
Alcohol Consumption and Its Consequences among Adolescents and Young Adults

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Alcohol consumption among adolescents and young adults occurs at high rates, with such use resulting in potentially adverse consequences in many critical domains of life, such as academic and occupational achievement, family and peer relationships, and physical and mental health. A recent economic analysis of alcohol consumption estimated that underage drinkers (aged 12–20 years) account for 19.7% of consumer expenditures for alcohol in the United States.¹ This quite high rate is a conservative estimate because the national survey data of alcohol consumption on which the economic analyses were based excluded a number of high risk groups such as school dropouts, those in the military, those institutionalized, and homeless youth. A report by Levy et al.² indicated that underage drinking costs the United States approximately \$53 billion annually due to a broad range of adverse consequences, including alcohol-related traffic crashes, violent crime, suicide attempts, and alcohol poisonings. In response to concerns over the high rates of binge drinking on college campuses and the adverse consequences of heavy drinking, the National Institute on Alcohol Abuse and Alcoholism convened a special council and charged it with evaluating the extent of the problem and making recommendations for effective interventions³ (also, see the *Journal of Studies on Alcoholism*, Supplement No. 14, 2002). Hence, there is ample evidence that the pervasiveness of alcohol consumption and its adverse consequences among youth are quite costly in terms of psychological, social, and health functioning.

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A number of different indexes have been used to measure alcohol consumption and alcohol-related consequences among adolescents and young adults. For example, there are several common indicators of alcohol use, such as lifetime use, past year use, past 30-day use, and age of initiation. Findings from these indicators provide useful surveillance data about alcohol use for different time windows and are particularly helpful in monitoring historical trends in the age of onset and prevalence of alcohol and other substance use across time.⁴ In addition to these indicators of use or non-use of alcohol for specific time windows, there are indicators of more severe alcohol use, such as heavy episodic, or binge, drinking in the last two weeks or last 30 days, having been drunk in the last 30 days, and the daily use of alcohol, which is typically defined for adolescents as having consumed alcohol on 20 or more of the last 30 days. There is some variation across studies in the definition of binge drinking, but for teens, this is currently defined as having five or more drinks on a single occasion at least one time within the past two weeks or past 30 days. Some investigators⁵ of college populations have proposed a criterion of five or more drinks on a single occasion as a definition of binge drinking for men, and a criterion of four or more drinks on a single occasion as a definition of binge drinking for women. Adverse physical (e.g., hangover, medical illnesses) and social (missing classes or work, alcohol-related aggression) consequences associated with alcohol use have provided yet another index to evaluate the impact of alcohol use on health-compromising outcomes. Finally, indicators of clinical diagnostic levels of alcohol abuse and dependence provide insight into the tertiary healthcare needs of youth by the healthcare system.

In this chapter, we provide an overview of current epidemiologic findings on alcohol consumption and its consequences among adolescents and young adults. In doing so, we provided data on the different alcohol consumption and consequences indexes described previously, often with subgroup breakdowns along important demographic dimensions such as age, gender, and racial/ethnic group. The chapter has five sections. First, prevalence data were provided for several alcohol consumption indexes, including use for various time intervals (e.g., lifetime, last 30-days) and heavy episodic, or binge, drinking. Second, data were presented on the prevalence of alcohol problems reported by adolescents and young adults and on the secondhand effects (e.g., study or sleep interrupted, property damaged) of alcohol use on non-drinkers by drinkers on college campuses. Third, data were provided on the prevalence of lifetime and current (last year) alcohol disorders. The fourth section focused on some important correlates of alcohol consumption and alcohol-related problems among youth that impact mortality and morbidity, including associations with the three leading causes of death among young people—accidental deaths, homicides, and suicides. A summary section is then provided to describe succinctly the central themes that emerged from these epidemiological findings.

Prevalence of Alcohol Consumption. The prevalence of several indicators of alcohol consumption by age, sex, and race/ethnicity are presented in Tables 1–4. The data presented in these tables are from three national surveys that

collect information on alcohol and substance use among U.S. adolescents and young adults: the Monitoring the Future Survey (MFS)^{4,6} the National Survey on Drug Use and Health (NSDUH)⁷ (prior to the 2002 data collection, the NSDUH was known as the National Household Survey on Drug Abuse), and the Youth Risk Behavior Surveillance (YRBS).⁸ Although prevalence estimates vary somewhat across these national studies in part due to differences in data collection procedures (e.g., in-school surveys, in-home personal interviews), findings from each indicate that alcohol consumption—as measured by lifetime and recent (e.g., past 30-day) use, and binge drinking—begins increasing in early adolescence and continues to become more prevalent throughout the teen years and into young adulthood when it peaks and then begins to decline. While rates of alcohol use increase with increasing age, alcohol consumption, including *heavy* consumption, is substantial even among younger teens. For example, data from the MFS (see Table 1) indicate that approximately one in five eighth graders reported consuming alcohol in the past 30 days, and approximately 12% reported at least one episode of binge drinking (i.e., 5+ drinks in a row) in the past two weeks. The YRBS (see Table 3) found that nearly 25% of ninth graders reported binge drinking in the past month.

