



## REVIEW

# EARLY DETECTION OF ILLICIT DRUG USE IN TEENAGERS

by **SHAHID ALI, MD; CHARLES P. MOUTON, MD; SHAGUFTA JABEEN, MD; EJIKE KINGSLEY OFOEMEZIE, MD; RHAN K. BAILEY, MD; MADIHA SHAHID, MS; and QIANG ZENG, MD**

All from Meharry Medical College in Nashville, Tennessee.

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**ADDRESS CORRESPONDENCE TO:** Shahid Ali, MD, Assistant Professor, Clinical Psychiatry, Medical Director, Detox Unit, Department of Psychiatry and Behavioral Sciences, Meharry Medical College, 1005 D.B. Todd Blvd., Nashville, TN 37208; Phone: 615-327-6810; E-mail: alis@mmc.edu

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## ABSTRACT

The illicit use of drugs, including alcohol, by teenagers has been extensively studied and documented. It is not uncommon for teenagers to be involved in illicit drug use before exhibiting signs and symptoms of drug use. Unsuspecting parents may be unaware of drug use in their children. The authors' objective in this article is to review the literature on illicit drug use in teenagers and highlight the risk factors for teen involvement. The authors also review the warning signs that a teen is using illicit drugs. The aim of this article is to assist parents and healthcare workers involved in substance use intervention programs to be more aware of these risk factors and warning signs in order to adopt early screening and intervention measures.

## INTRODUCTION

Illicit drug use among teenagers has been well documented, and it appears to be more widespread than parents and guardians may suspect.<sup>1,2</sup> There is statistical evidence that teens are getting involved in drug use as early as the 6th to 8th grade (12–14 years old).<sup>3–7</sup> In a study of drug use among racial and ethnic minorities,<sup>8</sup> the National Household Survey on Drug Abuse (NHSDA)

concluded that the risks of starting illegal drug use, alcohol use, and tobacco cigarette smoking are largely found during the adolescent and young adult years. The study provided new information about the risk stratifications of starting to use each drug of interest during adolescence. They pointed out that drug-taking behavior represents a shifting and dynamic phenomenon. The study observed that there were increasing numbers of new initiates for various different drugs occurring during the last years of the twentieth century.<sup>8</sup>

The data and statistics on illicit drug and alcohol use and the consequences of such activities among teenagers are very frightening. Several authors have reported the association between alcoholism and illicit drug use among teenagers and motor vehicle accidents,<sup>9–11</sup> risky sexual behaviors,<sup>12,13</sup> increase suicidality,<sup>2,12,14</sup> homicides,<sup>9</sup> mental health problems,<sup>15</sup> and high rate of school dropout.<sup>1,8</sup>

The adverse health effects of illicit drug use can be very significant, although this varies greatly depending on the specific drug, the combination of drugs consumed, the methods of intake, amount, and frequency of use. Among those who inject drugs,

mortality is high due to overdose and associated medical complications since many drug users either share needles or use contaminated materials.<sup>16-18</sup>

There are also legal and social consequences associated with illicit drug use. Youth violence and other criminal activities attributable to illicit drug use exert its toll in many communities.<sup>4,17</sup> Illicit drug consumption has been identified as a major factor in the spread of communicable and sexually transmitted diseases, including human immunodeficiency virus (HIV) infection.<sup>4,12</sup>

When pregnant teenage girls get involved in illicit drug use, the pregnancy outcomes have been shown to adversely affect both mother and fetus in many ways, which includes poor maternal health, inadequate nutrition and prenatal care, assisted or instrumental deliveries, premature deliveries, and low birth weight infants.<sup>8,19</sup> Teenage drug use also increases the risk for child abuse from neglect, infanticide, and family violence.<sup>20</sup> There is also documented evidence that children of parents who use drugs are more likely to use illicit drugs later in life.<sup>21-23</sup>

One of the most powerful tools at our disposal in reducing the prevalence of teen drug use is communication.<sup>24</sup> For inexplicable reasons, communication is dreaded and seldom used by parents or if used at all, not on a continuing basis. Some of the proposed reasons for this lapse are that parents are busy with other personal interests, working, or they do not want to invade the privacy of their teenage sons and daughters who are suspected of using drugs.<sup>1,17,24-27</sup>

We live in a dynamic and fast-paced society, and with the advances in technology, parents and communities may find it difficult to raise and maintain drug-free children and young adults. Technology and the internet have been identified as one of the recruiting tools and facilitators of easy access to illicit drugs and dangerous substances among teenagers.<sup>28,29</sup>

More cost-effective measures need to be adopted with less emphasis on punishment and incarceration and more emphasis on preventive strategies. By exploring the risk factors that predispose teens to illicit substance use, we may be able to intervene and prevent use in high-risk teens. Hopefully, this knowledge will contribute toward instituting appropriate intervention programs to address the issue.

