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Adderall Abuse on College Campuses

A Comprehensive Literature Review

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This article summarizes several issues that relate to the misuse of Adderall—a prescribed stimulant—among college and university students. Matthew D. Varga discusses the factors that might contribute to misuse of Adderall, the implications of misuse for students, the challenges for university administrators, and interventions that might assist students who misuse Adderall.

In 2007, Major League Baseball found itself in a whirlwind of accusations, congressional hearings, skeptical records, and questionable credibility at a time when steroid use was *technically* (emphasis added) not a violation of Major League Baseball policy. However, that did not stop fans or the media from lashing out, criticizing, and boycotting the sport. Players such as Sammy Sosa, Mark McGuire, and Barry Bonds—previously considered among the greatest players in the history of baseball—suddenly found their careers and successes scrutinized for cheating. Barry Bonds, Mark McGuire, and Sammy Sosa became the poster boys for society's anger at cheating for personal gain, unfair competition, and the use of performance enhancing chemicals.

Unfortunately, as common as this story may be in other professional athletics, it is becoming increasingly common in not only high school athletics (Dodge and Jaccard 2006), but also high school academics (Wroble, Gray, and Rodrigo 2002). Indeed, high school students' use of anabolic steroids reportedly increased 126% between 1991 and 2003 according to The National Center on Addiction and Substance Abuse (CASA 2005). CASA revealed that approximately 1.7 million high school students admitted self-medicating with prescription steroids in 2003 (CASA 2005). The actual cause for this increase is little more than speculation, but one study explained high school students' motives as improving physical appearance, bettering athletic abilities, and impersonating adults (Kindlundh, Isacson, Berglund, and Nyberg 1999). The serious health consequences that accompany anabolic steroids deter very few users. In fact, the passion to achieve their dreams and outdo competitors is so great, anabolic steroid users may intentionally risk their life obtaining personal goals despite steroid use being widely condemned by society (Wichstrom and Pedersen 2001).

One of the most commonly known performance enhancers is anabolic steroids. Recently,

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another variation of performance enhancers has become introduced onto campuses across the country and has gone relatively unnoticed by teachers, professors, administrators, and others. However, most high school and college students are quite aware of this world, so much so that campus cultures begin to morph into a microcosm that expects the abuse of prescription stimulants. Middle schools, high schools, and especially colleges are encountering students who abuse prescription narcotic stimulants such as Adderall, Ritalin, and others, in hopes of achieving higher grades, getting "high," or other effects (Moline and Frankenberger 2001).

Students may be exposed to prescription stimulants as early as middle school and continue using into college, resulting in nonpatients becoming exposed to the drugs and the effects. As more students are introduced to these stimulants and acknowledge perceived benefits, the harmful and additive attributes may go unnoticed compared to the benefits students possibly experience. The consequence of this behavior is a gross misperception of a drug capable of assisting attentiveness and concentration that improve academic performance. This becomes even more dangerous when accounting for the current student generation's academic ambitions. Prescription stimulant use is spreading across college campuses and instead of condemnation it is implicitly being praised and validated by parents and students who view these drugs as a means of academic assistance by increasing attentiveness and concentration (Babcock and Byrne 2000; Hall et al. 2005; McCabe, Teter, and Boyd 2006; Teter et al. 2005; White et al. 2005).

The following personal experience involves working with a small group of student athletes and is an example of how some students misperceive the benefits of prescription stimulants as a miracle drug. One night the author was reviewing a student athlete's upcoming academic week, which included reading three books and studying for an exam, an essay, and a quiz. This student athlete broke down crying in fear of failing and losing NCAA eligibility. The author and student reviewed the assignments and broke them down into daily tasks. The author then asked the student how she felt about her upcoming week. She responded, "I feel better; besides, I will get Adderall from my friend and just pump it out." The response was incredibly carefree, and the only concern she had was completing her assignments and maintaining eligibility. Unfortunately, this mindset is common among a majority of college students striving for success, both academically and professionally (Babcock and Byrne 2000; Cavagnero 2006; Comos and DeBard 2004).

