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Epidemiologic Trends of Adolescent Use of Alcohol, Tobacco, and Other Drugs

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Abstract

This article provides an overview of adolescent substance abuse, including rates of use, risk and protective factors, and demographic trends for various licit and illicit drugs. Most of this article focuses on adolescent tobacco, alcohol, and marijuana use, because these 3 substances are most commonly used among this age group. Significantly less research has been conducted on the use of other substances among adolescents, because these areas are substantially less problematic. For this reason, a basic overview of rates of use of these substances is included in the article to provide a general sense of patterns of use, whereas the remainder of the article focuses on the most commonly used substances. Table 1 provides an overview of all of the information sources used to compile this article.

Keywords

Adolescence; Youth; Drug; Alcohol epidemiologic trends; Risk factors

TOBACCO

Rates of Use

In the Monitoring the Future survey of 2008, it was found that cigarette use among 12th grade students reached its lowest rates in over 30 years.¹ Although this finding presents promising information about the success of the efforts taken to minimize the use of cigarettes, the problem is certainly not resolved. In fact, it was also found that by eighth grade, 21% of students have experimented with cigarettes, and 7% of eighth grade students were reported being current smokers. By 12th grade, this number is a great deal higher, with 45% of students reporting having tried cigarettes in the past and 20% of students reporting that they are current smokers. The Monitoring the Future survey also examined rates of adolescent cigarette use during the past 30-day period and found that 7% of 8th graders, 12% of 10th graders, and 20% of 12th graders reported using cigarettes during the past month. Moreover, perceived availability of cigarettes is quite high, with 58% of 8th graders and 77% of 10th graders reporting that cigarettes are easy for them to access.

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Risk Factors

Several risk factors for the onset of cigarette smoking among adolescents have been identified. The following factors have been specifically cited as increasing an adolescent's risk for initiating cigarette smoking:

Community-level factors

- Perceived availability of cigarettes²
- Community norms that favor cigarette use²
- Low school commitment²
- Low level of school connectedness³

Family factors

- Poor family management²
- Family history of cigarette use^{2,4}
- Parental attitudes that favor cigarette use²
- Family conflicts⁴

Peer influence

- Friends' cigarette use⁴
- Friends' approval of smoking⁴
- Interaction with antisocial peers²

Individual-level factors

- Antisocial behavior²
- Sensation seeking²
- Alcohol use⁴
- Marijuana use.⁴

Protective Factors

Some researchers have suggested that social skills and a belief in the moral order are protective factors against cigarette smoking among this age group.² Other researchers have reported that participating in prosocial neighborhood activity serves as a protective factor against cigarette smoking during adolescence. This protective effect was specifically apparent in response to participation in school and community activities in neighborhoods with primarily White residents. In contrast, participation in church activities had a stronger protective effect on adolescents from neighborhoods with primarily African American residents.⁵ A protective effect due to participation in competitive athletics has also been identified, such that adolescents who participated in such sports were significantly less likely to initiate cigarette smoking.⁶ Finally, some research has suggested that high levels of both

school connectedness and social connectedness are associated with a decreased likelihood of initiating smoking during adolescence.³

Cessation Efforts

The findings on adolescent cigarette use thus far suggest that despite recent successes at decreasing the rates of cigarette use among adolescents, much work is needed to continue this trend. One study found that students who began experimenting with cigarette smoking reported significant difficulties associated with quitting.⁷ This finding necessitates further smoking-cessation programs for adolescents, as well as additional preventative efforts.

Demographic Factors

Cigarette smoking is usually initiated during adolescence. In comparison to African American and Hispanic adolescents, White adolescents have higher rates of cigarette use.⁸

With regard to gender, during early adolescence, girls typically have higher rates of cigarette use. This trend levels out during midadolescence, such that 10th grade boys and girls have comparable rates of cigarette use. By later adolescence, however, boys generally report higher rates of cigarette use than girls.¹

In terms of geographic trends, when compared with other areas of the country, adolescent cigarette use has been found to be significantly lower on the West Coast.¹ Finally, cigarette smoking is also associated with being college-bound, such that college-bound adolescents have a lower likelihood of using cigarettes than adolescents who are not.¹

Smokeless Tobacco

Smokeless tobacco is used almost exclusively among boys. When adolescent boys in the Monitoring the Future survey were asked about their use of smokeless tobacco during the past month, approximately 5.5% of 8th graders, 8.2% of 10th graders, and 11.8% of 12th graders reported using it. In comparison, among girls, only 1.5% of 8th graders, 2% of 10th graders, and 11.8% of 12th graders reported the use of smokeless tobacco during the past month.¹