We believe there is a need in our society to adapt or seek new methods of fighting the problem of illicit drug use in teens. This article will review risk factors for illicit drug use in teenagers and propose methods of curbing this behavior.

## RISK FACTORS

There are various risk factors that can predispose a teenager to drug use.<sup>3,4,21,30,31</sup> The age at which these risk factors are encountered by susceptible teens may dictate what influences they have on them and the progression of the illicit behavior.<sup>6,32</sup> These risk factors can be broadly classified under family risk factors, individual risk factors, and miscellaneous risk factors.<sup>2,14,23,29,31,33</sup> Family risk factors include inadequate parental supervision, poor communication, family tension and conflicts, inconsistent or unduly severe parental discipline, broken homes, and family history of parental alcohol or drug abuse.<sup>24,27,34</sup> Examples of the individual risk factors include history of early childhood negative and aggressive behavior; history of physical or sexual abuse; being male, Caucasian, and an older adolescent; emotional, social, or academic difficulties; poor impulse control; unstable emotions; thrill-seeking behaviors; and very low perception of the dangers inherent in drug use.<sup>13,28,34,35</sup> The miscellaneous factors include low socioeconomic status, level of education, living in a high crime and drug-use neighborhood; ease of drug availability; peer-group pressure; and history of mental illness.<sup>21,34,36-39</sup>

## WARNING SIGNS

One of the earliest warning signs that predicts teenage drug use is changes in behavior and mannerism.<sup>14,33,40,41</sup> The first change that is usually observed is frequent change of friends.<sup>37,41,42</sup> The teen may either have a gradual or sudden frequent change of friends with whom parents or guardians are not familiar or do not approve. The teen may make up unsatisfactory excuses for the observed behavior or might get angry unnecessarily when confronted. Substance-using teenagers may exhibit withdrawal from usual family bonding, routines, and activities. They may prefer to be left alone in their rooms, skip family dinner, or remain uncommunicative with parents and siblings. Some may choose to stay home rather than participate in regular family routines like family outings, holiday trips, movies, and completing house chores.

In addition, the drug-seeking habits of teenagers who are using drugs may become apparent when they suddenly begin to violate agreed upon hours of curfew restrictions.<sup>27,33,37</sup> This behavior may be confused with normal teen truancy, such as hanging out with his or her usual buddies or a girlfriend or boyfriend, but a teen who is seeking drugs or alcohol will often invent stories or behaviors to cover his or her tracks.

Some of the drugs a teen may use are psychotropic and may cause many types of uncharacteristic behavior. A teen under the influence of a psychotropic drug may exhibit unusual and violent behavior following trivial arguments or simple requests.<sup>21,44</sup> Confronting a teenager on any substance may trigger an inappropriate, uncharacteristically defiant, or caustic reaction. The reaction may be totally unprovoked since there is a sense of vulnerability and emotional instability associated with withdrawal symptoms.

Many of the drugs of abuse, most especially marijuana and alcohol, can impair the sense of judgment or produce disinhibition.<sup>4,12,44</sup> This may cause apparent slurring of speech and

other difficulties in verbal expression. When under the influence, a teen may limit his or her communication or become unusually talkative with incoherent words and sentences or use drug jargon. A red flag that may alert a parent or healthcare professional to teenage drug use is the deterioration of school grades and skipping of classes.<sup>33,37,42</sup> However, some teens are savvy enough to invent situations to effectively mask this problem. Parents should receive notifications from school teachers or other school officials if their child is skipping classes or is exhibiting poor grades.

Lack of motivation is another sign of drug use.<sup>11,15,45</sup> A red flag for illicit drug use is when the teenager suddenly begins to show apathy, poor morale, low productivity, lack of self-control, aggressive behavior, difficult temperament, and poor interactions with family members at school and within the community. The teen may start pilfering money or stealing things to pawn in order to pay for their drugs. Coworkers or classmates may report multiple thefts or missing personal items. Neglect of personal hygiene and appearance and adoption of unusual dress habits may signal involvement in drug use. This may include wearing wrinkled or dirty clothes and paying little or no attention to hair grooming and cleanliness, which are a reflection of low self image. Some teens may dress inappropriately, wear inappropriate make up, and get body piercing or tattoos.

