ABSTRACT

The adolescent stage of life is characterized by physical and developmental growth, including experimentation with new behaviors, both risky and safe. Risky behavior in adolescent patients is a major cause of morbidity and mortality. Important for screening and early detection of risky behavior, a biobehavioral assessment of individual adolescents should be conducted by a healthcare provider at each office visit. Assurances of confidentiality and a nonjudgmental approach by the provider are typically followed by frank discussions about behavior performed by the adolescent. Assessment of and interventions for 2 common eating disorders in adolescents, anorexia nervosa and bulimia nervosa, are reviewed. Trends in substance abuse for the most commonly encountered agents and trends in risky sexual behavior are presented, as well as recommendations for intervention. Providers of adolescent healthcare should strive to be a source of information and guidance for their adolescent patients, all of whom are at potential jeopardy for engaging in risky behavior.

an individual adolescent should be performed at each clinical visit. Education and preventive services are crucial for the delivery of appropriate adolescent healthcare and help to provide resources that allow the adolescent to better understand consequences (both short term and long term) of their actions. In order to detect potential problems early, physicians who provide care to adolescent patients must be willing to perform a psychosocial history. Such intervention can make a significant impact on morbidity and mortality in the adolescent population.

**HEADS**

Goldenring and Cohen presented a psychosocial interview technique, originally published in 1988, for screening adolescent patients. It was characterized by the mnemonic HEADS: Home, Education, Activities, Drugs, and Sexuality. After ensuring the patient about the confidentiality of the healthcare visit, questions about the adolescent and their environment take place. When formatting interview questions for the adolescent patient, it is important to make no assumptions and to phrase the questions so they are open ended (Table 1). Regardless of personal beliefs, the attitude of the practitioner should convey a nonjudgmental attitude throughout the interview. The physician should not avoid providing advice or educational discussions, but adolescents will be less likely to open up, especially on sensitive issues, if they feel they are being judged.

The psychosocial history should begin with a discussion of home, as most teenage problems with sexuality, drug use, risk taking, and psychological issues might originate from or impact relationships at home. When querying the adolescent about home life, it is important to remember that home might be a nontraditional setting, such as a homeless shelter. Education is the next area of questioning, as most adolescents who are not at home are at school. Queries into employment are also appropriate, as some adolescents work full or part time. An investigation of peer activities is very important, because adolescents typically learn to separate themselves from their parents and develop their identity and self-esteem from peer activities. Patterns of use, and possibly abuse, of drugs (both licit and illicit) should be explored in both the patient and his or her peers. Questions regarding sexuality are especially sensitive for adolescents, and special care should be taken to make interview questions open ended and nonjudgmental. The practitioner should note, throughout the interview, flags that warn of depression and/or suicidal ideation. Even distrusting adolescents generally accept a few additional questions regarding sleeping and eating habits, which might help to identify patients at risk for depression and anxiety.

**Eating Disorders**

Eating disorders occur in up to 5% of adolescent females and are the third most common chronic illness in this population. In adolescents, healthy weight is determined using body mass index (BMI) for age plotted on gender-specific growth charts developed by the Centers for Disease Control and Prevention. Although height and weight serve as important indicators of an adolescent’s development and health, being under- or overweight does not automatically indicate unhealthiness. Weight can fluctuate quickly in adolescents due to rapid spurts in growth and physical activity, making good nutrition important in adolescent years. Considering the pressures placed upon adolescents from peers, the media, and society, it is not difficult to understand that many adolescents are confused about healthy diets and weight.

**Overweight**

Overweight is defined as the condition of having a BMI in the 95th or greater percentile of the age- and sex-specific BMI reference data. According to 1999 to

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**Table 1. Leading Causes of Death in Adolescents of All Races and Both Sexes: United States, 2001**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total Deaths</th>
<th>Unintentional Injuries</th>
<th>Malignant Neoplasms</th>
<th>Suicide</th>
<th>Homicide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 10-14 years</td>
<td>38.8</td>
<td>12.9</td>
<td>6.8</td>
<td>4.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Ages 15-19 years</td>
<td>49.0</td>
<td>11.9</td>
<td>5.4</td>
<td>11.9</td>
<td>14.1</td>
</tr>
</tbody>
</table>

Data from Anderson et al.3
2001 National Health and Nutrition Examination Survey (NHANES) results, 15% of adolescents aged 12 years to 19 years are overweight, a 4% increase since NHANES III (1988-1994). These data are of clinical concern, as overweight adolescents are at increased risk for becoming overweight adults, and overweight and obesity in adults are associated with significant morbidity and mortality. Recently, the federal government has identified obesity as a major health concern for the country; however, they have yet to identify a coherent strategy for combating the epidemic.