ALCOHOL

Rates of Use

Approximately 39% of eighth grade students report having consumed more than a few sips of alcohol, and nearly half of these students report having been drunk at least once in their lives. By 12th grade, 72% of adolescents report having consumed more than a few sips of alcohol in the past, and 55% of 12th grade students report having been drunk at least once in the past.¹

When asked about alcohol use during the last month, approximately 16% of 8th graders, 29% of 10th graders, and 43% of 12th graders reported having had at least 1 alcohol drink. Moreover, approximately 9% of 8th graders, 16% of 10th graders, and 25% of 12th graders reported having 5 or more drinks in 1 sitting during the past 2 weeks.¹ In terms of

availability, 63% of 8th graders, 81% of 10th graders, and 92% of 12th graders reported that alcohol is easily accessible to them.¹

Risk Factors

As is the case for initiation of cigarette smoking, several community, family, peer, and individual factors that are associated with adolescent alcohol use have been identified as risk factors for adolescent alcohol use. Specific factors include perceived availability of alcohol, community norms that favor alcohol use; poor family management, a family history of substance use, and parental attitudes that favor substance use; friends' drug use; and antisocial behavior and sensation seeking.² Moreover, it has been found that adolescent alcohol use is associated with the onset of sexual intercourse as well as with the onset of marijuana use.⁹ Another study has demonstrated that within particular geographic locations rates of adolescent alcohol use is correlated with both the rates of adult alcohol use and adult drunk driving, suggesting that the environmental norms likely have a strong influence on adolescent behavior.¹⁰ Finally, adolescents who are involved with competitive athletics have been shown to be more likely to begin using alcohol than adolescents who are not involved with such activities.⁶

Protective Factors

Social skills and a belief in the moral order have also been cited as primary protective factors against adolescent alcohol use.² Another research has also suggested that the presence of nonparental adult role models and religious involvement are protective factors against the use of alcohol during adolescence.¹¹ Finally, participation in organized recreational activities has been shown to be protective against both the abuse of alcohol and the intent to abuse it.¹²

Demographics

In terms of race, research has demonstrated that White adolescents were more likely to drink alcohol than both African American¹³ and Hispanic^{1,8} adolescents. However, in the case of African American youth, this difference was almost entirely explained by the influence of peers and family members, illustrating the role that cultural norms play in alcohol abuse among adolescents.¹³ Further supporting the contribution of the cultural environment in shaping these behaviors is the finding that Native American youth are more likely to begin using alcohol if they live in a single-parent home than in a double-parent home¹⁴ and that caregiver substance abuse influences adolescent substance abuse among this population.¹⁵ Another study reported that in comparison to other racial or ethnic groups, Native American and White adolescents use alcohol more frequently and that this difference is largely explained by lifestyle differences between different cultural groups.¹⁶

Moreover, adolescents who are not college-bound are more likely to drink heavily than those who are college-bound.¹ In terms of geography, rates of adolescent alcohol use are significantly higher in the Northeast and in the Midwest than they are in the south and in the west.¹

ILLICIT DRUGS—GENERAL INFORMATION

According to the 2008 Monitoring the Future survey, 28% of American adolescents have tried an illicit drug by the end of eighth grade, and 47% of adolescents have done so by the end of high school. Further, 25% of American adolescents report having used an illicit drug other than marijuana by the end of high school.¹

Risk Factors

Early onset of illicit drug use is commonly associated with risky sexual activity later in life, necessitating the importance of fully examining and addressing this topic. Moreover, early risky sexual behavior, such as inconsistent condom use, has been associated with later drug use.¹⁷ Similarly, students who do not use illegal substances are least likely to report sexual intercourse or high-risk sexual behaviors, such as having multiple partners.¹⁸ Early-onset puberty has also been shown to be a risk factor for illegal drug use among adolescents.¹⁹

Protective Factors

Protective factors against the onset of adolescent illicit drug use include the presence of nonparental adult role models and strong family communication.¹¹

Demographics

Among older adolescents, a gender difference in illicit drug use has been identified, such that boys typically exhibit higher levels of substance use than girls.²⁰ In addition, high school students who are not college-bound have a higher likelihood of abusing illicit drugs than college-bound students.¹ In terms of geography, the Northeast and the West Coast have been found to have the highest rates of adolescent illicit drug use, whereas the south has the lowest rates.¹

