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Adam Trimble  
*Ohio Northern University*

Cody Hay  
*Ohio Northern University*

Lindsay Mark  
*Ohio Northern University*

Heather Helsel  
*Ohio Northern University*

Tom Kier  
*Ohio Northern University*

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Adderall®: Understanding and Preventing its Abuse Amongst College-aged Students

Adam Trimble, fifth-year pharmacy student from Erie, Pa.; Cody Hay, fourth-year pharmacy student from Celina, Ohio; Lindsay Mark, fourth-year pharmacy student from Union, Ky.; Heather Helsel, fifth-year pharmacy student from Mentor, Ohio; Tom Kier, PharmD, associate dean of pharmacy operations

There are many reasons why a college student would illicitly use drugs, and some students even deem illicit use of prescription medications as morally justifiable.
Introduction

Drug abuse is a growing problem in the United States with respect to both prescription and nonprescription drugs. We currently live in a society where drug abuse is given a negative connotation, but regardless of the stigma, we continue to see it being especially problematic in college-aged individuals. The 2011 National Survey on Drug Use and Health (NSDUH) is an annual survey that provides insight to the extent of drug abuse in the United States. The 2011 NSDUH found illicit drug use rates in adults between eighteen and twenty-five years old were substantially higher (21.4 percent) than teenagers from 12 to 17 years of age (10.1 percent) and adults greater than 25 years of age (6.3 percent). Illicit drug use continues to be on the rise with increases seen from 19.7 percent in 2008 to 21.4 percent in 2011 among individuals from 18 to 25 years of age. There are many reasons why a college student would illicitly use drugs, and some students even deem illicit use of prescription medications as morally justifiable. Illegal prescription abuse is seen on college campuses across the United States with the abuse of prescription stimulants, especially Adderall®.

Adderall®, a mixed amphetamine and dextroamphetamine salt, is a schedule II substance and member of the stimulant class. The indicated uses for Adderall® per the Food and Drug Administration (FDA) are treatment of Attention Deficit Hyperactivity Disorder (ADHD) and narcolepsy. Other stimulant drugs that also have use in the treatment of ADHD include: Ritalin®, Concerta®, and Dexedrine®. Adderall® works to correct neurotransmitter imbalances in patients who suffer from ADHD. These patients display suboptimal stimulation of regions of the brain associated with focus and learning, as well as increases in areas controlling movement. This leads to primary pathological symptoms including inattention, hyperactivity, distractibility, and impulsivity.

Therapeutically, acute administration of stimulant drugs works to increase CNS arousal and hyperactivity, in addition to a noticeable side effect of pleasure, elation and euphoria, which again contribute to its potential for abuse. Extended release and controlled release Adderall® formulations inherently contain a higher dose of amphetamine salts, which are distributed in a steady, dose-dependent manner as described by the basic pharmacokinetic properties of the individual dosage form. These products have a higher market for abuse as crushing the tablet into a fine powder to be inhaled or injected destroys the mechanisms that release the dose over a period of time causing an immediate, high dose concentration of the drug. When these drugs are crushed and then administered intranasally, signal transduction produces stimulant effects similar to those of cocaine. Although proper administration can decrease the addiction potential with use of prescription stimulants, abuse is a growing problem on many college campuses.

Many studies have looked into the prevalence of prescription stimulant abuse on college campuses across the United States. McCabe et al. were the first to research prescription stimulant abuse from a national perspective and surveyed over 10,000 students at 119 colleges. Overall, they found 6.9 percent of students had used prescription stimulants in their lifetime. When analyzing individual colleges, prevalence rates varied drastically. The percentage of students who used prescription stimulants across college campuses ranged from zero to 25 percent. While McCabe et al. looked at stimulant abuse across the entire United States, numerous studies have researched individual colleges. These smaller, individual college-based studies also showed varying prevalence. Weyandt et al. concluded that 9.3 percent of students on one college campus had illegally used prescription stimulants in their lifetime, with 7.3 percent using within 30 days of the study. Additionally, one study even found prevalence on an individual college campus to be as high as 34 percent. Analysis of the aforementioned surveys demonstrates that prescription stimulant abuse is prevalent on college campuses across the entire nation.

Multiple factors play a role in the incidence of stimulant abuse on individual college campuses. For example, a national study showed that students at schools with highly competitive admission standards were two times more likely to illegally abuse prescription stimulants than students who attended schools with less competitive admission standards. This raises the question, “Are high academic standards forcing students to resort to prescription stimulant abuse in order to gain an academic edge?” The number one motive given by students for prescription stimulant abuse was to achieve an academic advantage. Specific reasons pertaining to this advantage include: increasing concentration levels, reading comprehension, interest, cognition and memory, while decreasing fatigue. Other non-academic motives included weight loss, “getting high,” and experimentation.

