ABC of adolescence

This is the eighth in a series of 12 articles

Substance misuse: alcohol, tobacco, inhalants, and other drugs

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Misuse of alcohol, tobacco, inhalants, and other drugs is now widespread among adolescents internationally and causes substantial health problems in this group. This article explores the misuse of these substances.

Epidemiology

Alcohol and tobacco are by far the most commonly used substances by young people and result in 95% of morbidity and mortality related to substance misuse in this age group. Despite the public and political concerns about use of illicit drugs, such drugs are much less commonly used than alcohol and tobacco, although they may pose more serious immediate health risks. The “gateway” theory about drugs (that tobacco and alcohol may lead on to use of illicit drugs) does not always hold in adolescence. Although it is true that almost all users of illicit drugs have used tobacco and alcohol, most adolescents who regularly use tobacco and alcohol do not progress to using illicit drugs.

Alcohol

Alcohol consumption typically begins in adolescence. About a fifth of 12-13 year olds report drinking alcohol; the proportion increases to 40-50% by age 14-15 and to over 70% by age 17. In the United Kingdom the proportion of adolescents reporting weekly drinking has changed little over the past 15 years. On average, about 40% of young people report binge drinking; the main reasons given for bingeing are enjoyment and the fact that the alcohol helps them to be more sociable.

Smoking

The proportion of young people who smoke regularly rises from about 1% at age 11 years to 26% of girls and 21% of boys at age 15 in the United Kingdom. Overall, smoking rates among young people have changed little in the past 20 years, although rates among girls overtook those among boys from the mid-1980s.

Drugs

Cannabis is the most common drug of misuse in Western countries. Cannabis use usually starts at about 16-17 years old, with 30-50% of this age group reporting that they have at least tried cannabis. Regular use, however, is less common, with about 10% of adolescents reporting weekly use and about 3% daily use.

Adverse effects of cannabis misuse

- Social, interpersonal, and legal difficulties
- Cognitive impairment, including memory problems
- Effects on respiratory system (such as chronic bronchitis, increased susceptibility to pneumonia, and possibly an increased risk of lung carcinoma)
- Increased risk of psychosis
- Cannabis dependence (occurs in about 10% of heavy users)

Throughout the article, when the term substance misuse is used, it refers to the whole group of substances (alcohol, tobacco, inhalants, and other drugs)

Proportions of 11-15 year olds in England who reported drinking during preceding week, 1988-2002. Adapted from Boreham et al. *Smoking, drinking and drug use among young people*. London: Stationery Office, 2002

Classification of harmful drugs in United Kingdom

Class A drugs—Opiates such as diamorphine (heroin), dipipanone, pethidine, morphine; powerful stimulants such as cocaine and its derivative “crack”; hallucinogens such as lysergide (LSD) and mescaline; methylated amphetamines such as methylenedioxymethamphetamine (MDMA, ecstasy); methadone

Class B drugs—Amphetamine (sniffed or smoked); cannabis resin; dihydrocodeine (DF118); methylphenobarbitone

Class C drugs—Benzodiazepines such as diazepam, temazepam, chlordiazepoxide, and nitrazepam

Class A drugs are the most harmful; class B are harmful but less harmful than class A; class C are potentially harmful when misused. Any class B drug prepared for injection becomes class A

Percentage of 11-15 year olds in England who used drugs during preceding year, by type of drug and age, 2002. Class A drugs are heroin, methadone, cocaine, ecstasy, LSD, injected amphetamines. Boreham et al. *Smoking, drinking and drug use among young people*. London: Stationery Office, 2002

Desired and adverse effects of class A drugs and their administration route

Drug	Desired effects	Adverse effects
Amphetamines (sniffed or injected)	Increased self confidence and capacity for concentration; heightened alertness	Jaw clenching; teeth grinding; difficulty concentrating; dehydration; cardiac arrhythmias; sudden death
Ecstasy (oral)	Positive mood; feelings of intimacy; euphoria; increased energy	As for amphetamines
Cocaine (snorted, smoked, injected intravenously)	Positive mood; euphoria; increased energy	Muscle twitching; dizziness; confusion; anxiety and paranoia; acute myocardial infarction; cardiomyopathy; cardiac arrhythmias; cocaine psychosis; violent or aggressive behaviour; cocaine dependence syndrome
Opiates (such as heroin; burned, snorted, injected intravenously)	Euphoria; wellbeing; sedative effects	Venous collapse; abscesses; heart and other major organ damage; opiate dependence syndrome; respiratory depression; death

Inhalants

Prevalence estimates vary, but as many as 5% of young adolescents in the general population may be misusing paint, glue, or petrol. This form of substance misuse is most common among younger high risk adolescents, as these substances are readily available and their purchase and possession are not illegal.

