & 11

Likelihood	Grade 9			Grade 11		
	ABS (%)	HRU (%)	BNG (%)	ABS (%)	HRU (%)	BNG (%)
Very likely	20.9	13.2	18.6	16.4	12.1	12.6
Likely	19.3	17.4	15.1	20.2	24.1	23.8
Not likely	34.2	43.5	49.4	46.1	53.1	51.7
Don't know	25.6	25.9	16.9	17.3	9.9	11.9

Use-Related Punishment

The opposite of assistance is *punishment*. Respondents were asked whether a student would be suspended, expelled, or transferred if caught using or possessing alcohol or other drugs at school.⁶ The data in Table 5.10 reveal that, regardless of user group, there was remarkable agreement among respondents that these punishments (suspension, expulsion or transfer) would be *likely* or

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very likely, the latter selected by over half of each group. Very few believed that this result was *not likely*, about one-in-ten across groups and grades. The HRU and BNG in 9th grade were twice as likely to choose *not likely* as ABS. This suggests that the deterrent effect of such policies is relatively less likely to impact those for whom it is most intended at this early age. The highest percentage for not likely in 11th grade was also reported by HRU, but there was no difference between abstainers and BNG.

Table 5.10
Likelihood a Student will be Suspended, Expelled, or Transferred for AOD Use on School Property

Likelihood	9 th Grade			11 th Grade		
	ABS (%)	HRU (%)	BNG (%)	ABS (%)	HRU (%)	BNG (%)
Very likely	55.5	54.7	51.2	56.0	58.7	58.9
Likely	22.0	23.0	25.2	24.3	22.3	25.4
Not likely	7.4	13.7	13.8	10.5	13.1	10.3
Don't know	15.1	8.7	9.9	9.2	5.9	5.4

These two questions about school policies are not entirely equivalent, but they are related. The provide-help question asks about the school's response to AOD use in general. The punishment question asks about the response to the specific behavior of using or possessing at school in violation of school rules. But it is also when students violate school rules that their AOD use problems often first become apparent. A high rate of AOD use at school is one of the defining characteristics of HRU and BNG. These are the very students who are most in need of assistance! Use and possession at school are not acceptable, but punishment without help is likely to be counterproductive. Will heavy users come forward to seek help if they perceive the school as primarily punitive? It is hard to see how putting an offending student on the street or in another school without use-related counseling or treatment will help that student deal with his or her problem. Not attending school is likely to increase alcohol and/or drug use and possibly result in associated criminal activity. While there should be consequences for these offenders, these findings again underscore that they need to be linked to supportive services, as described in this report's conclusion.

Discussion



Overall, what do these results tell us about heavy users compared to nonusers (ABS and nondrinkers) and to occasional users (CON and NBNG)? Foremost, they tell us that heavy users are more likely to have multiple risk factors involving their attitudes and environment, as well as fewer protective factors.

- Both HRU and BNG began use of both marijuana and alcohol earlier.
- They are more likely to view the reasons for AOD use in beneficial terms of having fun and feeling better, and to perceive use as harmless.

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- They are exposed to drug use among more adults around them.
- They are more likely to perceive that their friends would not disapprove of alcohol or marijuana use and to have higher estimates of the proportion of students who use marijuana.
- The HRU are less likely to have the environmental assets or development supports in the schools and communities that are known to be protective of involvement in substance use and other risk behaviors. Binge drinkers as a whole were only slightly lower in assets than nondrinkers, but there were much greater group differences for regular binge drinkers.

In most cases, as level of use increased from nonusers to occasional users to heavy users the percentages reporting each risk factor increased, although the association is often weaker for alcohol than drug use.

These results also provide an indication of some of the factors that should be considered in determining which youth may be at risk of heavy use and which should be targeted for programs. The group differences in the level of drug use among adults, for example, supports that children of substance abusers are particularly at risk and should be targeted with services at an early age. Youth who are identified as, or believed to be, AOD users should be assessed to determine the existence of these risk factors in their lives. Because a person is characterized by one or a few of these factors does not mean that they are or will become a heavy user. But research consistently has demonstrated that risk factors are additive, the more risk factors and fewer protective factors that exist, the more likely an adolescent is to become AOD involved.

These risk-factor findings may be one explanation for the group differences found in regard to school prevention programs and policies. Heavy users were less likely to report positive influences from prevention programs even with similar exposure. Their earlier age of initiation; their greater perception of beneficial reasons for use, perceived harmfulness, exposure to adult use, and peer supports; and their lower environmental assets may make them relatively immune or even resistant to typical prevention messages, especially no-use messages. Learning about drugs may even reinforce their predisposition to use, as indicated by the high percentages of HRU and BNG who reported that prevention lessons made them more interested in trying AODs. In contrast, six-month abstainers appear to have a predisposition not to use (selected “already decided not to use or drink”). ABS respondents do not have direct experience that might disconfirm warnings to not use.

Taken as a whole, these findings illustrate the challenges that prevention and intervention programs must face in countering the effects of multiple risk factors that support use. They provide strong evidence that different approaches are needed to connect with heavy alcohol and drug users, and that youth at high risk need to be identified and targeted early, before the onset of heavy use. Nor are current programs helping to prompt heavy users to think about reducing their use, consistent with user self-report data on cessation efforts (Chapter 4). In this regard, the evidence that heavy users are less likely to perceive the school as providing cessation help and more likely to believe it would punish someone for use or possession at school takes on added

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meaning. If we are to improve cessation efforts, users must perceive the school as a helping agency, as discussed further in the Conclusion. Consistent with this, the findings suggest that one approach that may be more effective, particularly in regard to heavy drug users and regular binge drinkers, is to provide the developmental supports that they lack in comparison to nonusers.

Among the other actions these findings suggest will be more effective is for programs to counter the pro-use attitudes of HRU/BNG and help them establish more prosocial peer networks. Whereas many prevention programs are designed to stress resisting peer pressure and countering perceptions that use is the norm, among the HRU and BNG use is the norm and it is supported by the peer network. This is consistent with the finding that damage to a friendship is one of the least selected use-related problems among heavy users (though the percentage is still higher than occasional users). Perceptions of use benefits can be countered by helping youth connect the problems they may be experiencing in their lives with their AOD use. In this regard, further research is warranted on the reasons why perceived harm increases between 9th and 11th grade among heavy users, and the possible role played by the use-related problems they experienced in 9th grade. Finally, the research underscores the importance of providing all youth with more developmental supports and assets. The program implications of the survey results as a whole are discussed further in the report's Conclusion.

ENDNOTES

- 1 Lifetime abstainers of alcohol or drugs have been removed from the analysis because age of first use is irrelevant in the case of abstainers.
- 2 In the CSS, as well as other major student surveys, retrospective use-initiation reports by 11th graders are usually lower than that reported by 7th graders.
- 3 Hingson et al. 2003
- 4 Golub & Johnson 2001.
- 5 DeWit et al 2000; Grant & Dawson 1997. Documented problems include a higher frequency of drinking (Samson, Maxwell, and Doyle, 1989; Gruber, DiClemente, Anderson, and Lodico, 1996), heavier drinking (Barnes, Welte, and Dintcheff, 1992; Hingson, Heeren, Jamanka, and Howland, 2000), alcohol abuse (DeWit, Adlaf, Offord, and Ogborne, 2000), alcohol dependence (DeWit et al., 2000; Grant and Dawson, 1997; Chou and Pickering, 1992), alcohol misuse (Hawkins et al., 1997), alcohol related unintentional injuries (Gruber et al., 1996; Hingson et al., 2000; Hingson, Heeren, Levenson, Jamanka, and Voas, 2002), and getting into fights after drinking (Hingson, Heeren, and Zakocs, 2001).
- 6 Kandel and Davies 1992; DeWitt et al. 2000.
- 7 Grant & Dawson 1998.
- 8 Brook, Balka, &Whiteman 1999.
- 9 Brook, Balka, &Whiteman 1999; Hingson et al. 2003; Brown & Talpert, 2004
- 10 For example, Kandel and Chen (2000) determined that, by itself, early onset of marijuana will not lead to problematic use or rapid progression into the use of other drugs, compared to the motivation underlying use and dysfunctional behaviors
- 11 The notable exceptions were for boredom (both grades) and problem avoidance (in 9th). Percentages for nonbinge drinkers were also higher than for CON for all options in 11th grade and all in 9th except for slightly lower for friends use and for seeing what it is like. In 11th grade, NBNG had the highest endorsement of all groups for feeling better, seeing what its like, and feeling better, and they were equivalent to HRU and BNG for boredom.
- 12 HS 62-65/MS 53-56: "How harmful do you think it is to use the following substances frequently (daily or almost daily)?"
- 13 Respondents were asked about occasional use of methamphetamine and ecstasy vs. frequent use of alcohol and marijuana because the former are used less frequently.
- 14 Because so many adults drink alcohol, it is not included in the question.
- 15 Benard 2004.
- 16 These items were original developed for the California Healthy Kids Survey Resilience & Youth Development Module, which also assesses home, peer, and individual assets. For information, visit the website at www.wested.org/hks.

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- 17 The results that follow may underestimate the effects of prevention because respondents reporting that they had not had drug education were included in the summary data in Tables 8.4 and 8.5.
- 18 The obvious inconsistency of even a few heavy users reporting that they had earlier decided not to drink or use may be explained by the proportion of binge drinkers who are not drug users, or possibility that at least some of the drinker/user groups answered this alternative on the basis of original commitments to abstinence that were later abandoned.
- 19 Percentages for nonbinge drinkers are not show because they were so close to the conventional drug users.

Chapter 6

Other Problems: School, Violence & Mental Health

The problems experienced by the HRU and BNG are not just limited to substance use. This section summarizes how the level of use is related to four other risk behaviors or problems: (a) poor school performance, attendance, and connectedness; (b) bullying, violence, and delinquency; (c) harassment, victimization (including teen dating violence), and safety; and (d) incapacitating sadness (depression risk). These analyses include the two nonuser comparison groups: total abstainers from any AOD use in the past six months (ABS); nondrinkers who did not consume any drink of alcohol in the past 30 days.

Overall, there is a stepwise progression in the percentages reporting violence and school problems as level of AOD use increased, rising from nonusers to occasional users (CON and NBNG) to heavy users (HRU and BNG), with the highest rates often reported by RBNG. Group differences tended to be smaller for victimization indicators, but heavy users still reported the highest rates.

Within this general pattern, problem rates among BNG (but not RBNG) often are lower than for HRU, and nondrinker rates tended to be higher than those for ABS. Thus, alcohol group differences are somewhat smaller than for the drug groups. This likely is because of nondrinkers who did not consume alcohol in the past thirty days but may still have used drugs during that period or even engaged in AOD use in the past six months, which might affect their involvement with other problems. It may also reflect that binge drinking is more commonly accepted across youth than illicit drug use.

School-Related Problems

As already shown (Tables 2.2 and 3.3), the HRU and BNG are characterized by a much higher rate of substance use at school than CON, a reflection of both their heavy use involvement and their disengagement from school. In 11th grade, fully 45% of HRU and 38% of BNG had been drunk/high at school three or more times. Roughly one-fifth of both heavy-use groups also

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reported that among the primary problems they experienced because of their AOD use were trouble at school or with school work (Tables 4.1 and 4.2).

Consistent with this, Table 6.1 shows that as the level of drug use and drinking increases there is a decline in school attendance, achievement, and, to a lesser extent, connectedness. Even moderate substance use is correlated with lower school attendance and grades, but not to the extent of heavy use.

Scholastic Grades

The percentages that reported receiving class grades of mostly Bs or better in the past 12 months were inversely related to the level of alcohol, but especially drug, use. Conversely, as the level of substance use increased, the more likely students were to report receiving low grades (D's and F's). Differences between BNG and NBNG were smaller than between HRU and CON (e.g., a higher proportion of BNG than HRU reported receiving high grades). Even some high performing students engage in binge drinking. Nevertheless, the differences on measures of academic performance between BNG and nondrinkers are still pronounced.

- In 9th grade, only 36% of HRU and 42% of BNG reported receiving *mostly B's or better*, compared to about six-in-ten ABS and nondrinkers. In 11th grade, results were similar for HRU (41%) and ABS (62%), but BNG were only moderately lower than nondrinkers (48% vs. 56%). In both grades, the CON and NBNG were in the mid-range, at about 50%.
- In contrast, in 9th grade 15% of HRU and 12% of BNG reported receiving *mostly D's and F's*, about seven and four times the rates for ABS and nondrinkers (2% and 3.5%). In 11th grade, the HRU and BNG rates dropped by half, to 7% and 6%, but still higher than the 4% or so for ABS and nondrinkers.

School Attendance

Differences are even greater for skipping school or cutting classes in the past year. Heavy users are at least *twice* as likely to report attendance problems than nonusers and group differences increased with the frequency of cutting/skipping. CON and NBNG drinkers fell in the mid-range.

- In 9th grade, about half of HRU and BNG reported skipping at least *a few times*, six times higher than for the ABS (8%) and four times higher than nondrinkers (12.5%).¹
- In 11th grade, percentages for skipping at least a few time rose to 72% of HRU and 61% of binge drinkers, compared to 20% of ABS and 29% of nondrinkers.²

School Connectedness

School connectedness was measured with a five-item scale derived from the National Survey of Adolescent Health (Add Health), in which students are asked the extent to which they: (a) feel close to people at school, (b) are happy to be at school, (c) feel a part of the school, (d) feel safe there, and (e) perceive that teachers treat students fairly. The percentages of students who were classified as “low” on the school connectedness scale are presented on Table 6.1.³ The results are very consistent with those found in Chapter 5 for being Low in Total School Assets and Caring Relationships, suggesting that school environmental assets and school connectedness are related.