Changes in personality may be exhibited as deception and disrespect to authority figures. A teen involved with drugs may suddenly begin to tell lies to cover the acts, including their movements and associations. More often than not, attempts to caution or correct this behavior are vehemently resisted as an unwanted intrusion and a violation of their privacy. Manipulative and secretive traits are another tell-tale behavior of teens on drugs. They may start making and receiving frequent phone calls, mostly in hushed or whispered tones, and act

sneaky and suspicious. Their email or cell phone records may leave a trail of evidence.

Some teens who use drugs display irrational behaviors or many become dramatic in their actions. In order to maintain their drug habits, often with limited resources, the teen may become irritable, verbally abusive, and even violent with siblings and parents. They may threaten to quit school, run away from home, drop out of school, or destroy family property. Others may threaten to cause bodily harm to them or even threaten suicide.<sup>12,38,43,44</sup>

Depression, mood instability, and apathy are also warning signs of potential teen drug and substance abuse.<sup>12,15,20,27,45</sup> Teens using drugs may become alienated and disinterested in things they were passionate about in the immediate past or become introverted and holed up in their room. Other symptoms include crying spells and mood swings.

Changes in appearance and the exhibition of some symptoms are some of the most definitive ways of identifying teens that are using illicit drugs. The appearance of bloodshot eyes, widely dilated pupils, or pin-point pupils are very indicative of drug use. Bloodshot eyes may signify that the teen is on marijuana.<sup>37,39,43,45</sup> Pupillary dilatation can indicate the teen is using drugs such as cocaine, amphetamines, or hallucinogenics. Pin-point pupils are associated with the use of barbiturates and heroin.<sup>37,45</sup>

There may be noticeable changes in body habitus, such as unexplained and sudden weight loss, weight gain, or poor oral hygiene.<sup>37,41,42</sup> The observation of skin changes, such as needle tracks in the antecubital region, are an indication that the teen may be using injectible substances like heroin. The teen may start wearing long-sleeved garments even in very warm weather to cover up these marks. Cocaine use may be associated with raw, dripping nostrils from snorting, and opiates may cause sensation of crawling insects all over the body.<sup>5,38,43,45</sup> The withdrawal symptoms of cocaine or amphetamines may be evident as the

teen constantly scratches or picks at his or her skin and hair. It is important to rule out other organic causes (e.g., diabetic neuropathy, syphilis) or prescription drugs side effects (e.g., methylphenidate).

A teen that is on illicit drugs may be unusually drowsy or become easily or constantly fatigued. This may be a sign of crashing after a period of hyper-excitability, high energy, and euphoria from drug use or may result from fatigue due to poor eating habits.<sup>15,37</sup>

Finally, the possession of drug paraphernalia stands out as the most definitive indication that a teen is using illicit substances. The possession of items like tin foil, weight scales, smoking pipes, butane torches, bong, ziplock bags, square folded paper envelopes (bindles), cigarette lighters, small porcelain bowls, hypodermic needles, balloons, aluminum foil wrappers, mirrors or flat metal, short straws, glass pipes, capsules, and vials are indicative of drug use.<sup>37,42</sup>

## CONCLUSION

There is an urgent need for parents, school teachers, and healthcare providers to be familiar with the early signs and symptoms of drug and substance abuse to be able to implement preventive measures. A comprehensive health approach that takes into consideration the involvement of primary care practitioners needs to be adopted. Other equally important considerations should include the special characteristics and vulnerabilities of special populations at risk, family structures, social and demographic characteristics, poverty, and housing and living conditions. Multiple avenues, including the internet, should be included in the larger prevention and intervention protocols.

To improve outcomes in identifying teens at risk of using illicit drugs, we recommend that strategies be adopted and incorporated at the primary care level for identifying and screening at-risk teenagers.

Healthcare providers need to be routinely updated in their knowledge and skills to identify the early warning signs of illicit drug use, especially within this population. Parents and guardians of teens with risk factors for drug use need to be provided with the information and tools to identify these signs and seek help promptly. Where the parent is the drug user, every effort should be made to reduce the exposure and the impact of this behavior on their teenager. The agencies saddled with the responsibility of addressing the issues of drug use need to direct their energy and resources to measures and strategies that will curb exposure and access to illicit drugs instead of focusing more on punishment and incarceration which have failed to reduce the use of illicit drugs.