Finally, the Monitoring the Future survey identified several racial differences with regard to illicit drug use. For instance, White adolescents reported the highest rates of overall use for any illicit drug when compared with other groups. When broken down into subcategories, however, the rates of use varied slightly by racial group. Specifically, among 12th grade students, Hispanic adolescents reported the highest rates of crack, heroin, and crystal methamphetamine use when compared with other racial groups. For other drugs, however, the rates of use in Hispanic adolescents were lower than that in White adolescents and higher than that in African American adolescents. Moreover, among eighth grade students, Hispanic youth reported the highest rates of use for nearly all drugs, with amphetamines being the exception. It has been hypothesized that the change in rates of use among Hispanic youth from 8th grade to 12th grade can be explained by the higher high school dropout rates among this population, because those who begin using drugs at an earlier age are more likely to drop out of school.¹

MARIJUANA

Rates of Use

Marijuana is the most widely used illicit drug among adolescents, with 11% of 8th graders, 23% of 10th graders, and 33% of 12th graders reporting that they used marijuana during the last 12 months. This rate of use is likely related to the availability of the drug, because approximately 39% of 8th graders, 67% of 10th graders, and 84% of 12th graders reported that marijuana is an easily accessible drug.¹

Risk Factors

The risk factors commonly associated with adolescent marijuana use are similar to those for cigarette and alcohol use. Similar community, family, peer, and individual-level factors have been cited as increasing the risk of adolescent marijuana use. These factors include the perceived availability of drugs,² community norms favorable toward drug use,² poor family management,² family history of substance use,² parental attitudes favoring drug use,² low school commitment,² antisocial peers,² friends' and peers' drug use,²¹ low school commitment,² problems at school,²¹ interaction with antisocial peers,² antisocial behavior,² delinquency,²¹ prior history of cigarette smoking,² alcohol consumption,² and other substance use.²¹

Prior use of both prescription stimulants and methamphetamine has also been shown to be associated with the onset of marijuana use.²² Moreover, an increased number of sexual partners as well as a lower likelihood of condom use among adolescents are both commonly associated with use of marijuana.²³ Research has also shown that growing up in a single-parent home is a risk factor for the use of marijuana during adolescence.²⁴ Finally, several personality traits have been found to increase the odds of adolescent marijuana use, including rebelliousness, sensation seeking, delinquency, and depression.²⁵

Protective Factors

As was the case for both cigarette use and alcohol use, social skills and a belief in the moral order have been cited as protective factors against the onset of adolescent marijuana use.² Other research has suggested that an intolerance of deviance,²⁵ church attendance,²⁵ a tendency to rely on careful reasoning,²⁵ positive emotions,²¹ and relations with a father figure²¹ are all traits that are also protective against adolescent marijuana use.

Demographics

Research on marijuana use among different racial or ethnic groups has been somewhat inconsistent. For example, one study reported that developmental patterns and outcomes of marijuana use differ significantly between African American and White adolescents.²⁶ Another research has suggested that the risk and protective factors for marijuana use are quite similar among adolescents from different racial or ethnic groups.²⁵ Finally, some research has suggested that Native American adolescents are more likely to use this drug than adolescents from other racial or ethnic groups,²⁷ and the documented explanation for this difference is a response to feelings of boredom,²⁸ demonstrating that lifestyle and cultural norms likely play a large role in the onset of marijuana use.

Several gender differences with regard to marijuana use have been identified as well. Specifically, boys were significantly more likely to report having used marijuana than girls, and among adolescents who have used marijuana in the past, boys were more likely to continue using in the future than girls. Similarly, boys were more likely to report that their marijuana use was problematic than girls. In contrast, when asked whether they planned to use marijuana during the following 12 months, female respondents were more likely than males to report that they probably or definitely would be abstaining from use.²⁹

METHAMPHETAMINES

Rates of Use

The Monitoring the Future survey of 2008 found that about 1% of 12th graders reported using crystal methamphetamine in the past 12 months, and 12% of 8th graders, 16% of 10th graders, and 24% of 12th graders reported that crystal methamphetamine is easily available.¹ Moreover, among a group of US high school students, rates of lifetime methamphetamine use were comparable to those of lifetime cocaine use but were more than double the rate of lifetime heroin use.³⁰

Risk Factors

Previous research has indicated that adolescent methamphetamine use is associated with low levels of religiosity,²² high rates of binge drinking,²² selling drugs,²² early onset of sexual intercourse,³⁰ having multiple sexual partners,³⁰ and having been pregnant or having gotten someone else pregnant in the past.³⁰