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Low school connectedness correlated with the level of drug use but not alcohol, except that RBNG reported much lower connectedness than any other group except 9th-grade HRU.

- Among HRU, in 9th grade low school connectedness was evident among 47%, about double that of ABS (19%) and CON (24%). In 11th grade, group differences were smaller, but HRU were almost twice as much as ABS (30% vs. 17%) and almost 1.5 times greater than CON (23%).
- BNG did not differ significantly from nondrinkers and NBNG (range 18.5% - 22.5%), and among NBNG in 9th grade the rate inexplicably rose to 33%. In contrast, RBNG had low-connectedness rates similar to the HRU, at 42.5% and 33%.

Conversely, looking at the percentages for being “high” in school connectedness (not shown in table), the percentages for ABS were twice those of HRU (32-33% vs. 15-16%), with the CON in the mid-range. Nondrinkers, at 29% (both grades), exceeded all the drinker groups, with BNG only slightly lower at 28% in 9th grade and 26% in 11th. RBNG were the lowest of all at 28% and 21%.

Table 6.1
School-related Problems by User Group.

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade							
Grades Mostly B's or better	66.4	51.7	36.1	60.0	45.9	41.9	42.5
Grades Mostly D/F's	2.3	7.3	14.6	3.5	10.7	11.7	12.4
Skip school/classes, ever	21.4	45.5	69.7	28.3	55.3	71.7	80.5
Skip school/classes, few+	8.3	23.1	49.0	12.5	27.6	51.0	57.1
Low school connectedness	19.3	24.0	47.1	18.5	33.0	22.6	44.1
11th Grade							
Grades mostly B's or better	62.2	49.9	40.7	55.8	51.9	47.8	46.1
Grades mostly D/F's	3.7	3.1	7.1	3.6	3.5	6.1	7.6
Skip school/classes, ever	39.6	66.0	85.6	50.4	69.9	82.8	86.0
Skip school/classes, few+	20.0	41.7	71.8	29.1	47.3	60.6	66.9
Low school connectedness	17.1	22.8	30.0	20.3	19.0	22.1	33.3

Violence & Delinquency

The survey includes six measures of the frequency of violence and crime-related behavior. Three of them are school-based: fighting at school, weapons possession, and vandalism. The other three measures are: threatening someone with a weapon, group fighting, and gang membership. All measures assess behavior in the past year, with the exception of lifetime gang membership (ever been a member). Table 6.2 shows that there is a stepwise progression in prevalence rates for each of these violence indicators as AOD use rises. HRU rates are about three-to-five times greater than ABS. Percentages for BNG are consistently lower than for HRU, and in the case of gang membership in 11th grade almost half as much (16% BNG vs. 29% HRU). The smallest differences were for carrying a weapon at school and group fighting in 9th grade. Still, heavy use

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of both drugs and alcohol is highly correlated with violence. This is consistent with the higher percentage of BNG and HRU reporting that their AOD use contributed to fights with other kids, as reported in Chapter 4.

In 9th grade, about half of HRU and, to a lesser extent, BNG, reported damaging school property, physical fighting in school, or group fighting. This compares to 10-17% of ABS and 13-21% of nondrinkers. The HRU rates, in fact, are at least double those reported by CON, with the exception of fighting at school, which is almost 1.7 times as great. Results for RBNG are more similar to those for HRU. In 11th grade, the percentages are generally lower, but the same group differences exist.

Fighting at School

Fighting on school property was two-to-three times higher among heavy users than nonusers, and twice as high as CON.

- In 9th grade, it was reported by 54% of HRU and 45% of BNG (and 54% of RBNG), compared to 17% of ABS and 21.5% of nondrinkers.
- In 11th grade, rates were lower across groups but the pattern was the same, with fighting at school reported by 38.5% of HRU, 32% of BNG (and 35% of RBNG), versus 10% of ABS and 15% of nondrinkers.
- The CON and NBNG were in the midrange, at 30% and 36.5% in 9th grade and 22% and 31% in 11th.

Vandalism at School

Damaging school property was about three times more likely among heavy users than nonusers. The results are very similar to those for fighting at school.

- In 9th grade, school vandalism was reported by 50% of HRU and 45% of BNG. In 11th grade, it declined to 35% and 31%. This compares to 10% to 15% among ABS and nondrinkers in both grades. RBNG were about the same as HRU, at 47% and 36%.
- Again the CON and NBNG were in the midrange, at 24% and 39% in 9th grade, dropping to 19% and 20% in 11th.

Weapons at School

For both HRU and BNG, among the largest differences from the other groups was for carrying weapons at school, which also had the smallest difference between HRU and BNG.

- In 9th grade, over one-third of HRU (37%) and BNG (35%, with RBNG at 37%), had carried a weapon on school property, nine and five times the rates for nonusers, respectively (4% ABS and 7% nondrinkers). The HRU rate was three times that of CON (12.5%). NBNG were in the midrange at 23%.
- In 11th grade, percentages for each drug group were very similar to those for 9th grade (36% HRU vs. 19% CON and 10% ABS). The percentage for BNG dropped to 23%,

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although still 1.7 times higher than NBNG (14%) and 2.5 times higher than nondrinkers (9%). RBNG were at 37% and 28%.

Threatening Weapon Use

Using a weapon to threaten someone in the past year was highly concentrated among heavy users, especially of drugs. In 9th grade, HRU rates were 10 times higher than ABS, and BNG five times higher than the nondrinkers.

- Among HRU, 30% reported threatening with a weapon in 9th and 25% in 11th grades, compared to only 3% of ABS (both grades) and 6-7% of CON. HRU were five times higher than even CON in 9th grade.
- BNG rates were considerable lower, but still about one-fifth reported it in both grades (21% in 9th and 17% in 11th). This compares to 4-6% of nondrinkers and 11% of NBNG. RBNG reported rates equivalent to HRU in 9th grade and close to them in 11th.

Group Fighting

Half of both HRU and binge drinkers in 9th grade had engaged in fighting between groups of kids in the past 12 months, among the smallest difference between BNG and HRU for any violence measures. Percentages dropped to 45% and 29.5% in grade 11. This is behavior that may be related to gang activity.

- HRU rates were about five times higher than ABS (10% in 9th and 8% in 11th) and twice as high as CON (25% and 16%).
- For BNG, rates in 9th grade were over 3.5 times higher than for nondrinkers (13%) and 1.7 times higher than NBNG (29%). In 11th grade the overall prevalence rate dropped to 30%, but it was still over twice as high as among nondrinkers (13%).

Gang Membership

Around one-third of 9th-grade heavy users had ever been a gang member, with the HRU six-seven times higher than ABS and BNG two-to-three times higher than nondrinkers. CON are again in the mid-range. Reported membership declined among all groups in 11th grade, but the group differences remained about the same.

- In 9th grade, 37% of HRU reported gang membership, six times higher than ABS (6%) and over two times higher than CON (16%). BNG reported only a slightly lower prevalence than HRU, at 32% or three times higher than nondrinkers (9%) but only moderately higher than the NBNG (24%).
- In 11th grade, self-reported gang membership declined among HRU to 29%, still seven times higher than ABS (4%) and 3.5 times higher than CON (8%). BNG, at 16%, were two times higher than nondrinkers (7.5%) and 1.5 times higher than NBNG (10%).

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Table 6.2
Violence and School Victimization

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade							
Physical fight at school, year	17.4	29.6	53.9	21.5	36.5	44.6	54.0
Taken a weapon to school, year	4.2	12.5	37.4	6.6	23.1	35.3	37.3
Damaged school property, year	11.9	24.3	50.4	14.5	38.7	44.9	46.7
Used weapon to threaten, year	2.6	5.8	30.1	3.9	10.7	21.1	27.0
Fight between groups, year	9.9	25.0	50.5	13.0	29.3	48.8	62.5
Been in a gang, ever	6.3	16.0	36.8	8.9	23.9	31.7	24.0
11th Grade							
Physical fight at school, year	9.6	21.6	39.5	14.7	30.6	32.2	35.2
Taken a weapon to school, year	5.3	11.7	35.7	9.2	13.6	23.1	28.0
Damaged school property, year	10.1	19.4	34.9	13.2	20.1	31.2	35.8
Used weapon to threaten, year	3.4	7.4	25.7	5.9	11.3	17.1	20.9
Fight between groups, year	8.1	16.0	44.7	12.7	20.4	29.5	35.1
Been in a gang, ever	4.0	8.2	29.1	7.5	10.4	15.8	17.3

Victimization and Safety at School

The level of AOD use was also correlated with victimization at school — as measured by experiencing harassment in the past year or fear of being beaten — as well as with feeling unsafe at school. However, the group differences were much smaller than for violence indicators, especially in 11th grade when rates for all groups tend to decline. The results for drug-use and alcohol-use groups are remarkable similar in 9th grade, but BNG percentages again are lower than for the HRU in 11th grade

Harassment at School

Students were asked the frequency that they experienced any harassment or bullying on school property in the past 12 months because of five hate-crime categories — their gender, race/ethnicity, religion, sexual orientation, physical attributes — as well as any other cause

- In 9th grade, almost half (47%) of both HRU and BNG (and RBNG) reported some harassment, about 1.6 times higher than nonusers (29% ABS and 28% nondrinkers). CON and NBNG were in the mid-range (37% and 39%).
- In 11th grade, the HRU rate dropped to 39%, still 1.5 times higher compared for ABS (26%), with CON at 32%. The BNG rate dropped even more, to 30%, about the same level as nondrinkers (29%) and NBNG (32%).

Fear of Violence at School

Fear of being beaten at school at least once in the past year was reported by almost three-in-ten HRU/BNG in 9th grade, twice as high as among nonusers. In 11th grade, percentages and group differences dropped.

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- In 9th grade, 27% of HRU and 29% of BNG feared being beaten at school, about double the percentage for nonusers (14% ABS; 16% nondrinkers). The CON and NBNG were in the middle (21% and 22%). RBNG reported the highest rate at 33%.
- In 11th grade, only 18% of HRU had been afraid of a beating, compared to 11% of ABS and 14% of CON. For alcohol, group differences were even smaller and there was no clear correlation with level of use, with NBNG exceeding BNG.

School Safety Concerns

Heavy users were about twice as likely to feel unsafe or very unsafe at school in the 9th grade, but differences with occasional users were small. In 11th grade, results were very mixed, but HRU rates are still 1.5 times greater than ABS and CON.

- One sixth of HRU in 9th grade (17%) perceived school as *unsafe or very unsafe*, over twice the rate as ABS (7%) and 1.7 times higher than CON (10%). BNG, at 13%, were lower than HRU but were still almost twice as likely to feel unsafe as nondrinkers (7%). NBNG actually reported the highest rates, at 15.5%.
- Among 11th graders, there was less group difference, but the HRU still were the highest at 11%, compared to 8% ABS and 7% CON. For alcohol, there were no significant group differences, with the rates at 8% for BNG, 5% for NBNG, and 7% for nondrinkers.

Table 6.3
School Victimization and Teen Dating Violence

	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9th Grade							
Afraid of beating at school, year	13.8	20.8	26.9	16.1	22.3	29.2	32.6
Harassed at school, year	29.1	36.8	46.7	28.2	38.6	47.3	49.5
Feel unsafe/very unsafe at school	6.7	9.8	17.1	7.1	15.5	13.0	13.2
Teen dating violence, year	4.3	6.5	19.2	3.8	6.2	14.5	20.9
11th Grade							
Afraid of beating at school, year	10.7	14.4	17.6	11.8	17.0	14.9	14.8
Harassed at school, year	25.6	32.2	38.8	29.0	32.0	30.4	27.9
Feel unsafe/very unsafe at school	7.0	8.1	11.4	7.0	5.1	8.3	10.2
Teen dating violence, year	5.1	9.0	18.0	6.4	7.9	14.2	11.7

Dating Violence

Since 1999, the CSS has assessed another form of victimization: teen relationship or dating violence (TDV), also called “intimate partner” violence. This is measured in the CSS by having been purposefully hit, slapped, or physically hurt by a boyfriend or girlfriend at least once in the twelve months prior to the survey. As reported in Table 6.3, HRU status and binge drinking are highly correlated with teen dating violence, with little difference between the substances, or

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between grades. Heavy users were about three-to-five times more likely to experience it than nonusers and 2.5 times more likely than occasional users.⁴

- Among 9th graders, TDV was reported 19% of HRU, almost 5 times higher than by ABS (4%) and 2.5 times higher than by CON (7%). It was lower among BNG at 15%, but still almost four times the rate for nondrinkers (4%) and 2.5 times the NBNG (6%). RBNG reported the highest prevalence (21%).
- Among 11th graders, the HRU and BNG rates stay about the same (at 18% and 15%, respectively). The rates among nonusers and occasional users rise so that group differences diminish. One reason for this may be that TDV increasingly affects all groups among older teens. Still, TDV among the HRU was over three times higher than among ABS (5%) and the BNG were 2.5 above nondrinkers (6%).