A whole host of prescription stimulants has increasingly found its way onto college campuses, and they are being used in ways and by persons for which they were not necessarily intended. These drugs include methylphenidate (e.g., Ritalin, Concerta), dextroamphetamine (e.g., Dexdrine), Sibutramine hydrochloride monohydrate (e.g., Meridia), and amphetamine-dextroamphetamine, also known as Adderall (CASA 2005). The Controlled Substances Act classifies the aforementioned drugs as schedule II drugs due to the high potential of addiction, medical/non-medical abuse, and for patients and nonpatients to self-medicate, use for recreation, or sell to non-patients is high (CASA 2005). For example, 2.3 million middle and high school students are reputed to self-medicate with Adderall and Ritalin, an increase of 212% from 1992 to 2003 (CASA 2005).

While widely used in the past to treat asthma and other respiratory problems including obesity and specific neurological disorders, stimulant medications are becoming the primary treatment for mental disorders such as Attention Deficit Disorder and Attention Hyperactivity Disorder despite medical concerns about stimulants' abusive and addictive potential. The effects of these drugs can produce a pleasurable effect, similar to cocaine, speed, and Ecstasy. Hard drugs such as these and said prescription stimulants replicate the natural brain chemicals effecting neurotransmitters called norepinephrine and dopamine, which assists patients with Attention Deficit Hyperactivity Disorder (ADHD) focus and concentrate comparable to students without the disorder. However, for those who do not suffer from ADHD the additional chemicals overload the brain with artificial chemicals producing a sense of pleasure resembling the effects of cocaine and speed, subsequently increasing the possibility of chemical dependence and addiction. Therefore, stimulant use is primarily reserved as a

treatment for a few disorders, including narcolepsy, ADHD, and, in some cases, depression (United States Drug Enforcement Administration 2005).

Despite the limited mental health disorders that suggest stimulants as a treatment, the diagnoses of these disorders, specifically Attention Deficit Disorder and ADHD, have significantly increased over the past 10 to 15 years and show little signs of slowing down (Howe and Strauss 2000); consequently, written prescriptions for stimulants have also increased during the same time. The aforementioned prescriptions for stimulants increased 368.5% from 1992 to 2002 (Drug Enforcement Agency 2002). An increase in Adderall production naturally followed increased demand requiring a production jump of approximately 9,008,000% over 10 years. It is the most widely prescribed stimulant, second only to Ritalin with 12,881,000 prescriptions from 1992 to 2002 (Drug Enforcement Agency 2002).

The dramatic increase in Adderall and Ritalin is suggestive of widespread use of these prescription medications, but we have only limited and speculative information about the extent of their use and/or abuse on campus. Various independent studies have assessed the levels of stimulant abuse on campuses. Surprisingly, the studies suggest comparable percentages of students self-reporting their illicit use; averaging the respective percentages, approximately 20% represent a campus subpopulation who abuse prescription stimulants, specifically Adderall and/or Ritalin (Babcock and Byrne 2000; Hall et al. 2005; McCabe et al. 2006; White et al. 2005). According to the 2004 National Survey on Drug Use and Health (NSDUH), young adults between the ages of 18 and 25 years self-reported the highest incidence of illicit prescription use (14.8%). Additionally, the 2004 Monitoring the Future (MTF) national survey revealed that the prevalence of non-medical use of several prescription drug classes was at its highest rate in 15 years; additionally, college students self-reported higher rates of Ritalin abuse than their non-collegiate peers: 4.7% to 1.6% respectively (Johnston et al. 2005). Interestingly, White college males reported a slightly higher rate of illegal use than White college females (16.1% to 13.4%).

While the studies of collegiate abuse found similar levels (20% of surveyed students) of reported use (Babcock and Byrne 2000; Hall et al. 2005; McCabe et al. 2006; White et al. 2005), additional findings from White et al. (2005) reported that 90% of the students denoting such use indicated they were not ADHD. Babcock and Byrne (2000) found that 40% of said students admitted to snorting the medication to increase the drug's intensity. Thus, while the evidence of abuse and illicit use remains limited and rests largely on self-reports, it is highly suggestive of extensive prescription stimulant abuse across campuses.