In addition to age, rates of alcohol consumption also vary by sex and race/ethnicity. As the data in Tables 1–3 indicate, similar percentages of males and females in all age groups have consumed alcohol at sometime in their life. However, these data also show that gender differences in more *frequent* and *heavier* alcohol use patterns emerge with increasing age. For example, MFS data indicate that males and females in all age groups are similar on their rates of

Table 1. Prevalence of Various Indicators of Alcohol Consumption for Eighth, Tenth, and Twelfth Graders, Full-Time College Students, and Other Respondents 1–4 Years Beyond High School by Gender, 2002

Gender	Prevalence of Lifetime Alcohol Use	Prevalence of Past Year Alcohol Use	Prevalence of Past 30-Day Alcohol Use	Prevalence of Past 30-Day Daily Alcohol Use	5+ Drinks in a Row in Last Two Weeks
Male					
8th Graders	47.2	38.1	19.1	0.8	12.5
10th Graders	65.5	58.4	35.3	2.6	23.8
12th Graders	77.9	71.6	52.3	5.3	34.2
College	85.9	83.6	70.2	7.0	50.7
Non-College	84.2	80.8	65.5	5.3	43.8
Female					
8th Graders	46.8	39.2	20.0	0.4	12.1
10th Graders	68.5	61.8	35.7	1.0	21.0
12th Graders	78.5	71.2	45.1	1.7	23.0
College	86.1	82.4	68.0	3.7	33.4
Non-College	88.1	79.6	56.1	3.5	29.0

Source: National Institute on Drug Abuse and University of Michigan, Monitoring the Future Survey^{4,6}

lifetime and past year alcohol use. Gender differences begin to emerge in rates of past 30-day alcohol use among older adolescent (i.e., twelfth graders) and young adult males and females, and these gender disparities become more pronounced for past 30-day daily use and binge drinking. Similarly, data from the NSDUH survey found that the rates of drinking among 12–17 year-old males and females are quite similar, but that 18–25 year-old males have a much higher prevalence of past 30-day alcohol use and binge drinking relative to their same-aged female peers.

Disparities in alcohol use by race/ethnicity have been found in YRBS, MFS, and NSDUH data (see Tables 2–4). In Table 2, the NSDUH data indicate that, in general, White and American Indian or Alaska Native teens and young adults have the highest rates of alcohol consumption, followed (in decreasing order of use) by Hispanics, African Americans, and Asians. The YRBS data indicate that Non-Hispanic White and Hispanic teens were roughly equal in their rates of alcohol use, while Non-Hispanic Black adolescents consumed less alcohol relative to these two groups. The MFS data in Table 4 show that White teens have somewhat higher rates of alcohol use compared with Hispanics (especially among tenth and twelfth graders), and that Black teens consume substantially less alcohol than both Whites and Hispanics.

Table 2. Prevalence of Various Indicators of Alcohol Consumption by Age, Gender, and Race/Ethnicity, 2002

Age in Years, Gender, Race/ Ethnicity	Prevalence of Lifetime Alcohol Use	Prevalence of Past Year Alcohol Use	Prevalence of Past 30-Day Alcohol Use	5+ Drinks in a Row at Least One Day in Past 30 Days	5+ Drinks in a Row at Least Five Days in Past 30 Days
12–17 year-old males	43.4	33.3	17.4	11.4	3.1
12–17 year-old females	43.4	36.0	17.9	9.9	1.9
18–25 year-old males	88.0	80.1	65.2	50.2	21.1
18–25 year-old females	85.4	75.6	55.7	31.7	8.7
12–17 year-olds					
White	45.8	37.9	20.1	12.5	3.2
Black or African American	35.9	24.7	10.9	4.9	0.6
Hispanic or Latino	44.7	34.0	16.6	10.5	2.2
American Indian or Alaska Native	50.8	41.0	22.6	18.2	2.9
Asian	29.0	21.7	7.4	3.2	0.1
18–25 year-olds					
White	90.1	83.1	66.8	46.8	19.0
Black or African American	81.2	69.2	48.3	26.2	5.9
Hispanic or Latino	81.2	68.7	49.8	34.8	9.1
American Indian or Alaska Native	89.8	*	60.0	44.1	10.6
Asian	74.6	66.2	49.9	24.6	7.0