## REFERENCES

- National Institute of Drug Abuse. *Preventing Drug Use Among Children and Adolescents: A Research-based Guide for Parents, Educators, and Community Leaders, 2nd Edition*. NIH Publication No. 04-4212(A). October 2003.
- National Center on Addiction and Substance Abuse at Columbia University. National survey of American attitudes on substance abuse X: teens and parents. [http://www.casacolumbia.org/templates/publications\\_reports.aspx](http://www.casacolumbia.org/templates/publications_reports.aspx). August 2011. Accessed December 1, 2011.
- Lopez M, Compton WM, Volkow ND. Changes in cigarette and illicit drug use among US teenagers. *Arch Pediatr Adolesc Med*. 2009;163(9):869–870.
- DuRant RH, Smith JA, Kreiter SR, Krowchuk DP. The relationship between early age of onset of initial substance use and engaging in multiple health risk behaviors among young adolescents. *Arch Pediatr Adolesc Med*. 1999;153(3):286–291.
- Trends in drug and alcohol use by youth in the U.S.A. *Stat Bull Metrop Insur Co*. 1993;74(3):19–27.
- Patel DR, Greydanus DE. Substance abuse: a pediatric concern. *Indian J Pediatr*. 1999;66(4):557–567.
- Committee on Substance Abuse, Kokotailo PK. Alcohol use by youth and adolescents: a pediatric concern. *Pediatrics*. 2010;125(5):1078–1087.
- National Institute on Drug Abuse. *Drug Use Among Racial/Ethnic Minorities*. NIH Publication No. 03-3888. Printed 1995. Last revised September 2003.
- Centers for Disease Control (CDC). Alcohol and other drug use among high school students—United States, 1990. *MMWR Morb Mortal Wkly Rep*. 1991 Nov15;40(45):776–7, 783–4.
- Substance Abuse and Mental Health Services Administration. *Results from the 2006 National Survey on Drug Use and Health: National Findings*. Office of Applied Studies. NSDUH Series H-32, DHHS Publication No. SMA 07-4293.
- Substance Abuse and Mental Health Services Administration. *Misuse of Over-The-Counter Cough and Cold Medications Among Persons Aged 12 to 25*. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2008.
- Burge V, Felts M, Chenier T, Parrillo AV. Drug use, sexual activity, and suicidal behavior in US high school students. *J Sch Health*. 1995;65(6):222–227.
- Jones SE, Oeltmann J, Wilson TW, et al. Binge drinking among undergraduate college students in the United States: implications for other substance use. *J Am Coll Health*. 2001;50(1):33–38.
- Rebecca Voelker. Stress, sleep loss, and substance abuse create potent recipe for college depression. *JAMA*. 2004;291(18):2177–2179.
- Grunbaum JA, Kann L, Kinchen SA, et al. Youth Risk Behavior Surveillance—National Alternative High School Youth Risk Behavior Survey, United States, 1998. *MMWR CDC Surveill Summ*. 1999;48(7):1–44.
- Rooney M, Chronis-Tuscano A, Yoon Y. Substance use in college students with ADHD. *J Atten Disord*. 2011 Feb 2. [Epub ahead of print].
- Devlin RJ, Henry JA. Clinical review: major consequences of illicit drug consumption. *Crit Care*. 2008;12(1):202.
- Wu W, Khan AJ. Adolescent illicit drug use: understanding and addressing the problem. *Medscape. Family Medicine*. <http://www.medscape.com/viewarticle/513024>. Posted: 09/21/2005. Accessed: December 1, 2011.
- Mokdad AH, Marks JS, Stroup DF, Gerberding JL. Actual causes of death in the United States, 2000. *JAMA*. 2004;291(10):1238–1245.
- Kokotailo PK, Adger H, Duggan AK, et al. Cigarette, alcohol, and other drug use by school-age pregnant adolescents: prevalence, detection, and associated risk factors. *Pediatrics*. 1992;90(3):328–334.
- Dube SR, Felitti VJ, Dong M, et al. Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the adverse childhood experiences study. *Pediatrics*. 2003;111(3):564–572.
- Hawkins JD, Catalano RF, Miller JY. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: implications for substance abuse prevention. *Psychol Bull*. 1992;112(1):64–105.
- García EG, Blasco BC, López RJ, Pol AP. Study of the factors associated with substance use in adolescence using Association Rules. *Adicciones*. 2010;22(4):293–299.
- Brook JS, Brook DW, Zhang C, Cohen P. Pathways from adolescent parent-child conflict to substance use disorders in the fourth decade of life. *Am J Addict*. 2009;18(3):235–242.
- American Academy of Pediatrics. Healthy Children. Drug abuse prevention starts with parents. <http://www.healthychildren.org/English/ages-stages/teen/substance-abuse/pages/Drug-Abuse-Prevention-Starts-with-Parents.aspx>. Accessed December