Purpose

The purpose of the author in this article is to examine stimulant abuse on college campus, review potential implications for failing to address the problem, and explore possibilities confronting the abusive behavior. The article consists of three sections: (a) factors contributing to illicit use, self-medication, and recreational use of controlled prescription stimulants as drawn from the literature; (b) discussion of potential consequences for those students abusing stimulants, and possible implications confronting higher education institutions; (c) finally, recommendations for educating, combating, and assisting students who illicitly use prescription stimulants.

Contributing Factors

Not all of today's students abuse stimulants; in fact the literature has shown approximately 20% of students self-report abusing Adderall and/or Ritalin on a college campus (Babcock and Byrne 2000; Hall et al. 2005; McCabe et al. 2006; White et al. 2005). However, it is unclear how many students are actually using, and not reporting it. Although, it can be speculated from those who self report using the stimulants and other variables within the literature that many factors may contribute to students abusing stimulants, but all of these factors cannot possibly be known. Further, students may be exposed to similar factors but only a few may demonstrate abusive habits. As a result, factors thought to contribute to Adderall abuse are generalized and based on the existing literature.

There are four main factors contributing to Adderall abuse: (a) pressure to succeed;

(b) socio-cultural expectations; (c) collegiate lifestyle; (d) and accessibility to prescription stimulants. Today, students are pressured to succeed more than in previous years (Howe and Strauss 2000). The origin of the pressure lies with increased parental expectations and their excessive educational involvement (Bishop 2003; Kadison and Digeronimo 2004; Taylor, Pogrebin, and Dodge 2002), competing within peer groups or maintaining unspoken standards (Bishop 2003; Taylor et al. 2002), meeting college admission requirements (Bishop 2003; *Chronicle of Higher Education* 2005; Farrell 2006; Kohn 2003), and/or personal academic expectations (Bishop 2003; Howe and Strauss 2000; Kadison and Digeronimo 2004; Sax 2003). There are socio-cultural factors contributing to students using Adderall such as growing up with multiple friends on prescription stimulants. Thirdly, the college lifestyle may contribute to some students' illicit use. A stimulant medication could assist with staying up late, social gatherings, and battling exhaustion from participating in multiple clubs and organizations (Brooks 2001; Dworkin 2005; Labig, Zantow, and Peterson 2005; Law 2007; Quintero, Peterson, and Young 2006). Finally, students have increased accessibility to stimulant drugs since more students are now on college campuses with peers legitimately receiving prescriptions for various mental disorders (CASA 2005; Kadison and Digeronimo 2004).

Pressure for Success

The desire for success is a strictly personal quest and can originate from a metaphysical or existential motivator. Additionally, defining what a student perceives as successful cannot be determined since it is very individualistic. However, external pressures that force students to use prescription stimulants can be determined. These include parental pressures, pressures regarding college admissions during high school, and the pressure coping with the collegiate lifestyle; additionally, there are personal pressures a student may have for him/herself.

Parental Pressures

More likely to have graduated college themselves, today's parents are more likely to understand the significance of grades, in addition to other necessities required for college (Howe and Strauss 2000). Parents are cognizant to the fact that colleges expect high grades, extracurricular activities, and various other requirements for admission. Parents of today's student are not ignorant to the hardships their son or daughter confronts during their academic pursuit. In fact, the pressure they place on students can be so great that students are forced to find additional methods, such as prescription drug abuse, to meet parental expectations.

Typically, the student's well-being is the primary motive for parents' ambitious expectations of their children; however, Kadison and Digeronimo (2004) argue another perspective. Parents are deemed "good parents" by society if their child is successful. Therefore, high expectations, providing multiple opportunities, and becoming aggressively involved in their students educational lives are means to ensure they are viewed as "good parents." As a result, some parents may continually raise expectations in academics, athletics, and community and social involvement to validate their parental worth and hope it benefits their children for the future (Kadison and Digeronimo 2004).

