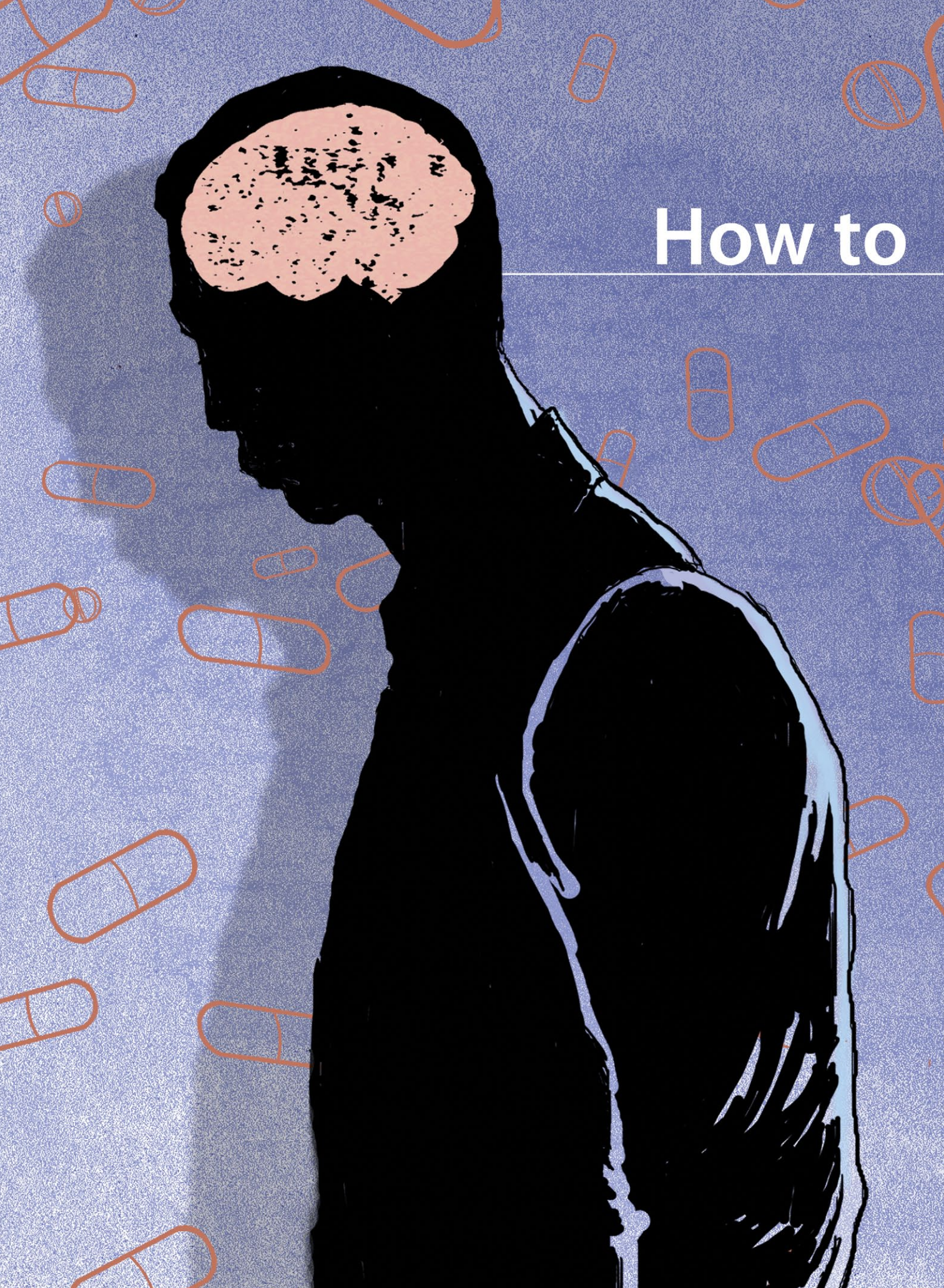


How to



prevent misuse

of psychotropics among college students

Minimize misuse through counseling and identifying students at risk

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Many college students suffer from mental illness (*Table 1, page 30*),¹ which can have a negative impact on academic performance. Although psychotropic medications are an important part of treatment for many college students, the potential for misuse always is present. Drug misuse occurs when patients use medications for reasons inconsistent with legal or medical guidelines.² For example, patients may take a medication that has not been prescribed for them or in a manner that is inconsistent with the prescriber's instructions, including administration with other substances.³