These findings reinforce other research linking AOD use with increased likelihood of experiencing relationship aggression, including unwanted sex.⁵ Research has also linked dating violence with a range of other serious high-risk youth behaviors other than substance use, including eating disorders, depression, sexual risk behaviors, and suicidal behavior. It causes not only physical injury but also emotional injury — because the perpetrator is known and trusted by the victim. Victims of adolescent dating violence emerge in the research as a very high-risk group with multiple needs.⁶

Depression Risk (Incapacitating Sadness)

▼

To gauge how heavy use might be related to depression and poor mental health, students were asked whether they had ever felt so sad and hopeless during the past 12 months everyday for two weeks or more that they stopped doing some usual activities (i.e., incapacitating sadness). This measure of depression risk increased in a step-wise fashion as drug involvement increased. Results (Table 6.4) were more muddled for alcohol, but binge drinkers were still more vulnerable to it than nondrinkers. Heavy-user rates (but not nonuser) and group differences were higher in 9th than 11th grade. Over half of heavy users in both grades had experienced incapacitating sadness or loneliness in the past year, with the exception of BNG in 11th grade (four-in-ten).

- In 9th grade, the HRU were 2.5 times more likely to report it than ABS (61% vs. 24%). BNG almost two times more likely than nondrinkers (51% vs. 27%). The occasional users were in the mid-range (36% CON, 42% NBNG).
- In 11th grade, group differences narrowed. The prevalence declined among heavy users by about ten points, whereas it remained about the same among the nonusers and occasional users. Still, the HRU rate was twice as high as ABS (52% vs. 26%). BNG were 1.4 times as high as nondrinkers (42% vs. 31%).

That at least one-quarter of the nonusers reported such sadness indicates that we need to pay more attention to the mental health of *all* students. But the major finding is that it was experienced by over half of HRU in both grades and by 40-50% of BNG in 9th, about twice the rate of nonusers (except BNG in 11th-grade).⁷

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Table 6.4
Feelings of Incapacitating Sadness and Hopelessness

	Total (%)	ABS (%)	CON (%)	HRU (%)	NALC (%)	NBNG (%)	BNG (%)	RBNG (%)
9 th Grade	31.8	23.7	36.0	61.2	27.4	42.3	51.0	46.9
11 th Grade	35.0	26.1	34.0	52.0	31.2	42.1	42.3	37.2

*Ever felt so sad and hopeless during the past 12 months everyday for two weeks that you stopped doing some usual activity.

In a related item, students were asked whether, if they use alcohol or drugs, they ever felt “depressed, uninterested in things, alone, or isolated.” This is both a measure of depression risk and dependency risk. The results in Table 6.5 support a strong connection with substance use.

- About one-fifth of HRU in both grades and of BNG in 11th grade answered affirmatively, 2-3 times higher than among occasional users (10% of NBNG and 6% of CON).
- In 9th grade, the BNG rate was lower at 15%, one of the few problem areas in which rates are lower among younger students, but still 1.5 times higher than NBNG (10%).

Table 6.5
Ever Felt Depressed, Uninterested, Alone, or Isolated, AOD users

	Total (%)	CON (%)	HRU (%)	NBNG (%)	BNG (%)	RBNG (%)
9 th Grade	4.4	5.9	20.9	10.4	14.8	19.0
11 th Grade	6.6	6.5	20.0	9.2	18.6	17.6

*If you use alcohol or another drug, have you ever felt depressed, uninterested in things, alone, or isolated.

Discussion

Despite differences by grade and substance, there are strong associations between heavy AOD use and a wide range of other risk behaviors and problems. The HRU and BNG are predominately responsible for a high proportion of the violence that is reported by youth both in and out of school. To a lesser extent, they also are more likely to be victims of violence or harassment in and out of school and to feel less safe at school. Finally, they are characterized by poorer school attendance, grades, and connectedness than occasional users (NBNG, CON), and both user groups are higher than nonusers.

Looking at 9th grade, when HRU and BNG results on these problem indicators are most similar (and higher than in 11th grade), heavy AOD users compared to nonusers were about:

- 1.5-2 times more likely to have been harassed at school, to fear being beaten at school, to feel unsafe at school, and to have experienced chronic sadness in the past year.
- 2-3 times more likely to report fighting and vandalism at school and, for binge drinkers, group fighting.

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- 4 times more likely to have been the victim of teen dating violence, to usually receive grades of D's and F's, and to have skipped school or cut classes at least several times.
- 5 or more times more likely to have carried a weapon to school, threaten someone with a weapon, been a gang member, and, among HRU, engage in group fighting,

These findings are very consistent with other research showing a high correlation between substance use and a wide range of other problems. Why the results for binge drinking in 11th grade are weaker than results for heavy drug use or for binge drinking in 9th grade warrants further investigation. As we speculated in Chapter 3, it may be related to how common binge drinking is among older teens and two features of the measure: (a) the 30-day time-frame of the question (versus six-months for HRU) does not rule out prior binge drinking among nonbingers or even nondrinkers; and (b) nonbingers and even nondrinkers could have used drugs within the past 30 days. Nevertheless, in most instances other-problem prevalence rates among binge drinkers are about two or more times higher than those for nondrinkers, and the rates for regular binge drinkers (half the BNG population) are very close to, and sometimes higher than, HRU.⁸ The results overall confirm research on the involvement of binge drinkers in other problem behaviors, as summarized in a review by the Columbia Center for Addiction and Substance Abuse. For example:

- **School-Related Problems.** Heavy and binge drinkers between the ages of 12 and 17 have been found to be far more likely than nondrinkers to say that their school work is poor, and four to five times more likely to say that they cut classes or skip school.⁹
- **Violence and Delinquency.** Binge drinkers between the ages of 12 and 17 are two times more likely than nondrinkers to have gotten into a physical fight (37% vs. 15%), to steal from places other than their home (18% vs. 6%), and to have been arrested for breaking the law (17% vs. 4%).
- **Mental Health Problems.** Binge drinkers between the ages of 12 and 17 are more than twice as likely to say they contemplate suicide, with teen alcohol-related suicide costing an estimated \$1.5 billion annually.¹⁰

These correlations should not be interpreted to mean that substance use causes violence or other problems. We can reach no conclusions as to causation. For example, heavy substance use may fuel interpersonal conflict that results in violence, but experiencing TDV may foster more substance abuse by the victims. Many of these problems are affected by the same risk factors as substance use and may contribute to it, just as AOD use, in turn, can aggravate them. If early substance use onset is associated with a higher level of other problems, as noted in Chapter 5, it may be that these other problems in themselves contributed to the early onset.

However, the findings do illustrate that substance abusers have multiple problems and that substance use, violence, poor school adjustment, and gang membership tend to be related and to cluster in the same students. Youth characterized by one risk behavior are likely to have others.¹¹ These close association between level of use and multiple problems that have serious individual, educational, and social costs underscore the need to provide comprehensive interventions that support the emotional and behavioral needs of youth. Prevention and intervention programs

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targeting substance use, violence, and school dropout need to be integrated to adequately address the range of factors that lead to these problems. It follows that reductions in heavy substance use may have a wide-ranging positive affect on reducing these other problems.

In this regard, the finding that the prevalence of these other problems, particularly school problems, is generally higher in 9th than 11th grade among heavy users, but not nonusers, takes on added meaning. Although we can again only speculate as to the reasons, these results add further evidence that sample attrition is a plausible explanation. Many early initiators of heavy drinking who are also having other problems in 9th grade are likely to be no longer in school in the 11th grade.

The associations of heavy AOD use to school problems should be of particular concern in light of the need to turn around low-performing schools and improve student academic achievement and test scores, as discussed further in the Conclusion. Table 6.6 provides a summary of the proportion of school problems as reported by all students in the CSS for which the HRU/BNG population is responsible.

- In 9th grade, the HRU/BNG constituted 18% of the total student population but were about 30% of students who reported fighting and vandalism at school, and about 40% of those who reported chronic truancy, classroom grades of D's and F's, and carrying weapons to school.
- In 11th grade, they were 30% of students but about 40% of those who reported fighting in school and grades of D's/F's, 50% of those carrying weapons and vandalizing the school, and 60% of chronic truants.

In other words, for every ten students who reported poor school performance, attendance, and violence or weapons possession, 3-to-4 students in 9th grade and 4-to-6 in 11th were either HRU or BNG. Their rates were at least twice those of six-month abstainers, with the exception of poor grades (1.2 times higher). In the case of chronic truancy, the HRU/BNG percentages were almost six times higher than abstainers. To the extent that HRU/BNG are largely responsible for the substance use/availability and violence on the campus, the adverse effects of heavy substance use on learning are not just limited to the users themselves but extend to adversely affecting the learning environment of others by increasing the risk of substance use and undermining school safety. Student who do not feel safe and secure at school do not learn.

Table 6.6
Percentage of HRU, BNG, and ABS among Students Reporting Problems Behaviors

	9 th		11 th	
	HRU/BNG (%)	ABS (%)	HRU/BNG (%)	ABS (%)
In the past 12 months...				
Physical fight at school	30	30	41	21
Carried a gun, knife, or other weapon to school	44	20	55	16
Usually received grades of mostly Ds & Fs	38	25	42	34
Skipped school/class one or more times per month	42	30	58	10
Damaged school property	33	24	48	17

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ENDNOTES

- 1 In 9th grade, 70% of HRU and 72% of BNG reported skipping/cutting school at least once, about three times the ABS and nondrinkers (21% and 28%). The CON and nonbinge rates (46% and 55%) were twice that of nonusers.
- 2 In 11th grade, eight in ten HRU/BNG had skipped/cut, over twice as high as ABS and about 1.7 as high as nondrinkers (40% and 50%).
- 3 As noted, was measured with five survey questions to which student were asked the extent to which they agree or disagree. Questions included: "I feel close to people at this school," "I am happy to be at this school," "I feel like I am part of this school," "The teachers treat students fairly," "I feel safe in my school."
- 4 At least one incident of dating violence was reported by 5% of 9th graders and 8% of 11th. These results for 11th grade are consistent with those reported nationally with the same question on the Youth Risk Behavior Survey, conducted by the federal Centers for Disease Control and Prevention. California results are slightly lower for 9th graders. These results possibly underestimate actual frequencies in view of the sensitivity of the question, but there is currently little information available with which to assess the accuracy of self-reports of dating violence.
- 5 Burky et al.1988; Jackson, Cram, & Seymour 2000; Malik, Sorenson, & Aneshensel 1997. One question for future research is how reported TDV relates to the experience of having unwanted sex, which was one of the use-related problems for which group differences were greatest among 11th graders.
- 6 Cano et al.1998; Gorman-Smith et al.2001; Malik et al.1997; O'Leary & Slep, 2003; Ozer et al.2004; Pellegrini, 2001; Silverman et al. 2001. Burky et al. (1988) found that drinking alcohol preceded approximately one-third of incidents of dating violence compared to 14% by drug use; the CSS data implicate both drugs and alcohol.
- 7 According to the American Academy of Pediatrics from 41% to 65% of young people with alcohol problems also have a mental health, or co-occurring, disorder. As noted by: Greenblatt 2000.
- 8 For example, all violence and victimization indicators in 9th grade and skipping school and low school connectedness in 11th grade
- 9 Greenblatt 2000. {CK HOW DEFINED HEAVY DRINKING}
- 10 CASA 2003:15-17.
- 11 For example, children with conduct disorders — also known as antisocial disorders and characterized by rule-breaking behavior and a disregard for the rights of others — are at extremely high risk for developing an serious alcohol problem during adolescence. Thrill-seeking is common among children with conduct disorder and may explain why they begin drinking at an early age. Researchers also believe that alcohol's role in loosening inhibitions may encourage such adolescents to "act out" and get them in more serious trouble because of their drinking. Other researchers suggest serious alcohol problems and conduct disorders co-occur because of shared risk factors, not because one influences the other (Clark and Bukstein 1998.)

Chapter 7

Gender Differences

The report to date has presented results for 9th and 11th graders as a whole. In determining the need for services to address heavy use in a state with such a diverse population as California, an important consideration is how heavy use varies by population subgroups. This section explores how High Risk Drug Use and binge drinking, as well as dependency indicators and use-related problems, vary by gender. Females emerge as at least as heavily involved in AOD use as males, and more so in 9th grade. And they also are more likely than males to report experiencing use related problems and dependency indicators.

Overall Prevalence of Heavy Use

The traditional assumption that young men are more involved in heavy substance use than young women was not supported by this analysis, as shown in Table 7.1. In 9th grade females exceeded young men very slightly on being classified as HRU (10% vs. 9%). They also were much more likely to be a CON, and, as a result, were less likely to be a six-month abstainer, by a considerable degree. Over half of females were drug users (54%) compared to less than half of males (47%). In 11th grade, there was a convergence of rates: gender equivalence in HRU classification and females only moderately higher among CON and moderately lower among ABS.

Table 8.1 also shows that young women were considerably more likely to be BNG than males in 9th grade (14% vs. 9%), and were equivalent in 11th grade (23%), similar to the pattern found for the HRU. Even for RBNG, females were equivalent to males in 9th grade and only moderately lower in 11th grade (11% vs. 13%). Females were also more likely to be NBNG in both grades. As a result, they were less likely to report using no alcohol in the past 30 days.