Demographics

Several gender differences have been reported with regard to adolescent methamphetamine use, with boys generally demonstrating higher rates of methamphetamine use than girls.³⁰ Racial differences have been observed as well, such that rates of lifetime methamphetamine use among white and Hispanic adolescents have been found to be almost twice as high as the rates for black adolescents.³⁰

COCAINE

Rates of Use

During the past 12 months, approximately 5% of 12th graders, 3% of 10th graders, and 2% of 8th graders reported having used cocaine. Moreover, less than 2% of those surveyed reported any crack use during the past 12 months. However, 42% of 12th grade adolescents reported that cocaine is easily accessible to them.¹

Risk Factors

Both early-onset cocaine use and lifetime frequency of cocaine use were found to be associated with increased number of sexual partners and a lower likelihood of using condoms during sexual activity. This finding demonstrates that high-risk behaviors among adolescents often occur simultaneously.²³

INHALANTS

Rates of Use

In comparison to the substances described previously, the rate of inhalant use among adolescents is relatively low. Moreover, the trends in use with regard to age are the reverse of what is typically expected with substance use. According to the Monitoring the Future survey of 2008, only 9% of 8th graders, 6% of 10th graders, and 4% of 12th graders reported inhalant use during the past 12 months. It is believed that the drug is common among younger adolescents because it is one of the few drugs that they can access due to its cheapness, availability, and legality to purchase and possess.¹

LYSERGIC ACID DIETHYLAMIDE

Rates of Use

Approximately 3% of 12th graders, 2% of 10th graders, and 1% of 8th graders reported using lysergic acid diethylamide during the last 12 months. Although these rates are quite low in comparison to the rates of use for other drugs, it is worth noting that the reported availability of these drugs are somewhat higher, with 30% of 12th graders, 19% of 10th graders, and 11% of 8th graders reporting that the drug is easily accessible to them.¹

AMPHETAMINES

Rates of Use

When asked about amphetamine use during the past 12 months, approximately 5% of 8th graders, 7% of 10th graders, and 7% of 12th graders reported using amphetamines. These rates are among the lowest-reported rates of use among adolescents since the 1970s. However, the accessibility of the drug is a bit higher, with approximately 21% of 8th graders, 33% of 10th graders, and 48% of 12th graders reporting that these drugs are easily available.¹

HEROIN

Rates of Use

The rate of heroin use among adolescents is low, with less than 1% of respondents reporting any heroin use during the past 12 months. In terms of accessibility, approximately 15% of 8th graders, 18% of 10th graders, and 25% of 12th graders reported that heroin is easily available.¹

PRESCRIPTION AND OVER-THE-COUNTER DRUGS

Rates of Use

The rates of nonmedical use of prescription drugs among adolescents are relatively low in comparison to other substances. Specifically, in 2007, 2.1% of 8th grade students, 2.8% of 10th grade students, and 3.9% of 12th grade students reported using methylphenidate in a nonmedical manner during the past year.³¹ Research has suggested somewhat higher rates

among undergraduate college students, with lifetime and past-year estimates of use at 8.1% and 5.4%, respectively.³² Although the rates of use are somewhat lower than other drugs, one study examining both medical and nonmedical use of prescription stimulants found that whereas only 3.3% of adolescent respondents reported nonmedical use only, 17.5% reported using these drugs both medically and nonmedically in the past. This finding suggests that this problem is significantly larger among adolescents who are supposed to be taking these drugs to treat medical problems than among those who do receive a prescription for the drugs.³³ In terms of over-the-counter drugs, the 2006 National Survey on Drug Use and Health found that the rates of lifetime, past-year, and past-month misuse among adolescents aged 12 to 17 years were 4%, 2%, and 1%, respectively.³⁴

Demographics

Research has indicated that white adolescents are more likely to abuse both prescription and over-the-counter medications than other adolescent groups.^{22,32,34} Moreover, boys are significantly more likely to report nonmedical use of prescription drugs than girls, whereas girls are more likely to report misuse of over-the-counter drugs than boys.^{34,35}

Risk Factors

High levels of both family conflict and sensation-seeking behavior have been associated with using these drugs in a nonprescribed manner.²² Moreover, adolescents who are not college-bound and come from families of lower socioeconomic groups have a higher likelihood of abusing prescription and over-the-counter drugs.^{32,34,35}

NARCOTICS

Rates of Use

When asked about use of narcotics other than heroin, such as oxycodone (OxyContin) and hydrocodone (Vicodin), approximately 9% of 12th graders reported abusing these drugs during the past 12 months. Moreover, approximately 13% of 8th graders, 20% of 10th graders, and 36% of 12th graders reported that these drugs would be easy for them to access.¹