**Anorexia Nervosa and Bulimia Nervosa**

Two major groups of eating disorders are commonly encountered in the adolescent population: anorexia nervosa and bulimia nervosa. Anorexia is characterized by severe restriction in food intake, whereas patients with bulimia binge eat followed by vomiting, catharsis, exercise, or fasting. Both eating disorders involve a disturbance in body image. Anorexia and bulimia share the trait of dysfunctional eating habits commonly due to underlying psychosocial issues, such as depression, low self-esteem, family dynamics, or environmental problems. Anorexic patients experience extreme weight loss, and bulimic patients tend to have normal to above normal body weight.

Intervention for eating disorders should be undertaken early in adolescence due to potentially life-threatening or irreversible effects. Assessment and treatment efforts should focus on biologic, psychological, and social features of the specific eating disorder. Additional study in the following areas of eating disorders in adolescent patients is needed to

<table>
<thead>
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<th>Table 1. HEADS Interview Questions</th>
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<tr>
<td><strong>Poor</strong></td>
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<tr>
<td>Home</td>
</tr>
<tr>
<td>Education</td>
</tr>
<tr>
<td>Activities</td>
</tr>
<tr>
<td>Drugs</td>
</tr>
<tr>
<td>Sexuality</td>
</tr>
</tbody>
</table>

improve outcomes: prevention, identification of risk factors, screening tools, risk factors for osteoporosis andamenorrhea, comparison of outcomes for different treatments, improved diagnostic subgroups for prognosis and treatment, and use of particular psychosocial and psychopharmacologic treatments.

**Substance Abuse**

Degree of drug and alcohol use in adolescents varies from nonuse, experimental use, and regular use to chronic abuse and dependence. Prevention of drug and alcohol use in adolescents is important, because abuse is strongly associated with the leading causes of death in adolescents and is also a strong predictor of adult substance-abuse disorders. Trends in drug use and abuse are affected by perceptions of potency, parental attitudes, media, peers, and access. As perceptions of a drug change, the use of that agent changes. For example, if an agent is perceived as risky or hard to obtain, prevalence of its use generally decreases. On the other hand, if perceptions of approval or risk of harmfulness decrease and ease of access increases, the use of the agent increases.

In general, as age increases, male adolescents tend to have higher rates of illicit drug use compared with female adolescents. According to key findings of the 2002 Monitoring the Future (MTF) survey of adolescents, high school students who are college bound are less likely to be at risk for using illicit drugs, binge drinking, and cigarette smoking than noncollege-bound students. The 2002 MTF also reports that general geographical differences in use of illicit drugs have been observed. The Northeast and West tend to have the highest proportions of students using any illicit drug and the South the lowest. Ecstasy use experienced an upsurge in 1999, primarily in the Northeast; however, the drug’s popularity in 2000 spread across the United States. A brief review of some of the most commonly used drugs by adolescents follows.

**Tobacco**

Results of the Youth Risk Behavior Surveillance System (YRBSS) survey conducted in 2001 indicated that 27.7% of female and 29.2% of male high school students (total of 28.5% regardless of sex) smoked cigarettes on 1 or more days in the past 30 days. This rate is similar to that observed 10 years ago but represents a 22% reduction from a peak in 1997. Prevention of tobacco use in adolescents has long-term benefits, as smoking is a well-recognized risk factor for cardiovascular disease, the leading cause of death among adults in the United States. Clinicians providing adolescent healthcare should understand that smoking in this age group has been found to be influenced by friends who smoke, parents and other family members who smoke, and exposure to smoking in the media.

**Alcohol**

Although illegal for minors younger than 21 years of age to purchase, alcohol is the drug most often used among adolescents. Accidental trauma, suicide, and homicide result in 75% of all deaths in the adolescent population, and alcohol contributes to 25% to 50% of all of these deaths (Figure 2). Almost half (47.1%) of all high school students reported drinking alcohol on 1 or more days during the past 30 days in 2001. Binge drinking, defined as consuming 5 or more alcoholic drinks in a row (within a couple of hours) on 1 or more days during the past 30 days, was reported in 26.4% of female and 33.5% of male (29.9% of all) high school students in 2001. Binge drinking has remained almost level since 1991 but has fallen about 11% from a peak in 1997.

![Figure 2. Percentage of Deaths Related to Alcohol Abuse in Adolescents and Young Adults](image-url)
MARIJUANA

After alcohol and tobacco, marijuana is the drug most frequently used by young people. Per the 2002 MTF survey, marijuana has been the most widely used illicit drug for the full 27 years of the study. Per the YRBSS 2001 survey, the percentage of high school students who used marijuana 1 or more times during the past 30 days has grown over the past decade from 14.7% in 1991 to 23.9% in 2001. Though it was once thought that there were few harmful effects of marijuana, a growing body of literature indicates that marijuana might have a significant impact on the developing adolescent brain.