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Table 7.1
Variations in Level of Alcohol and Drug Use, by Gender

	9 th Grade		11 th Grade	
	Male (%)	Female (%)	Male (%)	Female (%)
ABS	53.0	45.5	37.0	33.9
CON	38.1	44.6	45.5	49.3
HRU	8.9	9.9	17.5	16.8
NALC	79.8	70.5	66.0	60.4
NBNG	11.3	16.3	12.0	16.9
BNG	9.1	14.1	23.3	23.1
RBNG	4.9	5.3	13.1	11.1

Dependency Indicators

Female differences from male were even greater in regard to the dependency indicators in Table 7.2. Female HRU rates for two or more indicators were about twice those of males in both grades (39% vs. 19% in 9th grade and 52% vs. 27% in 11th). They were at least 1.5 times higher on every indicator in 11th grade, over twice as high for use interfering with a normal activity. There is more variation in 9th grade, but for most indicators percentages were twice as high or more among females (felt better when using than not, used a lot more than intended, using interfering with normal activity, using after not going to use). Males were higher than females only for using when alone and equivalent for increasing use for same effects and involvement in AOD lifestyle. There was much greater gender similarity in both grades among CON.

Similar to the results for HRU, female BNG in 11th grade were over 1.5 times as likely as males to report two or more dependency indicators (29% vs. 18% in 9th and 41% vs. 29% in 11th). In 11th grade, females were higher for each indicator except feeling better when using. In 9th grade, the results were more mixed, but with females higher on most indicators (felt better when using, used more than intended, used after not going to, interference with normal activity) but not all (increased use for same effect, used alone, involved in AOD lifestyle).

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Table 7.2
Dependency-related AOD Use Experiences, by Drug Use Status and Gender

	9 th Grade Female			9 th Grade Male			11 th Grade Female			11 th Grade Male		
	CON (%)	HRU (%)	BNG (%)	CON (%)	HRU (%)	BNG (%)	CON (%)	HRU (%)	BNG (%)	CON (%)	HRU (%)	BNG (%)
Increased use for same effect	6.7	23.7	15.4	6.1	21.9	24.8	7.6	40.2	32.5	8.3	24.3	18.5
Felt better when using than not	11.7	35.2	28.7	5.3	14.6	12.2	11.8	35.0	26.5	12.5	22.6	26.0
Used a lot more than intended	5.2	30.9	24.5	3.8	15.0	21.1	5.1	29.5	21.1	6.6	16.6	9.0
Used alone	8.8	17.5	15.8	4.9	29.2	23.9	9.8	34.6	29.2	5.4	21.1	12.5
Involved in AOD lifestyle**	3.6	18.2	9.6	3.5	18.3	18.5	4.6	23.9	18.9	3.8	15.6	12.3
Wasn't going to use but did	5.7	21.6	15.1	4.1	6.4	10.4	9.3	30.0	22.6	5.3	14.5	6.1
Use interfered with normal activity***	2.4	19.8	11.7	0.4	10.7	7.7	2.1	13.1	9.0	2.4	4.7	3.2
1 of above	24.5	62.9	55.0	21.2	57.3	52.5	29.9	70.7	60.8	27.8	49.6	47.6
2 of above	10.2	38.6	28.7	4.1	18.5	18.3	12.5	52.4	40.5	8.2	26.7	16.9
3 or more of above	5.6	27.4	17.9	1.3	17.2	15.3	4.7	37.3	24.4	3.0	18.4	10.0

*Total Sample

** Spent a lot of time finding, using, or being "hung over" from the use of alcohol or drugs.

*** Use interfered with going to school, working, or doing recreational activities or hobbies

Use-related Problems

Table 7.3 shows gender differences in alcohol- and drug-related problems. Given that females have a lower body weight and metabolism than males but report equivalent rates of binge drinking in 11th grade and higher in 9th, it might be expected that they report more alcohol-related problems. Consistent with this:

- In 9th grade, females were over twice as likely to report having experienced two or more problems from alcohol than their male counterparts (10% vs. 4%). The same was true for three or more problems (8% vs. 3%).
- In 11th grade, gender differences are smaller, but females were still 1.5 times more likely to report two or more problems (15% vs. 10%) as well as three or more problems (9% vs. 6%).

The greater gender differences in 9th than 11th grades suggest that early-onset heavy drinking females are especially at risk. For each specific alcohol problem, female rates were generally higher or at least equivalent. The biggest difference was for passing out/forgetting, reported by three times as many females in 9th grade (9% vs. 3%) and 1.5 times as many in 11th grade (16% vs. 10.5%). This is consistent with females having stronger reactions to equivalent levels of alcohol than males. In 11th grade, women were also higher in alcohol-related health problems

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(8% vs. 6%), damaging a friendship (5% vs. 3%), and having unwanted or unprotected sex (7% vs. 5%).

For drug use, the rates for number of problems and specific problems were more equivalent for young men and women. There are two notable exceptions. Females in 9th grade were twice as likely to report passing out/forgetting (2% vs. 5%), and males in 11th grade were twice as likely to report trouble with police (6% vs. 3%). In addition, females in 9th grade were slightly more likely to report two or more and three or more problems, as was found for alcohol (7% vs. 5%). Comparing alcohol and drug problem percentages, there are relatively small differences for males but females consistently reported higher percentages for alcohol than for drugs.

Table 7.3
AOD-Related Problems by Gender

	Alcohol Related				Drug Related			
	9 th Grade		11 th Grade		9 th Grade		11 th Grade	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
Health Problems	4.8	6.7	6.3	8.0	5.4	6.0	7.4	8.6
Trouble with police	3.4	4.0	6.7	5.4	3.8	2.7	6.0	3.4
Money problems	1.8	2.1	3.7	1.8	2.6	2.1	4.4	3.5
School trouble	1.9	4.6	3.5	4.7	2.2	3.8	4.1	4.5
Hurt school work	2.5	4.3	3.7	2.8	2.4	3.6	3.9	4.1
Fight with other kids	2.0	5.8	4.3	3.6	2.0	3.7	2.5	1.2
Damage a friendship	2.2	4.8	2.6	5.0	2.0	3.3	3.3	2.8
Physically hurt self	1.2	4.7	3.0	4.6	1.1	2.7	1.2	1.5
Unwanted/protected sex	2.2	2.6	4.7	6.9	1.6	1.5	2.4	2.4
Pass out/forgot/bad trip	3.0	9.1	10.5	16.1	2.4	5.0	4.8	4.7
One or more problems	15.5	19.7	22.8	29.9	14.8	14.6	20.0	18.7
Two or more problems	4.1	10.1	10.3	15.3	4.7	6.8	8.4	8.4
Three or more problems	2.9	7.8	6.2	9.1	3.2	4.9	5.3	5.4

Table 7.4 further shows that in both grades females exceeded males in the percentage reporting two or more problems from either alcohol or drugs in all categories — including the total sample — with the exception of occasional users (CON and NBNG) in 11th grade. The biggest differences, however, were among the HRU and RBNG.

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Table 7.4
Two or More Problems from Any AOD Use by Gender

	9 th Grade		11 th Grade	
	Male (%)	Female (%)	Male (%)	Female (%)
Total Sample	12.6	15.8	18.1	21.3
HRU	57.7	67.6	50.6	64.0
CON	16.6	19.8	20.0	20.8
NBNG	18.3	26.4	22.4	21.3
BNG	51.2	53.7	44.7	55.7
RBNG	46.1	60.3	54.9	62.9

Drinking and Driving

Similar results are evident for drinking and driving involvement. Table 7.5 shows that female HRU and BNG consistently reported higher overall rates than males, except BNG in 9th grade where they were equal. In contrast, females' drinking-driving rates exceeded males' among 9th-grade HRU (by 9 points) and among 11th-grade BNG (by 10 points).

Table 7.5
Drinking and Driving Involvement among 11th Grade Males vs. Females

	9 th Grade		11 th Grade		9 th Grade		11 th Grade	
	HRU		HRU		BNG		BNG	
	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)	Male (%)	Female (%)
Once	6.2	8.1	10.1	7.1	10.7	10.8	6.5	11.2
2 times	13.5	7.1	10.4	13.2	11.4	7.6	11.0	13.5
3-6 times	9.6	15.2	13.6	18.1	6.0	17.9	15.3	17.1
7 or more times	13.9	22.0	15.9	14.8	25.1	16.0	16.6	17.2
Total	43.2	52.4	50.0	53.2	53.2	52.3	49.4	59.0

Discussion

These findings are consistent with national survey data indicating that young adolescent females are particularly at risk for binge drinking. In the 2003 Youth Risk Behavior Survey, binge drinking was slightly higher among females than males in 9th grade (21% vs. 19%) and lower among females in 11th grade (29% vs. 34%). This is consistent with CSS results showing higher binge drinking among females in 9th grade but not 11th. In the Monitoring the Future Survey, there is no gender difference in grade 8, slightly lower rates for females in 10th grade (21% vs. 23%), and much lower rates in 12th grade (14% vs. 30%). The 2000 National Household Survey on Drug Abuse (NHSDA) found at younger ages (20 years or less), there was near gender equivalence in binge drinking (21% men, 16% women), while among adults over age 21 a far greater percentage of men (30%) and a lower percentage of women (13%) reported binge

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drinking. These results suggest that there is a developmental process whereby women start out binge drinking more in earlier grades but that males soon catch up and exceed them by the senior year of high school.¹

Regarding drug use, in the 2003 YRBS females in 9th grade were moderately lower in current marijuana use than males (17% vs. 20%), but slightly higher in lifetime methamphetamine use (7% vs. 6%), cocaine use (8% vs. 6%) and inhalant use (15% vs. 13%); and equivalent in lifetime ecstasy use (11% for both). In all these cases, however, males exceeded females in 11th grade. In the 2003 MTF, in the 8th- and 10th-grade samples there are fewer and smaller gender differences in the use of drugs than among older youth. The rate of using marijuana in the past year was slightly higher for males, but the rate for the use of any illicit drug other than marijuana tended to be slightly higher for females. There is little male-female difference in 8th and 10th grades in the use of LSD, cocaine, crack, heroin, Ritalin, Rohypnol, and GHB. Inhalant, amphetamine, and tranquilizer use are slightly higher among females.

These findings support the comprehensive review of the research and independent study of substance use among adolescent girls conducted by the Columbia Center on Addiction and Substance Abuse.² It concluded that in recent years young girls have been smoking and drinking as much as boys, have been catching up in the use of illicit drugs, been initiating substance use nearly as early as boys, and, most disturbing of all, suffering consequences beyond those of boys. Among other findings consistent with those found in this report:

- Girls who abuse substances are likelier to be depressed and suicidal — increasing the risk for substance abuse.
- Substance use can sink into abuse more quickly for girls and young women than for boys and young men, even when using the same amount or less of a particular substance.
- Girls and women are likelier than males to experience adverse health consequences from smoking, drinking or using drugs.
- Substance use increases the likelihood that girls will engage in risky sex or be victims of sexual assault, such as date rape.

Those girls that appear most at risk were those who have a history of sexual or physical abuse, had moved frequently, were depressed, anxious or suicidal, experienced puberty early or were overly concerned about their weight and appearance. Moreover, they found that key transition years were particularly periods of risk for girls. Perhaps most relevant to this study, the CASA report found that girls and boys have different pathways to substance abuse. Therefore, the authors called for “a complete revamping of prevention efforts — to take advantage of knowledge about the unique factors linked to substance abuse among girls.”

A tentative explanation for the higher rates of substance use, particularly alcohol, among females in 9th grade is that, at the onset of high school, they begin associating with older male teens and attending parties, therefore gaining greater access to alcohol and drugs earlier than their same-age

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males. By 11th grade, males have “caught up” and it may be that females, having earlier experienced more use-related problems, also curtail their binge drinking.

ENDNOTES

- 1 Center on Addiction and Substance Abuse at Columbia University 2003; The Substance Abuse and Mental Health Services Administration (SAMHSA) announced in 2007 that judging by the number of adolescents admitted for treatment of substance abuse disorders, girls are increasingly using drugs, including alcohol and inhalants, and are more likely than boys to have co-occurring psychiatric disorders (www.healthinschools.org/2007/may24_alert.asp).
- 2 Center on Addiction and Substance Abuse 2003.

Chapter 8

Summary & Conclusions

To answer one question raised in the Introduction, this report confirms that high risk drug users and binge drinkers, as defined by the CSS, do constitute two groups that meet the common criteria used in defining populations of heavy substance users. Within these groups there is a wide range in the level of student AOD use and adverse consequences experienced. Not all BNG and HRU are equally at risk. But as a whole they are much more likely than occasional users to report risky patterns of use, dependency indicators, cessation or use-reduction efforts, and a wide-range of use-related problems that adversely affect their development, schooling, personal relationships, and physical and mental well-being, and may lead to trouble with law enforcement. For example, by 11th grade:

- About one-third of HRU and BNG reported experiencing at least two *problems from AOD use*, a prevalence rate about 4-5 times higher than for occasional users.
- About the same percentages reported three or more instances of *drinking and driving* involvement, more than twice the occasional users.
- About four-in-ten HRU and one-third of BNG reported two or more *dependency indicators*, four and two times higher than for occasional drug and alcohol users, respectively.
- Just over half of HRU and about half of BNG appear to meet the DSM criteria for dependence or abuse.