*Low precision; no estimate reported

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health⁷

Table 3. Prevalence of Various Indicators of Alcohol Consumption by Gender, Race/Ethnicity, and School Grade, 2001

Race/Ethnicity and Grade	Prevalence of Lifetime Alcohol Use			Prevalence of Past 30-Day Alcohol Use			5+ Drinks in a Row at Least One Day in Past 30 Days		
	Female	Male	Total	Female	Male	Total	Female	Male	Total
Race/Ethnicity									
White, Non-Hispanic	79.6	80.7	80.1	48.3	52.6	50.4	30.5	37.7	34.0
Black, Non-Hispanic	69.7	68.4	69.1	30.6	35.0	32.7	7.5	15.1	11.1
Hispanic	80.1	81.6	80.8	48.8	49.5	49.2	28.7	31.4	30.1
Grade									
9	72.0	74.5	73.1	40.0	42.2	41.1	23.0	26.2	24.5
10	76.9	75.6	76.3	43.5	46.9	45.2	26.3	30.1	28.2
11	79.3	81.4	80.4	45.1	53.6	49.3	26.1	38.5	32.2
12	85.5	84.7	85.1	53.9	56.6	55.2	31.8	42.0	36.7

Source: Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance—United States, 2001⁸

Table 4. Prevalence of Various Indicators of Alcohol Consumption by Race/Ethnicity and School Grade, 2002

Race/Ethnicity	Prevalence of Past 30-Day Alcohol Use			Prevalence of Having Been Drunk in Past 30 Days			5+ Drinks in a Row in Past 2 Weeks		
	Eighth	Tenth	Twelfth	Eighth	Tenth	Twelfth	Eighth	Tenth	Twelfth
White	23.2	40.0	54.0	8.0	23.2	36.6	12.7	25.5	33.7
Black	15.0	24.3	30.1	4.0	8.6	12.1	9.4	12.4	11.5
Hispanic	25.7	37.9	47.5	8.4	17.4	23.5	17.8	26.5	26.4

Source: National Institute on Drug Abuse and University of Michigan, Monitoring the Future Survey⁴

The above discussion illustrates variations in alcohol use based on the three important demographic characteristics of age, sex, and race/ethnicity. A less salient, but nevertheless important, discriminator of alcohol use among teens and young adults is the region of the country in which they reside. Findings from the NSDUH⁷ found that, on various indexes of alcohol use, a higher rate of adolescents (12–17 year-olds) and young adults (18–25 year-olds) from the Northeast and Midwest consumed alcohol relative to youth in the South and West. Smaller variations in the prevalence of alcohol use were manifested by the younger age group, whereas larger variations in prevalence were evident for the older age group. For example, the rate of past month alcohol use by 12–17 year-olds in the Northeast and Midwest was approximately 19%; this

rate was close to 16% for the same age group in the South and West (a 3% difference). In contrast, the rate of past month alcohol use by 18–25 year-olds in the Northeast and Midwest was about 66% with a rate of approximately 56% among young adults in the South and West (a 10% difference).

Prevalence of Alcohol Problems. Adverse social and health consequences occurring in conjunction with alcohol use, and especially heavy use, are quite prevalent among adolescents and young adults. In addition to the negative alcohol-related effects for the alcohol user, other individuals in the drinker's environment may likewise be adversely affected. Data from two large national surveys of college students' drinking and substance use behaviors—The Harvard School of Public Health College Alcohol Study (CAS)⁹ and Southern Illinois University's (SIUs) Core Institute¹⁰—suggest that substantial percentages of adolescent and young adult drinkers experience a broad range of alcohol-related problems, including difficulties with peers, problems in school, negative physical consequences, and encounters with the law. For example, SIUs Core Institute¹⁰ found that 64.5% of students who drank alcohol during the past year experienced a hangover, 55.3% got nauseated or vomited, 34.7% had a memory loss, and 16.5% had been hurt or injured. Similarly, Wechsler et al.⁹ reported that, among college students who drank alcohol in the past year, 36.5% reported doing something they regretted, 22.5% engaged in unplanned sexual activity, and 35.8% drove after drinking. They also found that one in five college students (19.8%) reported *five or more* alcohol-related negative consequences over the past year.