TRANQUILIZERS

Rates of Use

Among all available tranquilizers, diazepam (Valium) and alprazolam (Xanax) are the most commonly abused among adolescents. However, relative to other abused drugs, the rates of use remain low, with only 2% of 8th graders, 4% of 10th graders, and 6% of 12th graders reporting use during the past 12 months. When asked about availability of these drugs, 17% of 8th graders, 25% of 10th graders, and 24% of 12th graders reported that they could access them easily.¹

SEDATIVES

Rates of Use

During the past year, approximately 5% of 12th graders reported abusing sedatives. Moreover, approximately 19% of 8th graders, 24% of 10th graders, and 39% of 12th graders reported that these drugs are easy for them to access.¹

CLUB DRUGS

Rates of Use

3,4-Methylenedioxymethamphetamine (Ecstasy) is among the most common club drugs used by adolescents, with approximately 5% of 12th graders, 3% of 10th graders, and 2% of 8th graders reporting use during the past 12 months. Perceived availability of this drug is fairly high, and when surveyed, 15% of 8th graders, 25% of 10th graders, and 42% of 12th graders reported that Ecstasy is easily accessible for them. Lower-rates of use were identified for gamma hydroxybutyric acid (Xyrem) and ketamine, with rates of use during the past year being close to 1% for 8th, 10th, and 12th graders.¹

SUMMARY

From the literature, it is apparent that tobacco, alcohol, and marijuana represent the greatest problematic areas for adolescents and that use of other illicit drugs is rare in comparison, although it is certainly not absent. Further, research suggests that older adolescents typically struggle the most with substance abuse. The highest risk groups are generally White males, although significant problems are observable among females and among adolescents of other racial or ethnic groups. Other risk factors commonly associated with substance abuse among adolescents are family and peer substance use, low levels of school commitment and connectedness, and early-onset sexual risk behaviors.

The fact that substance abuse affects adolescents from a variety of demographic groups demonstrates the importance of developing culturally sensitive interventions that target the many different risk factors affecting the various adolescent groups. Moreover, because factors at many levels contribute to the onset of adolescent substance abuse, it is essential that prevention and treatment interventions target this issue from a variety of areas. Researchers and treatment providers must reach out to adolescents by targeting their communities, families, schools, and peer groups as well as the adolescents themselves who are at risk for developing problems with licit and illicit drug use.

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Table 1

Overview of information sources

Year	Authors	Sample	Findings
2008	Johnston et al ¹	More than 46,000 8th, 10th, and 12th grade students from 386 high schools	Rates of use and risk factors for most licit and illicit drugs among American high school students
2004	Beyers et al ²	32,403 adolescents; 48% male; 85% White	Risk factors for substance use include perceived availability, low school commitment, poor family management, family history of substance use, interaction with antisocial peers, sensation seeking. Protective factors include social skills and a belief in the moral order
2007	Bond et al ³	2678 eighth grade students in 26 secondary schools; 47% male	School connectedness and social connectedness associated with a decreased likelihood for initiating smoking
1998	Flay et al ⁴	6695 seventh grade students; 50% male; 32.5% White; 35.5% Hispanic; 15.5% African American	Family and peer use of cigarettes, alcohol use, and marijuana use are all risk factors for cigarette use
2007	Xue et al ⁵	824 9th graders; 50% male; 83% African American; 17% White	Participation in prosocial activities is protective against cigarette smoking
1995	Aron et al ⁶	1211 adolescents aged 12–16 y; 51% boys; 73% White	Physical activity is protective against smoking in girls but increases risk of alcohol consumption in boys
1994	Kelder et al ⁷	2376 6th-12th grade students	Students who experimented with smoking were more likely to become regular smokers
2000	Blum et al ⁸	10,803 7th-12th high school students; 71% White, 9% Hispanic, and 16% African American	For younger students, highest rates of smoking and drinking were among White
1975	Jessor and Jessor ⁹	432 junior high school students	Alcohol use is associated with onset of sexual intercourse and onset of marijuana use
2009	Nelson et al ¹⁰	Biennial 1993–2005 data from state school-based Youth Risk Behavior Survey for 9th-12th grade students	Within particular geographic locations, rates of adolescent alcohol use is correlated with rates of adult alcohol use and rates of adult drunk driving
2008	Beebe et al ¹¹	134 Native Americans, aged 13–19 y	Nonparental role models, strong family communication, and religious involvement are protective against use of alcohol and other drugs
2007	Leaver-Dunn ¹²	1690 10th-12th grade students; 81% White	Participation in recreational activities is protective against alcohol abuse
2007	Watt and Rogers ¹³	11,413 adolescents aged 12–17 y; 81% White; 19% African American	White adolescents are more likely to drink alcohol than African American adolescents, but the difference is almost entirely explained by influence of peers and family members
2007	Loneczak et al ¹⁴	97 youth aged 13–19 y; 100% Native American; 44% male	Youth are more likely to begin using alcohol if they live in a single-parent home
2007	Walls et al ¹⁵	603 Native American families with female caretakers of youths aged 10–13 y	Caregiver substance abuse influences adolescent substance abuse
1991	Wallace and Bachman ¹⁶	77,500 adolescents; 77.5% White; 11.9% African American	Native American and White adolescents use alcohol more frequently than other racial group, largely because of lifestyle differences
2004	Brook et al ¹⁷	1332 7th-10th grade students from East Harlem; primarily African American and Puerto Rican	Early illicit drug use is associated with risky sexual behavior later in young adulthood
1994	Lowry et al ¹⁸	11,631 adolescents from 124 high schools	Students who do not use illegal substances are least likely to report high-risk sexual behaviors