HRU/BNG are also proportionately more likely than occasional users and, especially, nonusers, to report other risk and problem behaviors, including (a) poor school performance, attendance, and connectedness; (b) violence at school, out-of-school, and in their personal relationships (dating violence); and (c) poor mental health (serious sadness). Clearly, much of the social costs resulting from adolescent substance use are concentrated within these two groups, and many of the social and personal problems experienced by youth in general. These are highly vulnerable youth who will likely only experience more problems — and incur greater social costs — as they age.

Although the prevalence of high risk drug use and binge drinking declined slightly in 2003, it should be cause for serious concern that by 11th grade about one-fifth of students are engaging in each of these behaviors, three-out-of-ten are either HRU or BNG, and one-in-ten are both HRU

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and BNG. Moreover, the evidence suggests that 3%-4% of 9th graders and 6% of 11th graders may engage in these behaviors to the problematic degree that may warrant treatment, with the 2% and 4%, respectively, who are both HRU and BNG most likely in the most serious need.

Even higher estimates of intervention need were obtained when we used the DSM criteria to estimate the total population of youth who are substance use dependent. By this method it would appear that as many as 4% of 9th graders and 8% of 11th might be at risk of dependency. Another 6% and 10%, respectively, were classified using DSM criteria as abusers who would benefit from some targeted intervention, for a total potential intervention-need population of 10% in 9th grade and 18% of 11th. Although comparison with national DSM-derived estimates suggest that CSS criteria may be overestimating the overall prevalence, especially the proportion of abusers, the consistency in the results across methods for estimating intervention need supports that these percentages are not unreasonable for guiding resource allocations to intervention programs.

Many adolescents who use psychoactive substances will never develop physical dependency or have serious negative experiences as a result. However, these results demonstrate that heavier, longer-term and more frequent use is associated with multiple problems with health, personal life, school, work, and/or the law. They provide additional support to the growing body of evidence of the terrible toll of substance use on adolescents, and the toll substance-abusing adolescents have on our nation's schools, communities, and economy.¹ That so many adolescents put themselves at risk for suffering drug- and alcohol-related dependency and other problems should be a call for public action.

The Problem of Binge Drinking

For the HRU, this study confirms and extends the results of the 1989 CSS study.² In this regard, it is the new information about binge drinkers that arguably deserves the most attention. This is the first study to develop a comprehensive profile of the adolescent binge drinking in California. Although much of public concerns over adolescent substance use focuses on drugs, this study reveals that in many respects binge drinking is an equally if not more serious problem. By the 11th grade, it is not only the predominant pattern of drinking among current alcohol users but also the predominant pattern of substance abuse, exceeding the overall prevalence of both marijuana and high-risk drug use.

Because the binge drinking measure covers only a 30-day time frame, and alcohol drinking is so endemic in youth culture, differences between binge drinkers, occasional drinkers, and nondrinkers were often smaller than found for the HRU analyses. Nevertheless, this CSS analysis demonstrates that binge drinking per se, that is the consumption of five drinks in a row at least once in the past month, is a fundamental threshold defining heavy, problematic use and dependency-risk. Binge drinkers are responsible for the great majority of the alcohol-related problems among by California students, and whether students report any binge drinking is a strong predictor of the frequency of school problems, violence perpetration, and poor mental health. This is especially true among 9th graders, a reflection of the dangers of early onset of heavy drinking. In 11th grade, binge drinkers were more likely to report alcohol drinking caused

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them to have two or more use related problems, as well as three specific problems (unwanted/unprotected sex, fighting with kids, and physical injury) than did HRU from drug use.

Adding to the problem, the results indicate we face an even greater challenge in reducing binge drinking than drug use. Both BNG and HRU were less likely to have tried to stop alcohol use than marijuana use. Not helping in this process, all groups were less likely to report that they had learned in school about avoidance of alcohol use than avoidance of drug use, with the exception of HRU and BNG in 9th grade, who reported equivalent percentages.

Moreover, the profile of regular binge drinkers — who constituted 12% of the 11th-grade population — bears striking similarities to that of the HRU, not surprising as two thirds of them were also classified as HRU. In that grade, one-fifth of them had been drunk/high at school and been involved in drinking and driving 7 or more times, almost four-in-ten of them had two or more dependency indicators and had been very drunk 7 or more times, and almost half had two or more AOD-related problems.

In 2003, the Department of Alcohol and Drug Programs and California Department of Education launched a joint initiative to reduce binge drinking, funded in part by a federal grant. While not detracting from continued efforts targeting drug use, schools and communities need to raise awareness and target their prevention and intervention programs to this problem. In this effort, local school districts should analyze their California Health Kids Survey data to better understand the characteristics and needs of their own binge drinkers to guide program decision-making.

The Impact on Schools

For many youth, school failure has less to do with a lack of skills, intellectual capacity, teacher competency, or school environment, than with the many risk factors, stresses, and barriers to learning in their lives, among which substance abuse clearly ranks. The implications of these findings for school improvement are especially troubling. Although this is not a longitudinal study that can detect the causal role of substance use on learning, it is clear that heavy substance use is linked to poor school attendance, performance, and behavior (including violence). Heavy users are on a trajectory to school failure. A substantial proportion of heavy users are disengaged from school and performing poorly.

- Heavy users were much more likely than occasional users to *attend school drunk or “high.”* About four-in-ten HRU and three-in-ten BNG in both grades reported being drunk/high at school on three or more occasions, vs. 4-7% of CON and 8-12% of NBNG.
- Poor school performance, attendance, and connectedness were all related to the level of substance use. About half of HRU/BNG in 9th grade and 6-7 in ten in 11th grade, reported *skipping school/class* at least a few times, six and three times the rate of abstainers, respectively. In 9th grade, 12-15% of heavy users reported receiving *poor grades* of mostly Ds and Fs compared to 2-3.5% of abstainers and occasional users. Almost half of HRU in 9th grade had low school connectedness.

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- HRU/BNG are more likely to have use-related *problems with school and schoolwork*, which, moreover, were two of the most-selected adverse use consequences. In 9th grade, over one-quarter of HRU and about one-fifth of BNG reported both problems from any AOD use, compared to 5% of CON. HRU and BNG were also twice as likely as occasional users to report that *AOD use interfered with schoolwork* or other normal activities.

Heavy users are also more responsible for the violence that occurs on school campuses than are occasional users and, even more so, non-users. Half of HRU and almost half of BNG in 9th grade, and over one-third of HRU in 11th, reported fighting on school property and vandalizing school. Over one-third of the same had carried a weapon on school property. This undoubtedly both reflects and compounds the other problems that they have in school.

These connections of substance use with school disengagement, poor performance, and school violence likely account, at least in part, for the seeming anomaly that on several indicators of heavy use, HRU/BNG rates in 9th grade are equivalent to, if not higher than, those in 11th grade, even though the prevalence of heavy use increases with age. For example:

- HRU and BNG percentages were higher in 9th than 11th grade for liking to get very drunk/high, use interfering with a normal activity, using a lot more than intended, and using or being high at school.
- HRU reported a higher prevalence for almost all the use-related problems and the BNG for a majority of them, including problems at school and with schoolwork.
- There was grade equivalence among both HRU and BNG for having one or more dependency indicators and one or more use-related problems, as well as total prevalence of drinking and driving involvement.
- While for some indicators of violence all groups showed higher problem rates in 9th than 11th grade, this pattern is not as evident among occasional users and abstainers as among heavy users.

Some of these results may be related to the smaller sample size for 9th-grade vs. 11th-grade heavy users, resulting in a larger margin of error. Younger users are also more susceptible or sensitive to use-related problems and effects than are more seasoned and experienced users. They may interpret both the meaning of the questions and their use experiences differently than older students. But given the totality of the problems they demonstrate, particularly in regard to the school, a compelling alternative explanation for the decline in percentages with age is that a proportion of heavy-using students in 9th grade may no longer be in regular school by the 11th grade because of the combined, interrelated effect of their heavy use, poor school attendance and grades, and school violence. Among the areas where percentages are highest among heavy users in 9th grade compared to 11th are using at school, use-related school problems, and use interfering with normal activities such as school. This suggests that young heavy users are particularly at risk of dropping out of school. Substance abuse may not be the only or even most important factor in school failure, but the evidence is compelling that it certainly contributes to it.

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These results show connections between heavy use and education at the individual level among users. Equally important is its potential impact on efforts to improve overall safety and academic performance at the school level. The HRU/BNG population is disproportionately responsible for the school-related problems reported by all students in the CSS. As noted in Chapter 6, for every 10 students who reported poor school performance, chronic truancy, school fighting, vandalism, and weapons possession, 3-to-4 students in 9th grade and 4-to-6 in 11th were either HRU or BNG. To the extent that HRU/BNG are responsible for the substance use/availability and violence on the campus, the adverse effects of heavy substance use on learning are not just limited to the users themselves but extend to adversely affecting the learning environment of others by increasing the risk of substance use and undermining school safety.

Take as a whole, there is a strong case that efforts to reduce dropout rates, improve academic achievement, and create safe school environments will be significantly enhanced if they take into consideration the impact of heavy substance use. Consistent with this, recent analysis of data from the California Healthy Kids Survey (CHKS) revealed that school-level progress in improving scores on the state's annual achievement test was inversely related to the proportion of students at the school who reported three heavy-use indicators: (a) ever intoxicated, (b) currently using alcohol or marijuana at school, (c) ever being intoxicated on school property.³

One of the challenges currently facing any school-based effort to address substance abuse is that they are in competition for time, resources, and teacher attention during a period when schools are under enormous pressure to improve instruction, academic achievement, and test scores. One danger of the pressure to meet state and federal learning standards is that it will divert attention away from helping troubled students because schools are being asked to do more with fewer resources. The findings in this report indicate that it is false to view substance use prevention and intervention as impinging on the mission of the school to educate. For schools with a high prevalence of heavy users, providing interventions to address the problem may be among the most cost-effective and efficient means to make major improvements in school safety and performance.

Current Prevention is Not Impacting Heavy Users

This report's results show that schools are failing in the challenge of meeting the needs of heavy users (see Chapter 5). Although overall prevention exposure was similar across groups, heavy users differed significantly from both occasional users and nonusers in their responses to common strategies and lessons. Current prevention message are not reaching them.

- About one-fifth of HRU and BNG reported that prevention lessons had no effect on them, two times the rate for occasional users, and five times for nonusers (4-5%).
- The level of use was *inversely* correlated with the percentage of students who endorsed that they had learned that AODs were harmful, to resist peer pressure, to avoid their use and to speak about use with parents, with the percentages among HRU and BNG half those of nonusers.

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Among the reasons for this apparent resistance to current prevention messages is undoubtedly the multiple risk factors that characterized heavy users — early initiation, exposure to higher rates of AOD use among adult role models, more positive views towards reasons for use and dangers of drug use, more peer supports, lower environmental assets, etc. (see Chapter 5). But the findings also suggest some specific weaknesses of current approaches in meeting this challenge. No-use messages are doubtful to resonate with an audience in which use is seen as beneficial, associated with social activities, and reinforced by use among so many adults and peers. The high rate of perceived AOD use among peers raises questions about the value of the common strategy of normative education, which seeks to prevent substance use by stressing that the majority of students don't use drugs (i.e., use is not the norm). Resistance to pressure from friends might also be a lesson that heavy users don't "learn" because "friends' use" was among the *least-selected* reasons for use among HRU and BNG. In contrast, it was the most-selected by nonusers, along with "already decided not to use or drink," the latter suggesting a predisposition not to use that prevention programs may reinforce. It is likely that heavy users and nonusers differentially filter prevention lessons based on their backgrounds and experiences.

In a cost-benefit analysis supporting the value of science-based prevention, Caulkins, Pacula, Paddock, and Chiesa (2002) concluded: "There is very strong empirical support for the belief that these programs reduce drug use, but there is even stronger support for the belief that they leave an even greater proportion of baseline users unaffected."⁴ These CSS findings demonstrate that heavy users are among those unaffected. The challenges posed in reaching these youth should not be under-estimated. Different approaches need to be developed that specifically address their needs. Here too the CSS findings provide guidance. In the remainder of this Conclusion, we discuss the programmatic implications of the findings and the recommendations that can be drawn from them.

Programmatic Implications



School-based Intervention Approaches like Student Assistance Programs Need Wider Implementation.

The primary conclusion to be drawn from these findings is the need to expand school-based intervention programs designed to identify youth with substance abuse problems and provide them with the support and help they need to stop or at least reduce their involvement. Some heavy users are open to treatment or counseling. A substantial minority of HRU/BNG — a higher percentage than for occasional users, often by a factor or two or three — reported contemplating or trying to stop or reduce their use, indicating they are open to interventions. In 11th grade, roughly one-fifth of BNG had contemplated stopping or made at least one attempt to stop alcohol use. Rates were even higher among HRU: one-third had contemplated stopping and one-half for attempting to stop marijuana use. Positive responses to *two or more* of six cessation-related questions occurred among 39% of HRU and 27% of BNG, compared to only 12% of CON and 16.5% of non-binge drinkers.



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But much fewer heavy users actually took action or sought help involving an adult or a program than thought about it or tried to stop on their own. Only about one-in-ten HRU and BNG had discussed stopping use, and only about five percent had actually seen a counselor or joined a recovery group. One explanation for this may be lack of service availability, awareness of it, or institutional supports that encourage cessation.

- In 9th grade, when providing help might succeed in interrupting the escalation of use and related problems, 43% of HRU and 49% of BNG reported it “not likely” that help to stop or reduce use was available at school, and an additional 26% of HRU and 17% of BNG didn’t know if help would be available.
- Very few heavy users (4% or less, half the percentage of occasional users) reported feeling motivated by prevention lessons to speak to parents or seek help for their use.