Whatever the motive for parents to place standards on their son or daughter one thing is certain: students experience intense pressure to succeed in school from their parents and failure is not an option. In support, Bishop (2003) reports 55% of students "work really hard in school" to please their parents and 44% do it in response to parental pressures (2). A quote from a teacher reinforces this idea of insurmountable pressure:

> I've seen increasing expectations, anxiety, and downright disappointment from parents . . . who expect their 17- or 18-year-old kids to have attained some rarefied state of perfection . . . at some parent conferences, I find myself defending bright, talented students whose mothers or fathers act as if they have a defective product on their hands. (Howe and Strauss 2000, 162)

Parents raise their academic expectations as the student progresses through school, and each new grade usually means harder coursework without lower expectations (Kadison and Digeronimo 2004).

Regardless of course load or difficulty level, parents expect students to earn high academic accomplishments consistently while maintaining extracurricular activities and a social life (Kadison and Digeronimo 2004). The parents unable to accept a mediocre or satisfactory performance may disprove of this level of performance with the best of intentions; but the pressure can have detrimental consequences. College students may feel "forced to cope" by abusing performance enhancing drugs like Adderall, or other drugs, to deal with the resulting stress and anxiety (Kadison and Digeronimo 2004).

High School Pressures

One college student averred, "In high school, it wasn't too difficult for the best students to rise to the top and for even average students to get exceptional grades"; however, she reported, once she began college her parents continued to expect the same academic success as she had had in high school, or even more (Kadison and Digeronimo 2004, 36). Such expectations increase the pressure to surpass previous academic performances. Satisfactory performance may be viewed as unacceptable by parents and students, since society is seen as becoming much more competitive (Bishop 2003; *Chronicle of Higher Education* 2005; Debard 2004; Farrell 2006; Howe and Strauss 2000; Kadison and Digeronimo 2004; Sax 2003; Taylor et al. 2002), requiring the student to be "better than" just to remain in competition.

This is no easy task in a generation of approximately 100 million (Howe and Strauss 2000) youth. Students are applying to colleges in record numbers and most admissions offices are receiving between an 8% (University of Michigan in 2006) and 41% (College of Holy Cross in 2006) increase in applicants (Farrell 2006). Kadison and Digeronimo (2004) explain the impact this has on students: "With record numbers of high school seniors applying for a finite number of spaces at public and private colleges and universities across the country, the institutes of higher learning have become far more selective than in the past" (35). Students quickly learn that good is not good enough; and that using prescription stimulants is sometimes interpreted as one means to get the edge on the competition.

High school is usually the birthplace of academic competition (Bishop 2003; Debard 2004; Howe and Strauss 2000; Kadison and Digeronimo 2004; Kohn 2003; Woodruff and Ziomek 2004). Students tend to view academic achievement in high school as the means to college acceptance. Bishop (2003) argues that 79% of students work hard just to earn the grades needed to get into college. The *Chronicle of Higher Education* (2005) interviewed six experts regarding the admissions' process as it stands today. Robin C. Brown, Vice President for Enrollment at Willamette University and Vice President for Admission, Counseling, and Enrollment Practices at the National Association for College Admission Counseling, captured the situation aptly, stating:

> Then there are the population increases that will continue to stretch our resources and prevent institutions from admitting qualified students. The increasing lack of predictability about who will be admitted, particularly to the most selective colleges, has added to the flood of applications into a system already overwhelmed; the proliferation of early-decision and early-action programs has increased confusion for students in a process already wrought with mystery. Changing admissions and standardized testing requirements add to the anxiety. Finally, management-enrollment practices that rely on offering some students discounted tuition add to the unpredictability about who will be admitted and, equally as important, may force institutions to admit students who are not the best fit. (Chronicle of Higher Education 2005, 24)

High achieving students tacitly compete to earn the best grade, be the most involved, do the most community service, have the highest ACT or SAT score, or whatever else is perceived as necessary to guarantee admission into their top college (Kohn 2003). Kohn (2003) explained the impact of this intense competition during a speech to high school students, but Luthar and Becker (2002) subsequently corroborated it with empirical research:

> They were joining clubs without enthusiasm because they thought the membership would look impressive. They were ignoring—or perhaps, by now, even forgetting—what they enjoyed doing . . . grimly