Trajectories of substance misuse

Not all young people who experiment with substances proceed to levels that bring health problems. Some use certain substances for recreational purposes, whereas others use them for self medication (for example, for insomnia or emotional distress). Recurrent problems related to substance misuse (such as difficulties with family or friends and school attendance) most commonly arise as a result of increased frequency of high dose use. A minority of adolescents with problematic high dose use progress to clinical harm and dependence.

Risk factors

A number of individual and environmental factors influence substance misuse by adolescents. Many of them “cluster” within an individual. Consideration of protective as well as risk factors is clinically useful, both in the assessment of risk in a young person and in the development of a management plan.

Assessing substance misuse**Establishing rapport**

Successful work with adolescents, including dealing with their substance misuse, requires the development of a trusting relationship and good rapport, particularly in terms of confidentiality. In allowing the young person to participate in management options, the practitioner also needs to feel confident that the young person understands the consequences of his or her health choices.

Taking a history

In primary care, specific screening questionnaires for substance misuse have not been shown to be any more effective than taking a broad medical and psychosocial history. A psychosocial history includes information about the social, cultural,

When vaporised and inhaled, paint, glue, and petrol rapidly result in intoxication and euphoria

It is important with adolescents to consider where he or she lies in the spectrum of misuse

Risk and protective factors for substance misuse in adolescents

Biological factors—Alterations in the enzymes involved in the metabolic pathways of substances; alterations in genetic expression of central nervous system receptors mediating substance effects

Temperament and personality traits—Antisocial personality disorder; sensation seeking trait

Familial factors—Familial attitudes that are favourable to the use of substances; parental modelling of substance misuse; poor or inconsistent parenting practices

Early onset of substance use—Individuals who report drinking before the age of 15, for example, are about four times more likely to develop alcohol dependence than those who delay starting drinking until young adulthood

Emotional and behavioural problems—Conduct disorder; depression; attention-deficit/hyperactivity disorder

Poor social connections—To school and to community groups, for example

Peer use of substances—This is one of the strongest predictors of substance misuse in young people

Non-specific signs of substance misuse

Physical complaints—Increased fatigue, repeated unexplained health complaints

Emotional changes—Friends or relatives noting personality change; onset of lowered mood; lack of interest in usual activities; withdrawal from family; sudden changes in mood

Social problems—Irresponsible behaviour; decline in school performance, attendance, or conduct; more time spent with new friends who are less interested in standard home and school activities; legal complications; increased need for money

educational, and vocational background of the adolescent as well as potential mental health problems. As concurrent misuse of more than one substance is common among adolescents, it is important to ask specifically about each substance, including alcohol and tobacco. A urine screen may be a useful tool to assess the range of substances used in the previous days.

Specific signs of substance misuse

Intravenous drug habit—Pupil constriction (opiates); venepuncture marks and old scars (on cubital fossa, forearm, lower limb, or neck)
Inhalant misuse—Paint stains on clothing and skin (particularly around mouth and nose and on hands); chemicals smelt on breath
Withdrawal effects—Agitation, tremor, tachycardia, or dilated pupils (associated with some drugs, such as opiates)

History and physical examination in assessment of substance misuse in adolescents

General areas	Specific issues
<i>History (also explore reason for presentation)</i>	
Substance misuse	Ask about quantity, frequency, typical pattern of use, age of starting, time of most recent use, administration
Risk behaviours related to substance misuse	Ask about frequency of intoxication, bingeing, overdosing, driving habits, unsafe sex, sharing needles
Development of tolerance	Ask adolescent if he or she needs more of the substance now, compared with before, to achieve same effect
Complications related to substance misuse	Ask about hepatitis B and C; HIV; liver disease; seizures (if so, when using substance or when withdrawing from it?); cardiac problems
Psychiatric history	Ask about depression and anxiety, insomnia, hallucinations, paranoia, self harm and suicide attempts, schizophrenia, and drug induced psychosis
Social history	Ask about support, relationships, living environment, education and employment, legal complications of substance misuse, family history of substance misuse
<i>Examination</i>	
Evidence of intoxication?	Alcohol: alcohol on breath, blood alcohol concentration, sedated, slurred speech, or ataxic gait? Opiates: pinpoint pupils, low blood pressure, or venepuncture marks? Benzodiazepines: disinhibited or intoxicated but not drunk? Psychostimulants: rapid speech, large pupils, agitation, restlessness, or high blood pressure?
Evidence of withdrawal?	Alcohol: tremulous, or high blood pressure? Opiates: dilated pupils, high blood pressure, sweaty, rhinorrhoea, or cramps? Benzodiazepines: tremulous, hyper-reflexia, depersonalisation, hypersensitivity? Psychostimulants: agitation or restlessness?
Other observations	Underweight, anaemic, jaundiced, or splinter haemorrhages in nailbeds? Intravenous drug use: injection sites (present, absent; new, old), cellulitis, abscesses, or thrombophlebitis? Inhalants: paint on fingers? Smell of solvent on the breath?
Other disorders	Respiratory infection, endocarditis (especially right sided), hepatomegaly, mental health problems and neurological disorders (peripheral neuropathy, ataxia) secondary to alcohol or inhalant misuse?