In contrast, overwhelming majorities of 9th and 11th grade students believe that deterrent punishment including suspension and expulsion will be visited on students who break the rules on possession and use. These findings suggest an institutional failure to provide non-punitive information and intervention services for students. As discussed in Chapter 5, it is often precisely because of AOD use or possession at school that a youth’s substance abuse problem first becomes evident. While there should be consequences for these offenders, for most of these young people the real need is for support to encourage and help them address their problems so that they can and will stay in school. Dumping problem kids out into the community only assures that their alcohol and other drug problems will progress with the inevitable negative consequences to themselves and others, as evident from surveys of substance use among school dropouts.⁵

The implication is that schools need to counter the view that they are not helpful by providing services and motivating users to seek help. For many youth, school is the only place in which concerned adults can actively address the issues that interfere with their growth and development. Schools are the ideal environment to identify and address issues of substance abuse.⁶ After high school, institutions such as employers, the Armed Services, and colleges are less focused on individuals as persons than as performers with tasks they must complete.⁷ Viable models for school-based support and intervention services for high-risk children and youth have been available for many years. The longest-standing, promising, and most common substance-use intervention model is that generally referred to as *Student Assistance Programs* (SAPs). Considerable confusion surrounds the use of the term, confusion compounded by the range and differences in services that exist across programs labeled as SAPs. Initially modeled after Employee Assistance Programs (EAPs) in the 1970’s, their fundamental purpose is, within the school setting, to: (a) early identify problem users and high-risk youth; (b) assess their needs; and (c) link school and community resources to provide *confidential* support and referral to a continuum of focused school, family, and community services to meet those needs and help stop or reduce use, including treatment and recovery support, or prevent it among high risk youth.

SAPs do not involve a curriculum that a teacher or counselor uses in a classroom and, despite the name, they are less of a program than a confidential process of assessing and matching students’ (and families’) needs with education, programs and services within the behavioral health-care system. They do not provide treatment themselves but rather refer students to existing treatment

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programs and monitor their progress. The process links education, programs and services within and across systems. Most typically, they are managed by a “Core Team” of professional school personnel (e.g., special education and other teachers, counselors, school social workers, psychologists, student services staff) who review student records and staff referrals to identify youth who may be in need of services, make intervention recommendations based on further assessment, and monitor the youth’s progress.

Another common feature is that they are designed to *motivate* young people who are experiencing problems to seek help and *support* them in that effort. They are traditionally focused on helping students in the difficult task of talking about, or even recognizing, their problems, including removing the stigma surrounding use that can often be a primary deterrent to individuals seeking help.⁸ As we have shown, relatively high percentages of HRU/BNG report that they never had any problem from their use. Problematic drinkers and users must first admit to themselves that they need help, usually a step that follows after unsuccessful private attempts at cessation. This underscores the need to provide *support* for users in this process. Yet while the goal is to keep these youth in school and provide help, rather than stigmatize or punish, they also make clear the consequences to youth who fail to comply with the program.

Although initially focused on substance abuse and, therefore, most common in high schools, the recognition that substance abuse is related to multiple problems and often begins early, as demonstrated by this report, has lead over time to a broadening of the approach. As discussed further below, two other features of many current SAPs also strengthen the potential value of the approach. First, they have come to deal with multiple problem behaviors in an integrated manner, particularly problems that impede learning and positive development. Second, they have increasingly focused on providing early intervention services in elementary grades to high-risk users. Reflecting this, the National Student Assistance Association currently defines the purpose of an SAP as follows:

“The purpose of an SAP is to help students achieve academic and social success by promoting healthy development, reducing barriers to learning, and building upon strengths through collaborative efforts among students, parents, schools and community resources. The SAP provides a comprehensive school-based framework for the delivery of K- 12 prevention, identification, intervention and support services.”

Although the research literature on SAPs and other interventions is severely limited, recent findings have further demonstrated not only reduced AOD use and precursors, but positive educational outcomes as well. In a White Paper on SAPs, the National Association for Children of Alcoholics (2003) went so far as to conclude: “No prevention programs in the last 20 years have demonstrated the ability to meet educational goals as much as have Student Assistance Programs.” In a three-year evaluation of the Pennsylvania SAP network, around six-in-ten students in the program improved or stabilized their attendance, incurred not further disciplinary suspensions, and were promoted or graduated from high school. An evaluation of the Washington state program found “dramatic long-term improvements in attendance and grades after participation.”⁹ This suggests that this kind of comprehensive approach may help

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overcome many of the difficulties in the lives of students and provide the developmental supports they need to turn themselves around.

Unfortunately, the CSS-students' perception that schools are not likely to provide help reflect an all too-common reality. Although reported statistics vary, it is generally agreed that as many as 80% of youth in need of behavioral health services may not receive them. Most schools offer only limited, if any, services for substance abuse, with many problems such as stigma, limited resources, and zero tolerance policies constraining the development of such services.¹⁰ A preliminary survey by WestEd and EMT indicated very little implementation and understanding of intervention approaches in California, consistent with CSS student perceptions. Only 535 of 1,298 districts report having SAPs — but it was not clear what was provided by them and in how many schools. What is evident is that what is called “SAP” varies widely, and that the development of SAPs has been hampered by lack of funding, staff expertise, and school buy-in (priorities).¹¹

This problem is not just limited to the schools. Physicians often fail to counsel or refer patients to substance abuse treatment programs because of their inability to recognize the problem. It is estimated that only five percent of all adolescent referrals come from healthcare providers.¹² A shocking statistic is that the number-one source of referrals to adolescent drug treatment programs in the United States is the juvenile justice system, responsible for 44% of them.¹³ Studies indicate that from 67% to four-out-of-five youth involved in the juvenile justice system have a substance use problem.¹⁴ This high prevalence is likely rooted in the long-standing co-existence of substance abuse, school failure, disruptive and violent behavior, and depression, as documented by this and other reports.¹⁵ However, this begs the question: If schools, law enforcement, and community agencies collaborated in early intervention efforts, if risk factors were discovered and treated early, would the cycle of escalating problems leading to treatment need and delinquent behavior be prevented? The SAP process provides the umbrella currently lacking under which this can occur.

Adolescent Treatment Programs Needs Expansion

For an SAP to function, there need to be treatment resources and services locally available that can be provided to the substance abusers. Recognition of the value of treatment has escalated. Research has shown that well-managed treatment is a cost-effective response to the high costs of substance abuse.¹⁶ It has been calculated that every dollar invested in treatment yields \$7 in savings related to crime alone and \$12 if health care costs are factored into the equation.¹⁷ Regarding adolescents, Hser and colleagues at UCLA found in one large-scale study that providing adolescents with treatment designed specifically for their age group reduced drug and alcohol abuse one year later, and resulted in improved school and psychological outcomes, including less criminal activity, improved school attendance and grades, higher self-esteem, decreased hostility, and fewer suicidal thoughts.¹⁸ Brown and colleagues at the University of California-San Diego, using data collected over a four-year period following treatment, found that use of all substances except nicotine decreased among adolescents.¹⁹ Another study reported a 74% rate of abstinence from substance use among juvenile offenders who completed treatment.²⁰

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Along with the awareness of the value of treatment has come an increase in the knowledge of “what works.” Alcohol and drug treatment for youth is said to be at a turning point, even to be entering a “renaissance” in which new treatment methodologies have been designed to address the unique needs of adolescents within a comprehensive system of care.²¹ Over the past decade, the body of research and knowledge about adolescent treatment, although still relatively limited, has contributed major methodological advances in screening and assessment methods and in knowledge of how to target interventions and to place youth in the appropriate programs.²²

Reflecting the growing awareness of the need for and value of adolescent treatment, in 2000 the California Department of Alcohol and Drug Programs published an initial set of Youth Treatment Guidelines (revised and expanded in 2002) that highlight ways to tailor treatment specifically for youth, and provide guidance to counties and providers in the development and operation services and specific standards of care.²³ Unfortunately, while treatment capacity and expertise are growing, appropriate treatment for youth often does not exist within reach, leading to widespread criticism. The current state of treatment services is not adequate to the need, particularly for adolescents, as recently highlighted by two major policy reviews in California: the Little Hoover Commission (2003) report on addiction and treatment in general, and the Schwab Foundation (2004) report on adolescent treatment.²⁴ The system is chronically underfunded. The most recent UCLA estimate indicates that some 330,000 Californians could be expected to seek or be directed to publicly-funded treatment in any given year, but only 130,000 will be served, with the remaining 200,000 placed on waiting lists. In California, it is estimated that only 10% of the young people (ages 12-17) with substance abuse problems received treatment.²⁵

The situation for youth is even worse than for adults. Reflecting the barriers to adolescent treatment, implementation of the DADP Youth Treatment Guidelines has been limited for lack of mandate and funding, and state and counties have not adopted standardized, proven screening and assessment instruments.²⁶ Many county alcohol and drug program administrators report having few if any early intervention programs for youth, sparse outpatient care sites, no intensive outpatient or day treatment, no publicly funded detoxification or crisis intervention, and no local residential treatment for those unable to remain at home.²⁷ It is estimated that we currently reach only one-in-ten adolescents suffering from substance use disorders and, of those who do receive treatment, only 25% receive enough.²⁸ Even the juvenile justice system cannot meet its need for substance abuse treatment. Although as many as four-out-of-five teens in the juvenile justice system have drug or alcohol problems, fewer than 20% have access to substance abuse treatment programs.²⁹

Specific Strategies

Target at-risk youth with interventions beginning at least in middle school.

Intervention programs need to begin targeting youth at risk as early as elementary school, and certainly in middle school. Although the overall percentages of HRU and BNG increase with age, the results for 9th graders are equally if not more troubling than for 11th grade. Even if some of the higher problem rates in 9th grade compared to 11th are influenced by the smaller sample size of BNG/HRU and lack of experience in dealing with pharmacological effects, as discussed above, youth who are already engaged in heavy drug and alcohol use at age 15 are an especially high-risk

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group on a trajectory for abuse or dependence, as well as school failure and other problems. Heavy substance users at this age are a more atypical, marginal group than among 11th graders, and there is arguably a more immediate need for interventions targeting them to reverse the problem trajectory. Given the high rate of use onset by age 12 reported by 9th-grade heavy users, intervention efforts need to begin at least in the 7th grade.

Here too, the SAP approach provides a model. SAPs initially focused on substance abuse problems among high school students to support abstinence and recovery in small confidential group settings. Their evolution brought interventions to younger students in middle and elementary school settings in hopes of addressing the precursors to health and problem behaviors including substance abuse. Viable elementary programs incorporating SAP components have shown promise. For example, Growing Up Well/Creciendo Saludable is a structured, comprehensive elementary school program based on the SAP model that aims to prevent substance abuse and its associated health and behavior problems, and to improve academic performance. The program was developed as a demonstration project funded by the US Department of Education and initially implemented in an elementary school located in a high poverty community in California with one of the highest crime rates in the state. It employed interventions to serve the identified students and to connect families to appropriate interventions and address the chronic stress and numerous risk factors that characterized the challenging community environment. In several studies, students who participated in G UW, compared to control groups, variously experienced improvements in ATOD use, intentions to use, peer ATOD influences and associations; school attendance and performance; increases in reading, language, and math standardized test scores; and a decrease in family stress.

Identify At-risk Youth Early by Assessing Behavioral and School Problems.

Looking at the data from a risk perspective, we can draw several conclusions as to factors that should be taken into consideration for determining if a youth is at risk of heavy use. Based on the data from 9th graders in Chapter 5, these include:

- Early onset of alcohol and marijuana use.
- Depression or other mental health problems.
- Poor school performance and attendance.
- Violent or aggressive behavior.
- Youth exposed to adult substance use, such as children of substance abusers.
- Youth who associate with substance users or have positive attitudes towards AOD use.
- Youth with few environmental supports or assets.

Data on school performance, attendance, and behavior are readily available and can be used as a first indicator of potential risk, to be followed up by more in-depth assessment to identify other risk factors for early intervention. Youth who demonstrate depression, acting-out behavior in school, and poor school attendance or performance unrelated to learning disabilities, should be initially assessed for other substance abuse risk factors. Having any one of these risk factors does not mean, in itself, that a youth will develop substance use problems. But risk factors have

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been shown to be additive: the more of them that are present in the lives of a child, the more likely it is that a substance-use problem will develop.³⁰

Develop female-specific strategies.

Consistent with other research, CSS results reveal that, at a minimum, a convergence in the rates of heavy use has replaced previously observed gender-related differences. Binge drinking is now even five-points higher among females in 9th grade (see Chapter 8).³¹ This likely reflects that, at the onset of high school, females more often begin associating with older (male) teens and attending parties, therefore gaining access to alcohol and other drugs earlier, than their same-age males. An even more disconcerting finding is that females in both grades generally reported higher rates of use-related problems and dependency indicators than males. Females were three times more likely than males to have passed out in 9th grade and 1.5 times more likely in 11th grade, and they also have higher rates for a use-related injury. For drug use, the rates for number of problems and specific problems were more equivalent for young men and women. Efforts to ameliorate misuse of substances cannot ignore the special needs of female adolescents. Further research is also needed on the factors that influence substance use among females to help determine which prevention/intervention messages and strategies might be most effective. One size doesn't necessarily fit both girls and boys. Too often policymakers and researchers focus only on boys or lump girls and boys together.