Year	Authors	Sample	Findings
2004	Patton et al ¹⁹	5769 students aged 10–15 y	Early-onset puberty increases risk for substance use
2008	Cleveland et al ²⁰	91,778 students from grades 6, 8, 10, and 12; 90% White	Boys exhibit higher levels of substance use than girls
2005	van den Bree and Pickworth ²¹	13,718 high school students aged 11–21 y	Peer involvement with substances, delinquency, and school problems increase the risk for marijuana use
2006	Herman-Stahl et al ²²	17,709 adolescents aged 12–17 y; 51.1% male; 62.8% White; 14.6% African American; 15.9% Hispanic	Low religiosity, binge drinking, and selling drugs increase risk of methamphetamine use
1997	Shrier et al ²³	3054 9th–12th grade students	Marijuana and cocaine use associated with high-risk sexual behavior
2007	Guxens et al ²⁴	1056 seventh grade students; 52.2% male	Single-parent household increases risk for adolescent marijuana use
2001	Brook et al ²⁵	3 samples: 739 predominately white adolescents from the Northeast (50% male), 1900 adolescents from East Harlem (55% male), and 1374 adolescents from Colombia (51% male)	Risk factors for marijuana use: rebelliousness, sensation seeking, depression, and delinquency. Protective factors: intolerance for deviance, church attendance, and careful reasoning
2004	Brown et al ²⁶	1354 sixth grade students; 49.7% male; 77.4% White; 22.6% African American	Developmental patterns of adolescent marijuana use differ between White and African Americans
1992	Beauvais ²⁷	NA, literature review	Native American adolescents are more likely to use marijuana than adolescents from other racial or ethnic groups
1988	Binion et al ²⁸	13- to 17-year-old Native American youth from the Add Health survey	Native Americans are more likely to use marijuana in response to feelings of boredom
2008	Terry-McElrath et al ²⁹	82,106 high school seniors from 1977–2005; split evenly by gender; 80% White	Girls are more likely than boys to plan to abstain from marijuana
2007	Springer et al ³⁰	15,240 adolescents; 51.4% male; 61.4% White; 14.1% Hispanic; 13.9% African American	Methamphetamine use associated with low religiosity, high binge drinking, selling drugs, sexual risk behaviors; rates are higher among boys, White, and Hispanics
2008	Johnston et al ³¹	Nationally representative sample of secondary school students followed longitudinally beginning in 1977	Trends of use for most licit and illicit drugs among American high school students
2006	Teter et al ³²	4580 college students; 50% male; 65% White	Lifetime and past-year rates of prescription stimulant use were 8.3% and 5.9%, respectively; rates highest among White
2007	McCabe et al ³³	1086 secondary school students; 46% male; 52% White; 45% African American	Combined medical/nonmedical use of prescription drugs is more common than nonmedical use alone
2009	Ford ³⁴	17,875 adolescents aged 12–17 y; 51.18% male; 60.02% White	Rates of over-the-counter drug abuse are increasing; more common among older, female, and low-income adolescents
2006	Arria and Wish ³⁵	NA, literature review	College students more likely to use prescription stimulants than noncollege students due to lifestyle differences

Abbreviation: NA, not available.