Table 5 presents data from a community-based longitudinal study conducted by the first author of this chapter. The study, referred to as Lives Across Time: A Prospective Study of Adolescent and Adult Development (LAT),¹¹ has been ongoing since 1988 and has been funded by the National Institute on Alcohol Abuse and Alcoholism since its inception. The sample is comprised of predominantly White, middle-class participants. An important focus of the study has been to identify salient risk factors for the development of alcohol problems and disorders among adolescents and young adults. Data for two different ages are presented: older adolescents who were juniors and seniors in high school at the time of data collection, and young adults whose data were collected in a 5–7 year follow-up. Findings from the LAT show that 75% of older adolescent drinkers and 66% of young adult drinkers reported experiencing at least one alcohol-related consequence in the past 6 months, and that nearly 20%–25% reported five or more problems. In both the Wechsler et al.⁹ survey and the LAT,¹¹ a higher percentage of males experienced negative alcohol-related consequences relative to females. Wechsler et al.⁹ found a dose-response relationship between the frequency and quantity of alcohol use and the number of alcohol-related consequences. That is, non-binge drinkers were the least likely to report alcohol-related problems, frequent binge drinkers were the most likely to report these problems, and occasional binge drinkers were intermediate between the two groups in their reports of problems. Both Wechsler et al.⁹ and the SIUs Core Institute¹⁰ collected information on students'

Table 5. Prevalence of Alcohol-Related Problems from a Community-Based Longitudinal Study of Older Adolescents/Young Adults

Adverse Alcohol-Related Consequences Occurring in Past 6 Months	Percent Reporting Alcohol Consequences					
	Older Adolescents (Mean Age=16.96; SD=0.76)			Young Adults (Mean Age=23.81; SD=1.35)		
	All (n=832)	Males (n=378)	Females (n=454)	All (n=733)	Males (n=313)	Females (n=420)
Drank before or during work or school	12.3	16.9	8.4	10.4	16.6	5.7
Missed work or school because of drinking	9.4	11.9	7.3	13.6	18.2	10.2
Had a fight with members of my family about my drinking	16.2	19.6	13.4	8.8	10.5	6.7
Did things while I was drinking that I regretted the next day	47.7	49.7	46.0	39.8	46.3	34.8
Thought about cutting down on my drinking	24.5	31.0	19.2	26.9	38.7	18.1
Got drunk or high from alcohol several days in a row	28.9	37.3	21.9	24.0	33.9	16.7
Passed out from drinking	29.6	33.7	26.2	21.4	26.5	17.6
Had fight with my significant other about my drinking	16.6	17.2	16.1	11.2	14.7	8.6
Got into a fight or heated argument with someone I didn't know while drinking	16.6	25.7	9.0	12.2	19.2	6.9
Got into trouble with the law (other than driving-related) while drinking	6.5	11.4	2.4	2.2	4.2	0.7
Drank alone	21.5	25.2	18.5	27.6	34.8	22.1
Drank alcohol to get rid of a hangover	7.6	9.3	6.2	7.8	11.5	5.0
Drank to forget my troubles	37.3	35.4	38.8	22.0	24.0	20.5
Received a ticket for drinking and driving	1.3	2.0	0.7	1.5	2.9	0.5
Had a drinking-driving related accident	1.4	1.8	1.1	1.0	1.9	0.2
Percent Reporting:						
0 consequences	24.9	20.6	28.4	33.6	21.7	42.4
1-2 consequences	31.1	27.2	34.4	31.1	30.4	31.7
3-4 consequences	20.0	20.6	19.4	16.0	18.2	14.3
5-6 consequences	13.5	17.2	10.4	9.7	15.0	5.7
7+ consequences	10.6	14.3	7.5	9.7	14.7	6.0

Note: N's include only those study participants who reported drinking alcohol in the past 6 months.
 Source: Data from Lives Across Time: A Prospective Study of Adolescent and Adult Development^{1,11}

second-hand experiences of others' drinking. The second-hand experiences ranged in severity from less serious (e.g., interruption of study time) to more serious (e.g., experiencing unwanted sexual advances, being pushed, hit, or assaulted). Wechsler reported that close to 80% of students who were non-binge drinkers or abstainers and who lived in dormitories or fraternity or sorority residences reported having experienced at least one (of eight) adverse consequence related to someone else's drinking.