- 1, 2011.
25. David HJ, Catalano RF, Miller JY. Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychologic Bull.* 1992;112(1):64–105.
  26. Humensky JL. Are Adolescents with high socioeconomic status more likely to engage in alcohol and illicit drug use in early adulthood? *Subst Abuse Treat Prev Policy.* 2010;5(5):19.
  27. American Academy of Child & Adolescent Psychiatry. Teens: alcohol and other drugs [http://www.aacap.org/cs/root/facts\\_for\\_families/teens\\_alcohol\\_and\\_other\\_drugs](http://www.aacap.org/cs/root/facts_for_families/teens_alcohol_and_other_drugs). Updated March 2011. Accessed December 1, 2011.
  28. Lord S, Brevard J, Budman S. Connecting to young adults: an online social network survey of beliefs and attitudes associated with prescription opioid misuse among college students. *Subst Use Misuse.* 2011;46(1):66–76.
  29. Lord S, Brevard J, Budman S, Connecting to young adults: an online social network survey of beliefs and attitudes associated with prescription upload misuse among college students. *Substance Use Misuse.* 2011; 46(1):66–76.
  30. van den Bree M, Pickworth WB. Risk factors predicting changes in marijuana involvement in teenagers. *Arch Gen Psychiatry.* 2005;62(3):311–319.
  31. Reddy P, Resnicow K, Omardien R, Kambaran N. Prevalence and correlates of substance use among high school students in South Africa and the United States. *Am J Public Health.* 2007;97(10):1859–1864.
  32. Belcher H, Shinitzky H. Substance abuse in children: prediction, protection, and prevention. *Arch Pediatr Adolesc Med.* 1998;152(10):952–960.
  33. Brook JS, Whiteman M, Finch S, Cohen P. Longitudinally foretelling drug use in the late twenties: adolescent personality and social environmental antecedents. *J Genet Psychol.* 2000;161(1):37–51.
  34. Latimer W, Zur J. Epidemiologic trends of adolescent use of alcohol, tobacco, and other drugs. *Child Adolesc Psychiatr Clin N Am.* 2010;19(3):451–464.
  35. Donovan JE, Jessor R. Problem drinking and the dimension of involvement with drugs: a Guttman scalogram analysis of adolescent drug use. *Am J Public Health.* 1983;73(5):543–552.
  36. Kumpfer KL, Turner CW. The social ecology model of adolescent substance abuse: implications for prevention. *Int J Addict.* 1990–1991;25(4A):435–463.
  37. Baingana FK, Alem A, Jenkins R. Mental health and the abuse of alcohol and controlled substances. In: Jamison DT, Feachem RG, Makgoba MW, et al (eds). *Disease and Mortality in Sub-Saharan Africa, Second Edition.* Washington, DC: World Bank; 2006.
  38. O'Brien CP. Adolescent opioid abuse. *Arch Gen Psychiatry.* 2005;62(10):1165–1164.
  39. Slutske WS. Alcohol use disorders among US college students and their non-college-attending peers. *Arch Gen Psychiatry.* 2005;62(3):321–327.
  40. Block J, Block JH, Keyes S. Longitudinally foretelling drug usage in adolescence: early childhood personality and environmental precursors. *Child Dev.* 1988;59(2):336–355.
  41. The National Institute on Drug Abuse. Drug abuse and addiction: one of America's most challenging public health problems. <http://archives.drugabuse.gov/about/welcome/aboutdrugabuse/index.html>. Created June 2005. Accessed 12/15/2011.
  42. Kuehn BM. Teen marijuana use on the rise. *JAMA.* 2011;305(3):242.
  43. Compton WM, Grant BF, Colliver JD, et al. Prevalence of marijuana use disorders in the United States: 1991–1992 and 2001–2002. *JAMA.* 2004;291(17):2114–2121
  44. Montoya ID, McCann DJ. Drugs of abuse: management of intoxication and antidotes. *EXS.* 2010;100:519–41.
  45. American Council for Drug Education. Signs and symptoms of drug use. <http://www.acde.org/parent/signs.htm>. Accessed Dec. 1, 2011. ■