Misuse of psychotropic drugs is prevalent among college students. A study of 14,175 students from 26 campuses reported that 14.7% of students taking a psychotropic are doing so without a prescription, including stimulants (52.6%), anxiolytics (38.4%), and antidepressants (17.4%).⁴ Another study states that more than one-third of responders reported misuse of >1 class of medication.⁵

Psychotropic misuse is concerning because it increases the risk of adverse events. Nearly one-half of medication errors are associated with writing and dispensing the prescription, which means that prescribers can work to reduce these errors.⁶ However, nonadherence, prescription misuse, and failure to disclose use of over-the-counter drugs, illicit drugs, and herbal products makes preventing most adverse events difficult, if not impossible, for prescribers.^{7,8}

Psychotropic drug misuse among college students is highly variable and unpredictable. Students misuse medications, including stimulants, benzodiazepines, and antidepressants, for a variety of reasons, such as study enhancement, experimentation, intoxication, self-medication, relaxation, and stress management.⁸ One survey reported that >70% of students tak-



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Non-oral use of stimulants is associated with additional health concerns, such as accidental death or blood-borne illnesses



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Table 1

Psychiatric conditions for which college students seek treatment

Condition	Prevalence ^a
Anxiety	14.3%
Attention-deficit/hyperactivity disorder	5.3%
Depression	12%
Panic attack	6.7%
Substance use or addiction	1%

^aAmong all college students
Source: Reference 1

ing a psychotropic medication took it with alcohol or another illicit drug.⁹

However, <20% of those using a psychotropic medication with alcohol or other illicit drugs told their health care provider(s),⁹ making it impossible for clinicians to predict a patient's risk of drug-drug interactions and subsequent adverse events. Additionally, additive effects could occur¹⁰ and changes in a patient's presentation could be caused by a reaction to a combination of medications, rather than a new symptom of mental illness.

This article will examine common issues associated with drug misuse among college-age students and review prevention strategies (*Table 2*).

Stimulants

Stimulants have the highest rate of diversion; 61.7% of college students prescribed stimulants have shared or sold their medication.¹¹ A survey of 115 students from 2 universities reported that the most common reason for stimulant misuse was to enhance academic performance.¹² The same survey showed that some students take stimulants with *Cannabis* (17%) and alcohol (30%).¹² As a result, in addition to lowering grade point average (GPA) and other academic difficulties,¹³ students misusing stimulants are at risk of drug interactions.¹⁴

It is critical to ascertain the route of drug administration, because non-oral routes, including crushing then snorting or injecting, are associated with additional health

concerns, such as accidental death or blood-borne illnesses.^{15,16} Cardiac adverse effects of stimulants include hypertension, vasospasm, tachycardia, and dysrhythmia; psychiatric and other effects include serotonin syndrome, hallucinations, anxiety, paranoia, seizures, tics, hyperthermia, and tremor.¹⁷ Health care providers prescribing or caring for people taking a stimulant should monitor for these potential effects.

The risk of switch to mania might not be apparent to those who prescribe stimulants or to young people who take non-prescribed stimulants for academic enhancement or to achieve medication-induced euphoria. Adolescent stimulant use is associated with symptoms of early-onset bipolar disorder in patients who have attention-deficit/hyperactivity disorder (ADHD) and undiagnosed bipolarity.¹⁸

The cardiovascular risk associated with stimulant use is debatable. Although several studies have been conducted,¹⁹⁻²¹ methodological factors limit their applicability. To minimize potential risks, several precautions should be taken before prescribing a stimulant to treat ADHD.