Prevalence of Alcohol Disorders. Rates of Alcohol Abuse and Alcohol Dependence, as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV),¹² are quite prevalent within the U.S. population, and this is especially true among younger Americans. Because of the high rates of alcohol problems and disorders among young people, such problematic alcohol involvement has been referred to as a "developmental disorder of young adulthood."¹³ Findings from the 1992 National Longitudinal Alcohol Epidemiologic Survey (NLAES) illustrate the higher rates of alcohol disorders among adolescents and younger adults relative to older adults. Using NLAES data, Grant¹⁴ estimated that 19.32% of 18–24 year-olds met DSM-IV criteria for a lifetime diagnosis of Alcohol Dependence, while 18.98% of 25–34 year-olds, 14.66% of 35–44 year-olds, 12.05% of 45–55 year-olds, and 4.95% of 55 year-olds and older met diagnostic criteria. The higher rates of lifetime Alcohol Dependence among the younger cohorts might have been due to biased retrospective recall by the older cohorts (i.e., biased recall over longer time periods). However, rates of past¹² month Alcohol Dependence diagnoses manifested a similar pattern as lifetime diagnoses: 18–24 year-olds=11.06%, 25–34 year-olds=6.35%, 35–44 year-olds=3.57%, 45–54 year-olds=2.58%, and 55 and above=0.85%. The strong inverse relationship between age and past 12 month diagnosis for Alcohol Dependence suggests that biased retrospective recall did not impact diagnostic rates (because of the shorter recall time period); rather, this relationship suggests that rates of Alcohol Dependence are indeed higher among younger cohorts.

Table 6 presents data from the NSDUH for past year DSM-IV Alcohol Abuse and Dependence by age, gender, and race/ethnicity. The rates of abuse and dependence were quite similar for 12–17 year-old males and females, but were substantially higher for 18–25 year-old males relative to females. Whites in both age groups tended to have the highest rate of alcohol disorders, followed (in decreasing order) by Hispanics, African Americans, and Asians. Finally, data from the LAT study (see Figure 1) provide rates of DSM-IV Alcohol Abuse and Alcohol Dependence for young adult males and females by lifetime and past 12 month disorders. These data indicate that 17.2% met diagnostic criteria for a lifetime Alcohol Abuse disorder and that 17.1% met diagnostic criteria for a lifetime Alcohol Dependence disorder. Among those with a lifetime Alcohol Dependence disorder, 23.0% were males and 12.6% were females. Rates of past 12 month disorders were lower, with 6.1% meeting criteria for Alcohol Abuse and 2.9% meeting criteria for Alcohol Dependence. Gender differences were also evident for the past 12 month diagnoses.

Table 6. Prevalence of Past Year DSM-IV Alcohol Abuse and Dependence by Age, Gender, and Race/Ethnicity, 2002

Age in Years, Gender, Race/Ethnicity	Prevalence of Past Year DSM-IV Alcohol Abuse	Prevalence of Past Year DSM-IV Alcohol Dependence	Prevalence of Past Year DSM-IV Alcohol Abuse or Dependence
12-17 year-old males	3.8	2.1	5.9
12-17 year-old females	3.7	2.2	5.9
18-25 year-old males	14.1	8.8	22.9
18-25 year-old females	7.2	5.2	12.4
12-17 year-olds			
White	4.5	2.4	6.9
Black or African American	1.5	0.8	2.3
Hispanic or Latino	3.3	2.4	5.7
Asian	1.7	0.3	1.9
18-25 year-olds			
White	12.5	7.8	20.2
Black or African American	6.5	4.8	11.2
Hispanic or Latino	8.2	6.4	14.6
Asian	7.5	2.2	9.7

Source: SAMHSA, Office of Applied Studies, National Survey on Drug Use and Health⁷

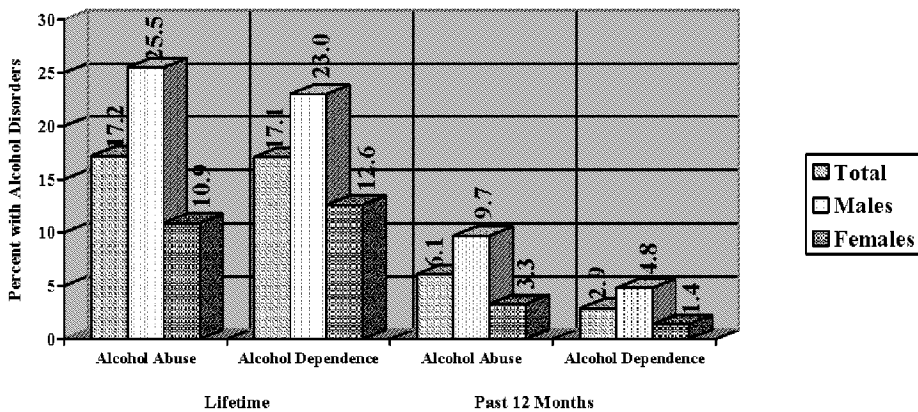


Figure 1. Prevalence of Lifetime and Past 12 Month DSM-IV Alcohol Disorders by Gender in a Community-Based Longitudinal Study of Young Adults

Note: The age range of study participants when these data were collected was 21 to 28 years, with a mean age of 23.81 years (S.D. = 1.35). The study participant Ns were: Total=760, Males=330, Females=430. The data presented here include both alcohol users and non-users.