Counter the perceived benefits of use and connect use with problems.

Interventions need to counter the perceived positive benefits of use among heavy users, and help them connect the problems that they may be experiencing in life with their substance use. That the percentage of heavy users denying use-related problems increases as the level of use increases suggests that the more use occurs the less problems are perceived. Yet one of the “encouraging” findings related to attitudes was that among both HRU and BNG the perceived harm of all substances increased in 11th grade (percentages for harmlessness declined). In contrast, among nonusers it remained about the same. Research has shown that over time changes in perceived harm have been related to levels of drug use in general populations of secondary students. Helping youth connect their use with specific problems they may be experiencing might affect their perceptions of harm and affect their behavior.

Integrate alcohol and drug use interventions.

The overlap between high-risk drug users and binge drinkers — and the similarity in the use-related problems and dependency indicators reported by the two groups — illustrates that substance abuse intervention and treatment services need to assume that if a student is abusing one type of substance he/she is likely abusing another. Programs should target the problem of substance abuse in general, and the factors that underlie it, not the specific problem of alcohol or drugs. At the same time, strategies also need to be developed particularly to counter substance-specific issues such as the emerging problem of binge drinking.

Integrate substance abuse and other problem interventions.

Although we can reach no conclusions as to problem causation — the extent to which heavy substance use causes other problems — the close association between level of substance use and multiple problems that have serious individual, educational, and social costs requires that school's

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implement comprehensive, holistic interventions that support the emotional and behavioral needs of youth in general. Substance abuse interventions need to be prepared to deal with multiple problems. In turn, youth with school and behavior problems are likely to need substance abuse services as well. It follows that reductions in heavy substance use may have a wide-ranging positive affect on reducing these other problems. Recognition of this need has led to a broadening of the nature of Student Assistance Programs beyond the original focus on substance abuse problems. Over time it became apparent that the model also helped students with other concerns: divorce; grief and loss; mental health issues; low self-esteem, for example. Many SAPs have developed into a comprehensive process for addressing students' barriers to learning due to a social, emotional, or mental health concern or problem.³²

Implement youth development strategies

Little research has been conducted on the role of youth development strategies in prevention substance abuse. However, the data in this report show that the level of substance use is related to lack of assets. The HRU are less likely to have the environmental assets or development supports in their schools and communities that are know to be protective of involvement in substance use and other risk behaviors. In 9th grade, almost one-third of HRU (31%) were *low* in total school and community scales. This is 2.5 times the rate for ABS (12%) and 1.5 times greater than the CON (19%). School assets were lower than for the community and the lowest of all environmental asset scales were for opportunities for meaningful participation. As discussed in Chapter 5, the association between assets and drinking was weaker than for drug use. This is likely related to the greater prevalence of alcohol use among students and because the alcohol analyses were based on level of use in the past 30 days rather than the past six months, as for the HRU/CON/ABS. But asset-related differences still emerged. In 9th grade, nondrinkers reported more assets than any of the drinking groups, and in 11th grade the percentage of regular binge drinkers who were low in total assets (23%) was twice that of nondrinkers (12%) and over 1.5 times greater than binge drinkers (13%) and nonbinge drinkers (15%).

Central to the youth development approach is the creation of a caring, supportive school climate. In this sense, establishing a school-based intervention process that is designed and perceived as helping is in itself a youth-development strategy. But the approach also holds promise directly for prevention and early intervention. Research has shown that caring relationships, high expectations, and meaningful participation, as measured by the CSS, characterize youth who avoid substance abuse and other problems even in high-risk environments, indicating that they are protective of multiple problems. Unfortunately, little research has been conducted that show that implementation of youth development strategies within the school will reduce drug use over time. It is critically important to close that gap.

ENDNOTES

- 1 Schwab Foundation 2004. The report notes that 70% of all deaths among youth ages 15-24 can be attributed to three causes: unintended injuries, homicide and suicide. The single common denominator among all three causes is the use of alcohol and other drugs. Adolescent substance abuse is associated with motor vehicle crashes, sexual behavior resulting in unwanted or unplanned pregnancies or high-risk HIV infection, and involvement in violence and crime.
- 2 Skager, R., and Frith, S. (1989). *Identifying high-risk substance users in grades 9 and 11: A report based on the 1987-88 California Student Substance Use Survey*. Sacramento: Office of the Attorney General.

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- 3 Hanson, T.L. Austin, G.A., and Bayha, J.L. (2003). Are Student Health Risks and Low Resilience Assets and Impediment to the Academic Progress of Schools? (CHKS Fact sheet 3). Los Alamitos, CA: WestEd.
 - 4 Caulkins, Jonathan, Pacula, Paddock & Chiesa 2002. "Even a conservative estimate of prevention's total benefits suggests that the social gains from prevention justify its costs twice over. Drug prevention thus appears to be a wise use of public funds."
 - 5 WestEd 2001.
 - 6 Physician Leadership on National Drug Policy (PLNDP) 2002
 - 7 National Association for Children of Alcoholics 2003.
 - 8 Fertman, C., Tarasevich, S, and Helper, N. (2003.) *Retrospective Analysis of the Pennsylvania Student Assistance Program Outcome Data: Implications for Practice and Research*. Chevy Chase MD: CDM Group, Inc., in collaboration with the National Association of Student Assistance Professionals.
 - 9 Fertman, C. & Ross, J. (2003). Differences in the use of a school mental health program in secondary schools. *American Journal of Health Behavior*, 27 (2), 146-155. 24.
PLNDP 2002:38
 - 10 Philips, J, & Springer, F. (2004). High Rate Underage Users Report, Background Briefing #4: SAP Evaluation Results. Prepared for the Governor's Prevention Advisory Council. Sacramento: Community Prevention Institute.
 - 11 Ringel, J. & Strum, P. (2001). National estimates of mental health utilization and expenditures for children in 1998. *Journal of Behavioral Health Services and Research*, 28(3), 319-332. Fertman 2003:5; PLNDP 2002
 - 12 Springer Roberts, & Philips 2004.
 - 13 Fleming, M, et al (1994). Medical education about substance abuse: Changes in curriculum and faculty between 1976 and 1992. *Academic Medicine* 69, 366.
 - 14 Dennis, M.L., et al. (2002.) The need for developing and evaluating adolescent treatment models. In: S.J. Stevens, and A.R. Morral (eds.), *Adolescent Substance Abuse Treatment in the United States: Exemplary Models from a national Evaluation Study*. Binghampton NY: Haworth Press.). {Schwab 2004; PLNDP}
 - 15 Schwab 2004. Each year more than 670,000 young people who are involved with the juvenile justice system meet the diagnostic criteria for one or more alcohol, drug or mental disorders requiring treatment; Teplin 2001; See also: Dembo, Williams, & Schmeidler 1993; Robert Wood Johnson Foundation. (nd). The report notes that the vast majority of adolescents who receive substance abuse treatment have already been involved with the criminal justice system before it has been determined that they needed substance abuse treatment.
 - 16 Dennis et al. 2002; Greenblatt 2000; Abt Associates, Inc. 1994.
 - 17 Schwab Foundation 2004; Little Hoover Commission 2003; PLNDP 2002.
 - 18 National Institute on Drug Abuse 1999; Gerstein et al. 1994; RAND 1995.
 - 19 Hser et al. 2001.
 - 20 Brown S.A, et al (2001.) Four-year outcomes from adolescent alcohol and drug treatment. *Journal of Studies on Alcohol*. 62(3). 381-89.
 - 21 Rutherford & Banta-Green 1998; PLNDP 2002.
 - 22 Schwab 2004.
 - 23 PLNDP 2002.
 - 24 The guidelines contain detailed recommendations — many of which are echoed in this report — to help treatment providers create an integrated and comprehensive continuum of care that addresses the unique needs of the adolescent substance abuser. The complete text of the Youth Treatment Guidelines can be found at www.adp.cahwnet.gov/RC/pdf/8566/pdf. (p30)
 - 25 PLNDP 2002; Schwab 2004:1 notes: Programs struggle with high employee turnover and rudimentary data collection systems that prevent them from adequately tracking clients' progress and program effectiveness.
 - 26 Little Hoover Commission 2003; Schwab Foundation 2004:13.
 - 27 Klein et al. 2003.
 - 28 Public Health Institute 2003; Schwab 2004.
 - 29 Center for Substance Abuse Treatment. "Treatment Episode Data Set (TEDS)." (And) National Institute on Drug Abuse. "Monitoring the Future (MTF)." Available www.icpsr.umich.edu/SAMHDA/das.html.
 - 30 Robert Wood Johnson Foundation. (nd). *Reclaiming Futures: The problem: Teens in trouble. Lack of treatment. The Cost* (available at www.reclaimingfutures.org).
 - 31 For example, researchers estimate that people who begin drinking before the age of 15 are four times more likely to develop an serious alcohol problem later in life than those who wait until they are 21. 5 Less well understood, however, is the issue of who will develop an alcohol problem while they are still in adolescence, although scientists have identified several risk factors. (ESTA)
 - 32 Center on Addiction and Substance Abuse. (2003.) *The Formative Years: Pathways to Substance Abuse Among Girls And Young Women Ages 8-22*. New York: Columbia University
 - 33 National Association for Children of Alcoholics 2003; Fertman, Tarasevich, & Helper 2003.

Heavy AOD Use Among California Students

References

- Abt Associates, Inc. "Conditions of Confinement: Juvenile Detention and Corrections Facilities." Washington, DC: Office of Juvenile Justice and Delinquency Prevention. 1994.
- Ackard, D. M., Neumark-Sztainer, D., & Hannan, P. (2003). Dating violence among a nationally representative sample of adolescent girls and boys: Associations with behavioral and mental health. *Journal of Gender-Specific Medicine*, 6, 39–48.
- Adelman, H. & Taylor, L. (2000). Promoting mental health in schools in the midst of school reform. *Journal of School Health*, 70(5), 171-178.
- Alcohol and Drug Policy Institute. 2003. A planning approach for assessing county-level need, demand, and capacity in drug and alcohol treatment services in California. Irvine, CA.
- American Academy of Pediatrics. "The Role of Schools in Combating Substance Abuse." Policy Statement RE9522. *Pediatrics*, 95(5), 784-5. Available www.aap.org.
- Bergman, L. (1992). Dating violence among high school students. *Social Work*, 37, 21–27.
- Burky, W., Reuterman, N., & Kopsky, S. (1988). Dating violence among high school students. *The School Counselor*, 35, 353–358.
- Callahan, M. R., Tolman, R. M., & Suanders, D. G. (2003). Adolescent dating violence victimization and psychological well-being. *Journal of Adolescent Research*, 18, 664-681.
- Cano, A., Avery-Leaf, S., Cascardi, M., & O'Leary, K. D. (1998). Dating violence in two high school samples: Discriminating variables. *The Journal of Primary Prevention*, 18, 431–446.
- *Carlson, K. A., Hughes, J. D., LaChapelle, J. K., Holayter, M. C., & Deebach, F. M. (1994). Student assistance programs: Do they make a difference? *Journal of Child and Adolescent Substance Abuse*, 4(1), 1-16.
- Center for Substance Abuse Treatment. "Treatment Episode Data Set (TEDS)." (And) National Institute on Drug Abuse. "Monitoring the Future (MTF)." Available www.icpsr.umich.edu/SAMHDA/das.html.
- Centers for Disease Control and Prevention. (2002). Youth Risk Behavior Surveillance — United States, 2001. CDC Surveillance Summaries, June 28, 2002. *MMWR*, 51(SS-4).
- Caulkins, Jonathan, Pacula, R., Paddock, S., & Chiesa, J. (2002). School-based Drug Prevention: What Kind of Drug Use Does It Prevent? Santa Monica: Rand Institute.
- Center for School Mental Health Assistance. *The Interface Between Expanded School Mental Health and Substance-Related Services for Youth*. Baltimore, MD: CSMHA. 2002.
- Dembo R., Williams, L., & Schmeidler, J. (1993). Addressing the Problems of Substance Abuse in Juvenile Corrections. In: J. A. Inciardi (ed.). *Drug Treatment in Criminal Justice Settings*. Newbury Park, CA: Sage.
- Dennis, M. L., et al. (2002.) The need for developing and evaluating adolescent treatment models. In: S.J. Stevens, and A. R. Morral (eds.), *Adolescent Substance Abuse Treatment in the United States: Exemplary Models from a national Evaluation Study*. Binghamton NY: Haworth Press. (Schwab 2004; PLNDP)
- Dennis, M. I., et al. (2002). Greenblatt, J. C. (2000). Patterns of alcohol use among adolescents and association with emotional and behavioral problems. OAS Working Paper. Rockville, MD. Office of Applied Studies. Substance Abuse and Mental Health Services Administration, March 2000. Available www.health.org/govstudy/adolemotion/
- Feiring, C., Deblinger, E., Hoch-Espada, A., & Haworth, T. (2002). Romantic relationship aggression and attitudes in high school students: The role of gender, grade, and attachment and emotional styles. *Journal of Youth and Adolescence*, 31, 373–386.
- Fertman, C., Tarasevich, S., & Helper, N. (2003). Retrospective Analysis of the Pennsylvania Student Assistance Program Outcome Data: Implications for Practice and Research. Chevy Chase MD: CDM Group, Inc., in collaboration with the National Association of Student Assistance Professionals.
- Fertman, C., Schlesinger, J., Fichter, C., Tarasevich, S., Zhang, X., & Wald, H. (1999). *Pennsylvania Student Assistance Program Evaluation*. University of Pittsburgh. Available www.sap.state.pa.us/
- Fertman, C., Schlesinger, J., Fichter, C., Tarasevich, S., Zhang, X., & Wald, H. (2000). *Student Assistance Program in Pennsylvania Evaluation Final Report: A report to the Pennsylvania Commission on Crime and Delinquency*. Available www.sap.state.pa.us/
- Fertman, C., Fichter, C., Schlesinger, J., Tarasevich, S., Wald H., & Zhang, X. (2001). Evaluating the effectiveness of student assistance programs in Pennsylvania. *Journal of Drug Education*, 31(4), 353-366.
- Fertman, C., & Ross, J. (2003). Differences in the use of a school mental health program in secondary schools. *American Journal of Health Behavior*, 27(2), 146-155. 24.