First, obtain a detailed personal and family medical history, asking about possible cardiovascular disease. Second, carefully scrutinize the patient's cardiovascular system during the physical exam. Third, consider additional testing, such as an electrocardiogram, if the patient's history or physical exam indicates possible risk.²²

As a prescriber, you should be aware of the prevalence of stimulant use among students with and without ADHD, including those who could be feigning ADHD symptoms.¹⁵ Diversion could occur through sharing medications or selling them to friends and family.¹¹ It also is possible that these medications may be used with other illicit substances, such as *Cannabis*, ecstasy, cocaine, and opiates.²³ Students also could misuse stimulants by taking more than the prescribed dosage.²⁴

Risk factors for misuse of stimulants include: heavy alcohol use, previous illicit drug use, white race, fraternity or sorority membership, low GPA, increased hyperactivity symptoms, and attendance at a competitive college or university.²⁵⁻²⁷

Benzodiazepines

Misuse of benzodiazepine is a significant component of prescription drug abuse and often occurs with other medications and alcohol.²⁸ Additional methods of misuse include increased dosage and non-oral routes of administration.²⁹

A 2001 national survey reported that 7.8% of college students have misused benzodiazepines.²³ Common characteristics of benzodiazepine abusers include young age, male sex, personality characteristics of impulsivity and hopelessness, and abuse of other drugs, including cocaine and methadone.^{28,29}

Benzodiazepines are prescribed for their anxiolytic and hypnotic properties and students could use these drugs with other agents to augment the euphoric effects or diminish withdrawal symptoms.³⁰ Patients taking benzodiazepines for anxiety might self-medicate with alcohol, which increases sedation and depression, and can contribute to the risk for respiratory depression.¹⁰ Misuse of benzodiazepines can result in cognitive and psychomotor impairment and increase the risk of accidents and overdose.^{29,31}

Although overdose with monotherapy is rare, the risk increases when a benzodiazepine is used with alcohol¹⁰ or another respiratory depressants, such as opioids, because combination use can produce additive effects.²⁸ You should therefore avoid prescribing benzodiazepines to patients who have a history of significant substance abuse and consider using alternative, non-addictive agents, such as selective serotonin reuptake inhibitors, or non-pharmaceutical treatment

Table 2

Strategies for preventing prescription drug misuse

Maintain a personal formulary
Evaluate the risk of misuse before prescribing; attempt to prevent misuse by limiting the quantity of medication and minimizing polypharmacy
Work with pharmacists to educate patients about the risks of misuse
Be aware that stimulant use is prevalent among students with and without attention-deficit/hyperactivity disorder, including those who might be feigning symptoms
Limit the dosing and duration of treatment, and use longer-acting formulations rather than the more addictive, shorter-acting agents
Employ caution when prescribing bupropion to patients who have predisposing clinical factors that increase the risk of seizure
Remind patients that their medications should be taken only as directed and never shared with others

when such patients present with an anxiety disorder. The risk of adverse effects of benzodiazepines can be reduced by limiting the dosing and the duration of the treatment, and by using longer-acting rather than the more addictive, shorter-acting, agents.

Antidepressants

Health care providers should be aware that, despite the relative absence of physically addictive properties, antidepressants from

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Avoid prescribing benzodiazepines to patients who have a history of significant substance abuse, and consider alternative, non-addictive agents

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Psychostimulants and college students: 7 steps to prevent misuse

Author Shailesh Jain, MD, MPH, ABDA

Although treating attention-deficit/hyperactivity disorder with first-line stimulants may reduce the incidence of substance use disorders, monitor patients closely to ensure therapeutic drugs are not being misused or abused.

Find this article in the March 2012 issue of CURRENT PSYCHIATRY and CurrentPsychiatry.com

most classes are abusable agents sought by young people for non-medical use. In particular, the literature highlights monoamine oxidase inhibitors (MAOIs), tricyclic antidepressants, serotonin-norepinephrine reuptake inhibitors, and bupropion as the antidepressants most likely to be misused for their amphetamine-like euphoric effects or serotonin-induced dissociative effects.³² However, compared with other drug classes discussed in this article, the rate of antidepressant misuse is relatively low among college students.

Regardless of the antidepressant selected, clinicians should be concerned about alcohol use among college-age patients. Persons with depression are at increased risk of alcoholism compared with the general population.³³ This combination can increase depressive symptoms and sedation, and decrease coordination, judgment, and reaction time.³³

Excessive alcohol use can increase the risk of seizures in patients taking antidepressants such as bupropion.³⁴ Employ caution when prescribing bupropion to patients who have a predisposing clinical factor that increases seizure risk, such as excessive alcohol use and abrupt cessation, use of other medications that may lower seizure threshold (eg, theophylline, amphetamines, phenothiazines), and a history of head trauma.³⁴

To minimize the risk of seizures with bupropion, titrate up the dosage slowly. Furthermore, using a low dosage during dual therapy for antidepressant augmentation further decreases the risk of seizure.³⁵ For these reasons, we recommend that you avoid bupropion in patients who are at risk of binge drinking, and give careful consideration to providing alternative therapies for them.