In-depth interviews by DeSantis et al. in a follow-up study looked specifically at students’ perception and justifications for stimulant abuse. These researchers categorized student responses into four main justifications. The first reason students provided was the belief that Adderall® had better outcomes when compared to other “party drugs.” Many students felt that they were using these medications for the right reasons and some students went as far as to claim that Adderall® is not a drug, but rather a study tool. Some students reasoned that Adderall® was not harmful as long as it was used in moderation and only taken when needed. Researchers noted that when students discussed moderation, they were referring to frequency of use, not dosage size. Some students were not even aware Adderall® had different dosage strengths. Another justification for using Adderall® was that students felt they had undiagnosed ADHD and were simply self-medicating. Finally, students believed prescription stimulants were completely safe and harmless, although many admitted to having little to no health information on prescription stimulants. In fact, some students saw no difference between Adderall® and caffeine.
How are Students Acquiring These Medications?
Adderall® and other stimulants are classified as schedule II drugs, which means by law only a 30 day supply can be dispensed with no refills. While under the stringent regulation by the FDA, how does a drug such as Adderall® become so readily available to students? The answer to this question may be provided by one study that analyzed outpatient prescribing patterns for patients from 0 to 17 years of age between 2002 and 2010. Conclusions indicated that during this time period, prescriptions for ADHD medications increased by 46 percent. They also found methylphenidate (Ritalin) was the most prescribed prescription for children ages twelve to seventeen, while Adderall® was the fifth most prescribed medication for this age group. Results from this study concluded that there were an increasing number of prescriptions for ADHD stimulants, especially for teenagers who would soon be entering college. When researchers asked students about the level of difficulty to obtain prescription stimulants, approximately half of students believed it was easy. In-depth interviews with students revealed how these medications circulated throughout college campuses so quickly. Conclusions from these interviews revealed that many students who had legal prescriptions did not take their prescription daily and instead, these students took Adderall® as needed and then sold the surplus.

Adderall® Abuse: Why Is This a Problem?
Adderall® abuse is a large concern among the college community because of the potential adverse events, drug interactions and lack of knowledge among students. Being a schedule II drug, Adderall® requires the tightest FDA regulation due to its large potential for abuse. In fact, the potential for abuse is one of the “black box” warnings instilled upon this class of medications. The other “black box” warning associated with this prescription stimulant is an increased risk of cardiovascular events. College students, like many other abusers, are especially vulnerable to experiencing adverse events due to their lack of knowledge regarding these medications.

Due to the perceived benefits of these stimulants, researchers estimate that students will continue to abuse these medications regardless of potential harm. Additionally, frequent prescribing of stimulants from physicians is not helping to alleviate the problem either. In October 2012, the New York Times article “Attention Disorder or Not, Pills to Help in School” reported emerging prescribing patterns of Adderall® to low income elementary school students struggling in school. The story described physicians prescribing stimulants to elementary and middle school students without a true diagnosis of ADHD. Instead, these prescriptions were used to boost academic performance. When questioned, physicians felt that their decision was justifiable in order to help struggling students who could not afford behavior-based therapies such as tutoring or counseling. Parents in this report also agreed with their physician’s decision and encouraged their children to take these stimulants. One mother stated that although her children do not like taking their medications, she forced them in order to achieve higher grades.

The study by DeSantis et al. found that out of the 1,811 students evaluated, only 4 percent had a legal prescription for Adderall®. As a result, students with legal prescriptions were the individuals distributing Adderall® throughout campus. Therefore, as parents continue to utilize Adderall® in order for their children to achieve high grades and have a successful academic career, accessibility to this stimulant on college campuses will continue to rise.

In addition to physician prescribing patterns, students are also manipulating doctors to receive a stimulant prescription. According to another article by the New York Times, “Risky Rise of the Good-Grade Pill,” students claimed it was easy to obtain a prescription by lying to physicians. During an appointment with their physician, students falsely report experiencing the common symptoms of ADHD. Based upon this evaluation, physi-
cians then commonly prescribe a stimulant medication. As students continue to gain access to Adderall® both legally and illegally, this abuse is only expected to rise in the future. Though many may deem the use of Adderall® to be safe, there are currently no long term studies published that analyze effects of Adderall® abuse within the young adult population.

With prescription stimulant abuse being a growing problem, many are unaware of the legal implications involved with the distribution and use of prescription stimulants. A common misconception students have is the legal repercussions associated with prescription selling and abuse. This belief was demonstrated by a series of student interviews conducted by Desantis et al. According to one student, "[O]ther drugs have jail sentences that people get for using them and distributing them. With Adderall®, it's done all over without people getting in trouble."

Contrary to this belief, the penalties for the illicit use, possession and dispensing of scheduled drugs, including Adderall®, range from a third-degree misdemeanor to a fourth-degree felony with an associated prison term.

**Pharmacist Impact**

Because pharmacists are on the front lines of patient interaction, the duty falls on the profession to further educate patients about illicit stimulant abuse. Pharmacists have an obligation to use professional judgment and determine the right course of action for medication therapies. By urging for more stringent prescribing regulations to informing patients about the illegal distribution of these medications, the abuse of stimulant medications can be decreased.

Professional organizations such as the American Pharmacists Association (APhA) and the American Society of Health-System Pharmacists (ASHP) are striving to reduce drug abuse. APhA encourages pharmacists to raise awareness and educate their patients about prescription drug abuse. According to APhA,

"Stronger educational efforts aimed at prescription and nonprescription medication abuse prevention are critically needed, and many existing resources can be used in these efforts. Pharmacists, student pharmacists and pharmacy technicians have the expertise and community connections to use these resources toward the improvement of public health."

Similarly, ASHP has supported the development of substance abuse prevention and assistance programs as well as identified the need for a multidisciplinary controlled-substance inventory system. Both APhA and ASHP have declared that pharmacists can aid in the education of drug abuse by providing information about support groups to patients, the appropriate use of medications, and by maintaining professional competency through formal and informal continuing education.

Despite the negative stigma of drug abuse, college-aged students are still using illicit drugs and abusing prescription medications. With the current prescribing trends, some perceive this problem will continue growing. Many students believe that although Adderall® is a prescription medication, it is safe to take without a prescription as long as it is used as needed. Given that Adderall® seems to be easily obtainable from friends and physicians, education of the patient seems to be the best option to stop Adderall® abuse. As the drug experts, pharmacists are in a prime position to take on this role in the fight against prescription stimulant abuse.
References