REFERENCES

- Glasgow, R., Lichtenstein, E., & Marcus, A. (2003). Why Don't We See More Fleming M. "Competencies for Substance Abuse Training." *Training, About Alcohol and Substance Abuse for All Primary Care Physicians*. New York, NY: Josiah Macy, Jr. Foundation. 1994. Page 213.
- Furlong, M., et al. (2003.). Dating violence patterns of California adolescents. Paper presented at Persistently Safe Schools: The National Conference of the Hamilton Fish Institute on School and Community Violence, October 27-29, 2004, Washington DC.
- Gerstein, D. R., Johnson, R. A., Suter, N., & Malloy, K. (1994). National Opinion Research Center, University of Chicago and H. J. Harwood and D. Fountain, Lewin-VHI, Inc. April 1994. "Evaluating Recovery Services: The California Drug and Alcohol Treatment Assessment (CALDATA)".
- Greenblatt, J. C. (2000). Patterns of alcohol use among adolescents and associations with emotional and behavioral problems. Rockville, MD: Substance Abuse and Mental Health Services Administration.
- Hanson 2004.
- Hser YI, et al. (2001.) An evaluation of drug treatment for adolescents in four US cities. *Archives of General Psychiatry*. 58(7). 2001. Pages 689-95.
- Jackson, S. M., Cram, F., & Seymour, F. W. (2000). Violence and sexual coercion in high school students' dating relationships. *Journal of Family Violence*, 15, 23-36.
- Jaffe, P. G., Sudermann, M., Reitzel, D., & Killip, S. M. (1992). An evaluation of a secondary school primary prevention program on violence in intimate relationships. *Violence and Victims*, 7, 129-146.
- James, W. H., West, C., Deters, K. E., & Armijo, E. (2000). Youth dating violence. *Adolescence*, 35, 455-465.
- Jezl, D. R., Molitor, C. E., & Wright, T. L. (1996). Physical, sexual, and psychological abuse in high school dating relationships: Prevalence rates and self-esteem issues. *Child and Adolescent Social Work Journal*, 13(1), 69-87.
- Klein, D., et al. (2003.) *Final Report of the Adolescent Treatment Project. Report to the California Department of Alcohol and Drug Programs*. Oakland CA. Unpublished.
- La Voie, F., Vexine, L., Piche, C., & Boivin, M. (1995). Evaluation of a prevention program for violence in teen dating relationships. *Journal of Interpersonal Violence*, 19, 516-524.
- Little Hoover Commission. (March 2003). *For Our Health & Safety: Joining Forces to Defeat Addiction*.
- O'Leary, K. D., & Slep, A. M. S. (2003). A dyadic longitudinal model of adolescent dating aggression. *Journal of Clinical Child and Adolescent Psychology*, 32, 314-327.
- Malik, S., Sorenson, S. B., & Aneshensel, C. S. (1997). Community and dating violence among adolescents: Perpetration and victimization. *Journal of Adolescent Health*, 21, 291-302.
- Moore, D. D., & Forster, J. R. (1993). Student assistance programs: New approaches for reducing adolescent substance abuse. *Journal of Counseling and Development*, 71(3), 326-329.
- Morehouse, E. (1989). *Student assistance program development*. Paper presented at the National Organization for Student Assistance Programs and Professionals Annual Conference. Chicago, IL.
- NACAA (2003:2).
- National Association for Children of Alcoholics. (2003). *Student Assistance Programs: White Paper*. Washington, DC: National Center on Addiction and Substance Abuse. (2003.) *The Formative Years: Pathways to Substance Abuse Among Girls And Young Women Ages 8-22*. New York: Columbia University
- National Institute on Drug Abuse. (1999.) *Principles of drug addiction treatment: A research-based guide*. (NIH Publication No. 99-4180). Washington DC.
- National Opinion Research Center, University of Chicago. Pages i-v.
- Gorman-Smith, D., Tolan, P. H., Sheidow, A. J., & Henry, D. B. (2001). Partner violence and street violence among urban adolescents: Do the same family factors relate? *Journal of Research on Adolescence*, 11, 273-295.
- Ozer, E. J., Tschann, J. M., Pasch, L. A., & Flores, E. (2004). Violence perpetration across peer and partner relationships: Co-occurrence and longitudinal patterns among adolescents. *Journal of Adolescent Health*, 34, 64-71.
- Pellegrini, A. D. (2001). A longitudinal study of heterosexual relationships, aggression, and sexual harassment during the transition from primary school through middle school. *Applied Developmental Psychology*, 22, 119-133.
- Philips, J., & Springer, F. (2004). Governor's Prevention Advisory Council High Rate Underage Users Report, Background Briefing #4: SAP Evaluation Results. Prepared for the. Sacramento: Community Prevention Institute.
- Physician Leadership on National Drug Policy. (August 2002). Adolescent Substance Abuse: A Public Health Priority. An evidence-based, comprehensive, and integrative approach. Providence RI: Brown University, PLNDP National Office.
- Price, E. L., & Byers, E. S. (1999). The Attitudes Towards Dating Violence Scales: Development and initial validation. *Journal of Family Violence*, 14(4), 351-375.
- Public Health Institute. (2003.) *Adolescent Substance Abuse Needs and Services Planning Final Reports*. Oakland, CA. December 2003.
- RAND. Spring 1995. *Treatment Effective (But Unpopular) Weapon Against Drugs*.
- Ringel, J. & Strum, P. (2001). National estimates of mental health utilization and expenditures for children in 1998. *Journal of Behavioral Health Services and Research*, 28(3), 319-332.
- Robert Wood Johnson Foundation. (nd). Reclaiming Futures: The problem: Teens in trouble. Lack of treatment. The Cost. Available www.reclaimingfutures.org

Heavy AOD Use Among California Students

REFERENCES

- Rutherford, B. & Banta-Green, C. (1998.) *Effectiveness standards for the treatment of chemical dependency in juvenile offenders: A review of the literature*. ADAI Technical Report 98-01. Seattle, WA: Alcohol and Drug Abuse Institute, University of Washington. January 1998. (Available at depts.washington.edu/adai/pubs/tr/9801/title.htm).
- Schwab Foundation. (2004.) *The Need to Invest In Adolescent Treatment: Policy Recommendations for Adolescent Substance Abuse Treatment in California*. Charles and Helen Schwab Foundation, April 2004.
- Silverman, J. G., et al. (2001). Dating violence against adolescent girls and associated substance use, unhealthy weight control, sexual risk behavior, pregnancy, and suicidality. *Journal of the American Medical Association*, 286(5), 572-579, August 1.
- Skager, R., and Frith, S. (1989). *Identifying high-risk substance users in grades 9 and 11: A report based on the 1987-88 California Student Substance Use Survey*. Sacramento: Office of the Attorney General.
- Smith, D. M., & Donnelly, J. (2001). Adolescent dating violence: A multisystemic approach of enhancing awareness in educators, parents and society. *Journal of Prevention and Intervention in the Community*, 21, 53-64.
- Springer, F., Roberts, B., and Philips, J. (2004). Governor's Prevention Advisory Council High Rate Underage Users Report, Background Briefing #2. California High School SAPs: Results from Selected Site Visits and the Statewide Survey. Sacramento: Community Prevention Institute.
- Teplin, I. A. (2001). Assessing alcohol, drug and mental disorders in juvenile detainees. OJJDP Fact Sheet 02. Washington DC: OJJDP, January 2001. Available www.ncjus.org/pdf/files1/ojjdp/fs200102.pdf
- Wagner, E. F., Dinklage, S., Cudworth, C., & Vyse, J. (1999) A Preliminary Evaluation of the Effectiveness of a Standardized Student Assistance Program. *Substance Use & Misuse*, 34, 1571-84.
- Wekerle, C., & Wolfe, D. A. (1999). Dating violence in mid-adolescence: Theory, significance, and emerging prevention initiatives. *Clinical Psychology Review*, 19(4), 435-456.
- WestEd. (2002). *Creciendo Saludable: A comprehensive school-based student assistance program*. Report to the US Department of Education, Safe and Drug Free Schools and Communities Program, February 2002. Santa Ana: The Agency.
- White House Office of National Drug Control Policy. (September 2001). "Economic Costs of Substance Abuse in the United States 1992-1998."

EARLY ONSET REFS:

- Andersen, A., Due, P., Holstein, B. E., & Iversen, L. (2003). Tracking drinking behaviour from age 15-19 years. *Addiction*, 98, 1505-1511.
- Bischof, G., Rumpf, H. J., Hapke, U., Meyer, C., & John, U. (2003). Types of natural recovery from alcohol dependence: a cluster analytic approach. *Addiction*, 98, 1737-1746.
- Brook, J. S., Balka, E. B., & Whiteman, M. (1999). The risks for late adolescence of early adolescent marijuana use. *American Journal of Public Health*, 89, 1549-1554.
- Brown, S. A., & Tapert, S. F. (2004). Adolescence and the trajectory of alcohol use: Basic to clinical studies. *Annals of the New York Academy of Science*, 1021, 234-244.
- DeWitt, D. J., et al. (2000). The influence of early and frequent use of marijuana on the risk of resistance and of progression to marijuana-related harm. *Preventive Medicine*, 31, 455-64.
- DuRant, R. H., et al. (1999). The relationship between early age of onset of initial substance use and engaging in multiple health risk behaviors among young adolescents. *Archives of Pediatrics & Adolescent Medicine*, 153, 286-291.
- Enoch, M. A. (2003). Pharmacogenomics of alcohol response and addiction. *American Journal of Pharmacogenomics*, 3, 217-232.
- Fergusson, D. M., Lynskey, M. T., & Horwood, L. J. (1996). The short-term consequences of early onset cannabis use. *Journal of Abnormal Child Psychology*, 24, 499-512.
- Galai, N., Safaeian, M., Vlahov, D., Bolotin, A., & Celentano, D. D. (2003). Longitudinal patterns of drug injection behavior in the ALIVE Study cohort, 1988-2000: description and determinants. *American Journal of Epidemiology*, 158, 695-704.
- Grant, B.F., & Dawson, D.A. (1998). Age of onset of drug use and its association with DSM-IV drug abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse*, 10, 163-173.
- Grant, B. F., & Dawson, D. A. (1997). Age of onset of alcohol use and its association with DSM-IV alcohol abuse and dependence: Results from the National Longitudinal Alcohol Epidemiologic Survey. *Journal of Substance Abuse*, 9, 103-110.
- Gruber, E., et al. (1996). Early drinking onset and its association with alcohol use and problem behavior in late adolescence. *Preventive Medicine*, 25, 293-300.
- Hingson, R. W., et al. (2000). Age of drinking onset and unintentional injury involvement after drinking. *Journal of the American Medical Association*, 284, 1527-33.
- Hingson, R. W. et al. (2003). Age at first intoxication, heavy drinking, driving after drinking and risk of unintentional injury. *Journal of Studies on Alcohol*, 64, 12-31.
- Hotton, T., & Haans, D. (2003). Alcohol and drug use in early adolescence. *Health Reports*, 15, 9-19.
- Institute for Youth Development. (1999). Age of risk behavior debut: Trends and implications. IYD Youth Facts,

Heavy AOD Use Among California Students

REFERENCES

- Kandel, D. B., & Chen, K. (2000.) Types of marijuana users by longitudinal course. *Journal of Studies on Alcohol, 61*, 367-378.
- Liu, I. C., Blacker, D. L., Xu, R., Fitzmaurice, G., Lyons, M. J., & Tsuang, M. T. (2004). Genetic and environmental contributions to the development of alcohol dependence in male twins. *Archive of General Psychiatry, 61*, 897-903.
- Parra, G. R., O'Neill, S. E., & Sher, K. J. (2003). Reliability of self-reported age of substance involvement onset. *Psychology of Addictive Behavior, 17*, 211-218.
- Warren, C. W., Kann, L., Small, M. L., Santelli, J. S., Collins J. L., & Kolbe, L. J. (1997). Age of initiating selected health-risk behaviors among high schools students in the United States. *Journal of Adolescent Health, 21*, 225-231.
- WestEd. (2001.) *1999 Survey of Substance Use among Out-of-School Youth*. A report to the California Department of Alcohol and Drug Programs. Los Alamitos: WestEd.
- Zilberman, M., Tavares, H., & el-Guebaly, N. (2003). Gender similarities and differences: the prevalence and course of alcohol- and other substance-related disorders. *Journal Addictive Disease, 22*, 61-74.