Assessing dependence

It is important to identify when the substance misuse has led to dependence and when it has not. Dependence is likely when the young person experiences (a) difficulty controlling (that is, limiting) use of the substance despite considerable negative consequences; (b) tolerance to the substance, needing increasing amounts to get the same effect; and (c) withdrawal symptoms when not using that substance.

Preventing substance misuse by adolescents

- Substance misuse by adolescents is shaped by several factors including the economic, physical, and social environment
- Narrowly focused short term interventions, such as mass media campaigns, have been largely ineffective in adolescents
- Programmes are more likely to succeed if they take a long term perspective; encourage acquisition of skills; promote social inclusion; and are appropriate developmentally for young people

Managing substance misuse

Helping a young person to reduce or stop substance misuse requires patience, an open minded and non-judgmental approach, and an understanding of the stages of change in human behaviour. Doctors can help facilitate change, but only the individual can change his or her behaviour.

Stages of change

Behaviour change takes time. Change passes through several stages that have been well described (Prochaska, 1991; see Further Reading box).

Many young people who smoke tobacco or who often have drinking binges have not seriously considered changing. Consultations therefore can involve general discussion with the young person about his or her smoking or drinking, without

Keeping in mind the process of change is integral to working with adolescents

the assumption or expectation that there will be an immediate change in current pattern of misuse. Motivational conversations about the benefits and risks of change provide important opportunities for advising young people what the potential harms of substance misuse are, how to recognise escalating use, and which strategies are useful for avoiding these adverse outcomes. This can help young people to move from the precontemplation stage to the contemplation stage.

Treatment options

Once the young person decides to take action on his or her substance misuse, options for management include (a) counselling, including brief therapy such as cognitive behaviour therapy; (b) drug withdrawal or "detoxification" either in a residential setting or as an outpatient; (c) pharmacotherapy (preferably after consultation with a drug and alcohol specialist); and (d) rehabilitation through an outpatient programme or in a residential setting. These interventions are used in varying ways and in differing contexts of substance misuse in young people. It has not yet been clearly established which strategy or approach is the best. Harm reduction strategies, which aim to minimise harm while reducing use, are an important part of the overall strategy to reduce drug related harm.

Comorbidities of substance misuse

As well as working with the young person to move him or her towards reduced substance misuse, primary healthcare practitioners need to monitor medical issues—from nutrition and sexually transmitted diseases to HIV screening and mental health concerns.

Setting realistic expectations

Managing substance misuse in adolescents requires patience because complex behaviours and emotions take time to change and usually follow a fluctuating course, with frequent relapses. Positive reinforcement through comments on any change in substance misuse behaviour, however small, can be valuable in continuing to motivate the individual.

This is particularly important in the context of relapses. Substance misuse usually follows a chronic relapsing course, yet relapses are rarely anticipated. Some young people may expect one admission to a detoxification unit to be sufficient to "cure" them of their drug habit. Reassurance that relapse is normal reduces the sense of failure that potentially undermines any motivation to continue.

Reminding the adolescent of previous successes and exploring with them what they understand to be the cause of the relapse is important. This may help them to understand patterns in their behaviour, which they can modify in the future. In cases of severe substance dependence, medically supervised withdrawal followed by rehabilitation, either in a residential setting or as an intensive outpatient programme, are indicated.

Reintegration

An important part of managing chronic substance misuse includes reintegration into education and employment and into healthier alternatives to substance misuse, such as sport and other activities or hobbies.

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Topics for motivational conversations in drug and alcohol work with young people

Increasing motivation to change and therefore progress from precontemplation to contemplation can occur through exploring:

- The advantages and disadvantages of the misuse (for example, "Drinking can make you feel relaxed and at ease in company, but sometimes being drunk can be an ugly look. What is your experience?")
- The factors that bother them most about potential behaviour change (for example, girls often worry that they will gain weight if they stop smoking)
- Their reactions to the adverse consequences of which they are currently at risk (for example, unwanted pregnancy or sexually transmitted disease through having had unsafe sex while intoxicated)

Harm reduction strategies may include encouraging moderation as well as abstinence; providing information on safe levels of alcohol consumption; advising on hazards of drinking and driving; providing information on health risks of drugs; advising not to share needles; and giving phone helplines and other information sources

Further reading

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