Source: Data from Lives Across Time: A Prospective Study of Adolescent and Adult Development¹¹

Alcohol's Association With Other Health-Compromising Behaviors. Alcohol consumption among adolescents and young adults is associated with a number of other health-compromising, and potentially life-threatening, behaviors. In this section, we provide an overview of the association between alcohol use and rates of accidental death, homicide, and suicide, and then briefly discuss alcohol's relationship to five health-compromising behaviors: dangerous driving, violence, suicidal behaviors, other substance use, and sexual activity. It is important to note that, in subsequent pages, we present epidemiologic data that indicate an *association* between alcohol use and health compromising behaviors. However, these associations are not intended to imply *causal* links between alcohol use and these behaviors. Rather, the relationships between alcohol use and other health-compromising behaviors are quite complex, and research suggests that alcohol interacts with biological, psychological, cognitive, and contextual factors to increase the *probability* of adverse health outcomes (see Cooper¹⁵ for a thoughtful discussion of the relationship between alcohol use and sexual behavior).

According to the Centers for Disease Control and Prevention,¹⁶ the three leading causes of death among young people 15–19 and 20–24 years of age are (in order) accidents, homicides, and suicides. Nationally, postmortem data do not exist in the U.S. on the number of accidental and violent deaths among young people in which alcohol is involved (an exception to this are data on alcohol involvement in traffic-related fatalities and these data are presented subsequently). In order to address this absence of information, Smith et al.¹⁷ used data reported in 65 U.S. medical examiner studies that reported on non-traffic injury fatalities to estimate the percent of homicides, accidents (not including traffic fatalities), and suicides in which the decedent was positive for alcohol or was intoxicated at the time of death. Their findings indicated that the percent of decedents positive for alcohol were as follows: homicides=47.1%, accidents=38.5%, and suicides=29.0%. In addition, the percent of decedents who were intoxicated at the time of death were as follows: homicides=31.5%, accidents=31.0%, and suicides=22.7%. While these data are useful for providing broad estimates of the decedents' use of alcohol, the authors were unable to disaggregate the data by age or sex.

In contrast to the U.S., Finland collects extensive data on the circumstances of accidental and violent deaths via forensic autopsy and postmortem toxicology tests. As a result, Lunetta et al.¹⁸ were able to report on the percentage of accidental deaths, suicides, and homicides associated with alcohol use that occurred in Finland from 1987–1996. These percentages were disaggregated by age and sex and are presented in Table 7. The highest rates of death associated with alcohol use by the deceased were among the youngest cohorts, with these rates decreasing with increasing age. In addition, the rates of alcohol-associated death were substantially higher among males relative to females in all age groups. The findings presented by both Smith et al.¹⁷ and Lunetta et al.¹⁸ indicate that alcohol use is strongly associated with mortality and that this is especially true for males and for younger cohorts.

Table 7. Age-Distribution of Alcohol-Related Accidental Deaths, Suicides, and Victims of Homicides by Age and Sex in Finland, 1987–1996

Ages	% of Accidental Deaths Associated With Alcohol		% of Suicides Associated With Alcohol		% of Alcohol-Positive Victims of Homicide	
	Males	Females	Males	Females	Males	Females
15–24	32.0	15.9	45.8	22.4	52.2	25.4
25–44	32.4	19.0	37.0	14.8	66.8	43.5
45–64	28.2	16.3	25.2	10.4	49.8	31.8
65+	6.6	1.4	10.9	3.3	11.4	7.1

Source: Lunetta, Penttilä, and Sarna¹⁸

Alcohol Use and Driving. Drinking and driving among youth under the age of 21 has decreased substantially during the past two decades. Hedlund et al.¹⁹ reported that from 1982 to 1998 there was a 61% decrease in the number of drinking drivers under the age of 21 involved in fatal crashes. Despite these encouraging statistics, rates of drinking and driving among young people remain high. Data from the YRBS indicated that 22% of twelfth graders reported drinking and driving at least once in the past 30 days, and 32.8% reported riding with a driver who had been drinking at least once in the past 30 days.⁸ Recent data from the NSDUH's 2002 survey⁷ showed that almost one-third (32.4%) of 21-year-olds drove under the influence of alcohol during the past year. Data from the 1996 NHSDA²⁰ found that, among drivers who reported driving within two hours after alcohol use, 8.7% were 16–18 years old, 14.9% were 19–20 years old, and 29.1% were 21–25 years old. Adolescent and young adult males were more likely to drive within two hours after drinking than were females, and Non-Hispanic White teens and young adults were more likely to engage in this driving behavior than were Non-Hispanic Blacks and Hispanics. In addition to these high rates of DUI, Yi et al.²¹ reported on the rates of alcohol-involved drivers in fatal traffic crashes during 2000. As shown in Table 8, 25.5% of alcohol-involved drivers in fatal crashes were between the ages of 16 and 24, and the highest rate of all alcohol-involved drivers was among the 21–24 year-old age group (32.2%). In addition, rates among males were much higher than among females.