METHAMPHETAMINES

Methamphetamines, a subclass of amphetamines, are neurotoxic agents. Similar to amphetamine, these addictive stimulants strongly activate certain systems in the brain but with greater effects, resulting in high levels of dopamine. In 2002, annual prevalence rates of methamphetamine use were 2.2% for 8th graders, 3.9% for 10th graders, and 3.6% for 12th graders. These levels are down from rates observed in 1999 (4.5%, 7.3%, and 8.2%, respectively).

GAMMA HYDROXYBUTYRATE

Gamma hydroxybutyrate (GHB) is a so-called “club drug” because it is popular at night clubs and “raves.” Because it can induce amnesia of events, GHB has also been labeled a “date-rape drug.” The ingestion of GHB can result in rapid respiratory arrest, hypotension, bradycardia, and death. In 2002, the annual prevalence of GHB use was 0.8% in 8th graders, 1.4% in 10th graders, and 1.5% in 12th graders. Precursor molecules, such as gamma-butyrolactone, are marketed to the adolescent population as supplements (named Verve and Jolt, among other names) for increased muscle mass and improved sexual performance.

METHYLENEDIOXYMETHAMPHETAMINE (ECSTASY OR MDMA)

Methylenedioxymethamphetamine (MDMA), or ecstasy, is another “club drug,” and abuse of this agent is sweeping the country. Ecstasy has been linked to brain damage, memory loss, and Parkinson's disease; however, the drug's popularity continues to grow, possibly because some adolescents do not believe evidence concerning its risks. MDMA is chemically similar to amphetamine and mescaline and can produce stimulant and psychedelic effects. In 2002, 2.4% of all high school seniors, 1.8% of all 10th graders, and 1.4% of all 8th graders reported using MDMA in the past 30 days.

INTERVENTION

The adolescent, family, and community all play a role in preventing the risk of adolescent substance abuse. Clinicians can advocate for families and communities to help adolescents be goal oriented, insightful, and in tune with individual cultures and beliefs, all of which are associated with a reduction in substance use. Potentiating protective factors and mitigating risk factors might reduce the risk of substance abuse. Protective factors include goal orientation, ethnic identification, community-based social networks, open communication with parents, peer groups not engaging in high-risk activities, and reduction in availability of substances.

Clinicians caring for adolescents should incorporate substance abuse prevention strategies into daily practice. These healthcare providers should have the skills not only to identify young people at risk for substance abuse but also to provide or refer for assessment, intervention, and treatment as necessary. Treatment should include a review of psychiatric and medical comorbidity, possibly drug screening, and lab assessment. Clinicians should not overlook the fact that substance abuse may mask an affective or anxiety disorder.

Table 2. CRAFFT Questions

| C | Have you ever ridden in a Car driven by someone (including yourself) who was “high” or had been using alcohol or drugs? |
| R | Do you ever use alcohol or drugs to Relax, feel better about yourself, or fit in? |
| A | Do you ever use alcohol or drugs while you are by yourself, Alone? |
| F | Do you ever Forget things you did while using alcohol or drugs? |
| F | Do your Family or Friends ever tell you that you should cut down on drinking or drug use? |
| T | Have you ever gotten into Trouble while you were using alcohol or drugs? |

CRAFFT

Researchers at the Harvard Medical School have developed a brief verbally administered substance abuse screening tool that allows physicians to quickly and accurately discriminate adolescent patients requiring intensive dependency treatment from those amenable to office intervention or brief counseling.19,20 The CRAFFT test is a validated instrument for screening the general population of adolescent patients for substance abuse, including alcohol. This 6-item test consists of yes/no questions designed to be developmentally appropriate for adolescents (Table 2).20

CONCLUSIONS

Adolescents are in a critical stage of physical and psychological development. Many adolescents undertake risky behaviors that might result in morbidity and mortality or, at a minimum, be carried into adulthood. These dangerous behaviors can involve eating disorders, the use or abuse of licit and illicit substances, and risky sexual behaviors. Parental, media, and adolescent attitudes and beliefs have a great influence on the adolescent's behavior. In order to make a positive impact on short- and long-term outcomes, healthcare providers need to direct efforts toward prevention, screening, and early intervention for adolescents and their risky behaviors. These efforts should include education, behavioral wellness, family communication, provider-patient discussion, assessment, and referral. Providers of adolescent healthcare should strive to be a source of information and guidance for their adolescent patients, all of whom are at potential jeopardy for engaging in risky behavior.

REFERENCES