Prescribers and patients should also keep in mind that hypertensive crisis could occur if MAOIs are combined with certain types of alcoholic beverages containing tyramine, including some wines and draft beer.³³

How you can identify and prevent misuse

Careful communication between health care provider and patient that is necessary

to minimize the risk of adverse drug events with psychotropic medications often is lacking. For example, 24% of study college-age participants did not remember if their physician provided a diagnosis and 28.8% could not recall being informed about side effects and, perhaps as a result, many students did not take their medications as prescribed.⁹

Further, prescribers should ask college-age patients who are undergoing stimulant treatment if they believe that they are being adequately treated. They should inquire about how they are taking their medications.¹¹ These questions can lead to discussion of the need for these medications and reevaluation of their perceived indication.¹¹

Remind patients to take their medication only as directed.³⁶ Highlight the need to:

- store medications in a discreet location
- properly dispose of unused medications
- keep tabs on the quantity of pills
- know how to resist requests for diversion from peers.

The Substance Abuse and Mental Health Services Administration offers additional useful strategies,³⁷ and pharmacists also can be partners in substance use education and prevention.³⁸ These are examples of how health care providers can take an active role in providing patients with a thorough and detailed understanding of (1) their conditions and (2) their prescribed medications to improve efficacy and safety while preventing misuse.⁸

A study found that the most common method of obtaining these medications without a prescription is acquiring them from peers; 54% of undergraduate patients with stimulant prescriptions have been approached by peers to give, trade, or sell their drugs.²⁵ Other methods include purchasing medications online or faking prescriptions.³⁹ Health care providers should remind patients of the legal ramifications of sharing or selling their prescribed medications. Finally, providers must be vigilant for students who may feign symptoms to obtain a prescription:

- be wary if symptom presentation sounds too “textbook”
 - seek collateral history from family.
- Adults with ADHD should have shown symptoms during childhood

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Be vigilant for students who feign symptoms to obtain a prescription



Psychotropic misuse

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To further protect patients from adverse outcomes, employ conservative and safe prescribing techniques

Related Resources

- American College Health Association-National College Health Assessment. www.acha-ncha.org.
- Schwartz VI. College mental health: How to provide care for students in need. *Current Psychiatry*. 2011;10(12):22-29.

Drug Brand Names

Bupropion • Wellbutrin, Zyban Theophylline • Theo-24,
Methadone • Methadose, Theolair, Uniphyl
Dolophine

- use external verification such as neuropsychological testing for ADHD. A neuropsychologist can detect deception by analyzing the pattern of responses to questions.

Patient assessment is a key step to in preventing abuse of psychotropic medications. Gentle inquiry about school-related stress and other risk factors for misuse can help practitioners determine if students are at risk of diversion and if additional screening is necessary.

In response to these issues, Stone and Merlo⁸ have suggested that, in addition to the educational programs held on college campuses on alcohol, illicit drugs, and prescription painkillers, patients should be better informed on the appropriate use of prescription psychiatric medications, instructed to avoid sharing with family and friends, and assessed for abuse risk at regular intervals.

To further protect patients from adverse outcomes during treatment, you can employ conservative and safe prescribing techniques. One strategy might be to keep a personal formulary that lists key medications you use in everyday practice, including knowledge about each drug's dosage,

potential adverse effects, key warnings, and drug–drug interactions.⁴⁰

Furthermore, maintain healthy caution about newly approved medications and carefully consider how they measure up to existing agents—in other words, practice evidence-based medicine, particularly when students request a particular agent.^{40,41} Prescribers should evaluate the risk of abuse before prescribing and attempt to prevent misuse by limiting quantities and minimizing polypharmacy.

Last, pharmacists can be key allies for consultation and appropriate medication selection.

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Bottom Line

Psychotropic medications are necessary to treat the variety of conditions—anxiety, attention-deficit/hyperactivity disorder, depression, and panic disorder—common among college students. However, students are at risk of combining their prescribed medications with other medications, drugs, and alcohol or could sell or share their medication with peers. Proper counseling and identification of risk factors can be important tools for preventing such events.

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