Alcohol Use and Violence. Data presented in a report by the U.S. Department of Justice, Bureau of Justice Statistics (BJS)²² indicated a substantial association between alcohol use and violent crime (e.g., murder, rape/sexual assault, robbery, assault). For example, the report found that between 30%–40% of violent offenders self-reported the use of alcohol at the time they committed the offense. In addition, in violent incidents in which alcohol was recorded as a factor by the police, 19% of offenders were 15–24 years old, and 25% of victims were in this age group. A section of the BJS report focused on alcohol and crime among U.S. college students. In 1995, 1.5 million college students (out of

Table 8. Percent of Drivers' Alcohol Involvement in Fatal Traffic Crashes by Age and Sex in the United States, 2000

Age and Sex	Percent of Alcohol-Involved Drivers
Both Sexes, 16–24	25.5
16–20	20.6
21–24	32.2
25–29	28.8
30–34	25.2
Males, 16–24	29.7
16–20	24.4
21–24	36.4
25–29	32.4
30–34	27.8
Females, 16–24	13.8
16–20	11.2
21–24	18.2
25–29	17.4
30–34	17.3

Source: National Institute on Alcohol Abuse and Alcoholism, Yi, Williams, and Dufour²¹

a population of 15.4 million students) experienced a violent crime; it was estimated that 463,000 of these violent victimizations involved alcohol use by the offender. SIUs Core Institute¹⁰ collected data on the percent of college students who reported experiencing acts of violence and those who were under the influence of alcohol and/or other drugs when the victimization occurred. Among those students who were the victims of actual physical violence, 68.3% were using alcohol and/or other substances when they were victimized. Likewise, among those who experienced unwanted sexual intercourse, 82.6% were using substances at the time of their victimization.

Alcohol Use and Suicidal Behaviors. Alcohol use among adolescents and young adults is associated with a range of suicidal behaviors, including ideation, attempts, and completions.^{23,24} In a study using data from the National Adolescent Student Health Survey, Windle et al.²⁵ investigated the prevalence of lifetime suicidal ideation and suicide attempts among male and female adolescents characterized as “abstainers” (i.e., did not drink in the last 30 days), “light drinkers” (i.e., drank on 1 to 5 occasions in the last 30 days), and “moderate/heavy drinkers” (i.e., drank on 6 or more occasions in the last 30 days). For both males and females, and 8th and 10th graders, a linear relationship was found between alcohol use and suicidal ideation and attempts. For example, among 10th grade female abstainers, 33.5% had thought about committing suicide and 12.3% had attempted suicide. Among light drinkers, 52.0% had thought about suicide and 21.4% had made an attempt. Finally, 63.1% of heavy drinkers had thought about committing suicide and 38.8% had

attempted suicide. Powell et al.²⁴ reported that, in a sample of 13–34 year olds, the strongest predictor of a nearly lethal suicide attempt was drinking within three hours of the attempt, and this was after controlling for a range of other significant predictors. In the Finnish study cited previously,¹⁸ 45.8% of completed suicides among 15–24 year-old males and 22.4% of completed suicides among 15–24 year-old females involved the use of alcohol (see Table 7).

Alcohol Use and Other Substance Use. Adolescents and young adults combine alcohol use with other substance use at high rates,^{26,27} and heavier and more frequent alcohol use, relative to lower levels of use or no use, is more likely to co-occur with illicit substance use.⁷ Utilizing data from the National Household Survey on Drug Abuse (NHSDA) and the National Comorbidity Survey (NCS), Anthony and Echeagaray-Wagner²⁹ reported population estimates on the co-occurrence of alcohol and tobacco use (from the NHSDA), and DSM-III-R co-morbid alcohol and tobacco dependence among recent users (from the NCS). For both males and females, the co-occurrence of alcohol and tobacco use began increasing in early adolescence and continued increasing until it reached a peak in the early- to mid-20s, at which time the use of both substances began to decline. For young adult males, approximately 45% reported concurrent alcohol and tobacco use at the peak of use; for young adult females, this peak rate was approximately 35%. As with alcohol and tobacco use, co-morbid alcohol and tobacco dependence reached a peak in young adulthood and began to decline thereafter. Among 15–18 year-old users, approximately 5% met criteria for co-morbid alcohol and tobacco dependence. This rate increased to 10% among 21–25 year old users. Young adult males had a somewhat higher rate of co-morbid alcohol and tobacco dependence (14%) relative to young adult females (8–10%). Using data from the National Longitudinal Survey of Youth, Shillington and Clapp²⁹ selected study participants 15–21 years of age who reported using either alcohol or marijuana during the past year. They then divided the sample into Alcohol-Only ($n=382$) and Alcohol + Marijuana ($n=294$) groups. A higher percentage of females (52.36%) reported alcohol use only whereas more males (53.40%) reported both alcohol and marijuana use. The two groups were compared on a range of past year alcohol and behavior problems, and for each problem (except for *problem with teacher* and *problem with gambling*), a significantly higher percentage of individuals using both alcohol and marijuana had experienced the problem relative to individuals using alcohol only.

Alcohol Use and Sexual Activity. Alcohol consumption among adolescents and young adults increases the probability that they will engage in sexual intercourse and also will engage in risky sex (e.g., having multiple sexual partners).^{15,30} Data from the YRBS⁸ presented in Table 9 indicate that, among sexually active teens, 27.8% of White teens, 17.8% of Black teens, and 24.1% of Hispanic teens reported alcohol or drug use at last sexual intercourse. Approximately equal numbers of male and female ninth graders reported substance use at last sexual intercourse, but by twelfth grade, 32.0% of males reported substance use during last intercourse whereas only 19.9% of females reported

Table 9. Use of Alcohol or Drugs at Last Sexual Intercourse among Sexually Active Adolescents by Gender, Race/Ethnicity, and School Grade, 2001

Race/Ethnicity and Grade	Alcohol or Drug Use at Last Sexual Intercourse		
	Female	Male	Total
Race/Ethnicity			
White	22.9	33.6	27.8
Black	10.4	24.2	17.8
Hispanic	21.9	26.2	24.1
Grade			
9	24.5	23.8	24.0
10	20.8	35.7	27.7
11	18.4	31.3	24.7
12	19.9	32.0	25.4

Source: Centers for Disease Control and Prevention, Youth Risk Behavior Surveillance—United States, 2001⁸

the co-occurrence of these behaviors. Using data collected from the 1999 Harvard College Alcohol Study,³¹ Hingson et al.³² evaluated the association between an earlier age of onset of first intoxication and college students' reports that drinking caused unplanned sex and unprotected sex. In the overall sample, 20% reported having *unplanned* sex because of drinking and 10% reported having *unprotected* sex because of drinking. With regard to the age of first intoxication, the data showed that students who reported a younger age of intoxication, relative to those who reported a later age of intoxication or never being intoxicated, were more likely to report that drinking caused unplanned sex and unprotected sex. For example, 31.2% of students who were 12 years-old or younger at first intoxication reported that alcohol caused them to engage in unplanned sex; in contrast, less than 5% of those who reported never having been intoxicated believed alcohol caused them to engage in unplanned sex.

Summary. Findings from national, college, and community studies indicate high rates of alcohol use (as measured by a number of different indexes), alcohol-related adverse consequences, and alcohol disorders among adolescents and young adults. Alcohol use and alcohol disorders increase with age and peak in young adulthood (generally around 21 years of age).⁷ Among younger and middle-aged adolescents, the rates of more frequent and heavier alcohol use, and of alcohol disorders, are fairly equal among males and females; however, during older adolescence and young adulthood, gender disparities emerge, with males, relative to females, drinking more frequently and in greater quantity, experiencing more adverse alcohol-related problems, and meeting diagnostic criteria for alcohol disorders. Racial and ethnic group comparisons for alcohol use, binge drinking, and alcohol disorders indicate the highest rates for White and American Indian or Alaska Native teens and young adults, followed by Hispanics, African Americans, and Asians.

National and international studies have indicated a strong association between alcohol use and the three leading causes of mortality among adolescents and young adults: accidental injuries, homicides, and suicides.^{17,18} Studies investigating the association between alcohol use and other health-compromising behaviors have indicated that alcohol use by adolescents and young adults is associated with fatal traffic crashes, violent or aggressive incidents as either the perpetrator or victim, suicidal behaviors (including ideation, attempts, and completions), other licit (e.g., cigarettes) and illicit (e.g., marijuana) substance use, and unplanned and unprotected sexual activity. Collectively, these findings support the need for comprehensive intervention programs that target alcohol use reduction as a key element to address morbidity and mortality issues among youth.

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