> trying to squeeze out another few points on the GPA or the SAT, in the process of losing sleep, losing friends, losing perspective. Many of them may have been desperately unhappy, filled with anxiety and self-doubt. Some of them may have had eating disorders, substance abuse problems, even suicidal thoughts. They might have gone into therapy except they had no spare time. None of this was a secret to these students, but what few realized was that the process wouldn't end once they finally got to college. This straining toward the future, this poisonous assumption that the value of everything is solely a function of its contribution to something that may come later—it would start all over again in September of their first year away from home. (14–15)

Kohn (2003) points out students are facing this pressure throughout high school and for the next four to six years of their lives. Their inability to adjust to these pressures forces some students to abuse amphetamines like Adderall and Ritalin to cope with the growing expectations. Luthar and D'Avanzo (1999) linked self-reported maladjustment, by affluent White teens to substance use, which suggests that affluent teens used substances to self-medicate. Interestingly enough, substance abuse among affluent White suburban students is greater than that of their inner-city counterparts, 59% to 38%, respectively.

Collegiate Pressures

After arriving at college, a new set of pressures and expectations befall students, especially for those who experienced little trouble earning as in high school. Most students entering college know only themselves and their abilities in relation to high school performance. For the students who were academically successful in high school and had little difficultly in rising to the top of their class, college success is often viewed as a guarantee, until the first B or C is earned. Students who were tops in their high school class may now find themselves in the middle, surrounded by other students that were successful in high school (Kadison and Digeronimo 2004).

Previously perceived as the smartest, brightest, and most successful, these students may struggle with the reality of earning lesser grades. In order to redeem their self-identity as a top academic achiever, formerly successful students may increasingly focus on achieving the best grade to prove to themselves and parents that they are still as good as they were (Kadison and Digeronimo 2004). A drastic concern for grades among college students today has not gone unnoticed by faculty. One faculty member explains, "I received an e-mail from a student saying that if she fails this course, she's going to kill herself" (Kadison and Digeronimo 2004, 36). It is not the objective stress of failing a grade or earning a B; instead, it is the subjective stress of over-generalizing the life consequences of a lesser grade. In response, some students vow to work harder. Kadison and Digeronimo (2004) provide an example of a student who became overwhelmed and challenged his self-identity after he received a C on the first term paper. He obsessed over earning high marks and:

> Gave up his morning job, barely grabbed a snack during the day, stopped "unnecessary" socializing, and stayed up to the wee hours of the morning studying. Ted thought he was doing a good thing . . . By studying too much and too long, Ted was soon studying less and less efficiently. This increased his need to study more, setting up a dangerous cycle. (39)

Grade-obsessed students, such as Ted, are less likely to admit their failures and more likely to search for other means of achieving their goal. Adderall becomes a perfect solution for assisting these students reaffirm their self-identity (Kadison and Digeronimo 2004). Ted entered a cycle of studying and giving up all other activities, which caused his studying to become less efficient. Since Adderall assists college students to focus intensely on their work and indirectly improve efficiency, the cycle can be broken subsequently allowing time for other activities (Kadison and Digeronimo 2004).

Socio-Cultural Factors

Overall, pressure to succeed contributes to Adderall abuse; however, sociocultural acceptance of its abuse poses a greater, potentially more dangerous threat (Quintero et al. 2006). College students

typically perceive recreational prescription drug use, including the use of Ritalin and Adderall, as acceptable compared to the use of other drugs, such as cocaine and heroin. In a study of such perceptions, Quintero et al. (2006) found:

> [Prescription drug use] involves a form of comparative reasoning that creates a juxtaposition between "soft" and "hard" drugs. The former allow for pleasure and performance if used wisely while the latter are associated with greater social and physical risks, including loss of control, role failure, and addiction. (914)

This comparative reasoning incorporates perceptions of prescribed drugs as safe since the medications are intentionally designed for a specific purpose, and individuals, their families, and friends have used prescription drugs such as Adderall all of their lives (Quintero et al. 2006). It has been suggested by Quintero et al. (2006) that in terms of physical risks, "college students consider prescription drugs safer to use than other drugs because pharmaceuticals are subjected to extensive laboratory testing, are manufactured in clean laboratories by professionals, and produce a standard dose dependent effect" (915). In addition, the fact that potential side effects of Adderall are listed on the label significantly contributes to the perception of a more predictable experience. Most interestingly, they found that students considered peers to be one of the most reliable sources of information about using Adderall. One student explains this dangerous thinking:

> I'm pretty informed. I take pharmacy classes. And then the other thing too with prescription drugs is my peers. There are some drugs that I haven't learned about in class or something. I don't know the effects. But then I hear about it from my peers because either someone tried it, or someone's doing it, or someone has it. Books are a reliable source of information but in terms of really knowing about something, in my opinion, you can only learn so much from a book. But the amount of information you can get from people you interact with is kind of interesting because you hear a lot of stuff from people, especially regarding what's out there, what's the latest thing or something. I'd say my peers are the best source of information. One of them is bound to know something about it. (Quintero et al. 2006, 921)

This is extremely frightening considering that the number of students for whom Adderall has been prescribed has increased significantly over the past 10 years (CASA 2005). More students possess knowledge about the effects and can offer that information to non-users, potentially transforming them into new abusers of prescription stimulants.

An additional factor contributing to students' recreational misuse of Adderall is related to the real and perceived legal consequences for using such drugs (Quintero et al. 2006). More often than not students believe that using prescribed drugs is not illegal or that legal sanctions can be easily avoided if caught with the medications. Students can claim it belonged to a friend, a defense with no viability if they are caught possessing drugs such as cocaine.

Media advertisements for prescription stimulants reinforce drugs such as Adderall as safe for academic, recreational, and self-medication purposes. They are government approved and legal, easily leading to the belief that the drug is manageable, controllable, non-addictive, and more appropriate than "hard drugs" (Quintero et al. 2006). In addition to governmental approval, the simple fact that doctors prescribe Adderall contributes to the perception of security and harmlessness; after all, doctors seek to promote health.

A final contributing factor to Adderall abuse is parental behaviors and negligence in their own use of controlled prescription medicine. Baby-boomer parents are the highest consumers of prescription drugs (CASA 2005), which provides a dangerous example to adolescents (McCabe et al. 2006). Parental behaviors perceived as acceptable, appropriate, and safe may contribute to students' assumptions that prescription drugs are not harmful (CASA 2005).

Collegiate Lifestyle

The lifestyle of college students serves as a contributing factor to Adderall abuse. Features commonly associated with college life, such as staying up all night partying, studying through the night, and having rigorous academic and extracurricular schedules,

provide incentives for using stimulants to students suffering from exhaustion (Babcock and Byrne 2000; Law 2007). Students may abuse Adderall to cope with juggling multiple extracurricular activities while maintaining academic standards (Kadison and Digeronimo 2004). Adderall becomes, for them, an ideal way of ensuring academic success and assisting them through a structured day of classes, extracurricular activities, and sometimes work (Brooks 2001). Brooks (2001) interviewed students regarding their daily lives and the pressure associated with them. One student explained his day as "crew practice at dawn, classes in the morning, resident-advisor duty, lunch, study groups, classes in the afternoon, tutoring disadvantaged kids in Trenton, a cappella practice, dinner, study, science lab, prayer session, hit the StairMaster, study a few more hours" (40). Law (2007) suggests days such as these have been known to cause exhaustion and burnout, and a central nervous stimulant becomes a viable option for treating the exhaustion and persevering through the day. A student interviewed by Quintero et al. (2006) reiterated this point. He shared, "I found myself starving for energy and just needing to be focused and I tried [Adderall] and it actually helped me concentrate and be alert for an extended amount of time. And I found that I could study more efficiently with it than I could without it" (914).

Testimonials such as this are common for today's ambitious, overly extended college students. Students must value and take advantage of every moment to study. Eventually, students suffer from stress and struggle to make time for studying. Therefore, students may resort to obtaining and consuming prescription medicine, illicitly or illegally, to increase their efficiency, focus, energy, and alertness (Babcock and Byrne 2000).

In contrast, other students use Adderall experimentally and recreationally, considering college is a time for drug experimenting, pushing the limits, and discovering one's self (Quintero et al. 2006). Armed with the perception that Adderall is acceptable and safe, it may be seen as a "good" drug to experiment with. Quintero et al. (2006) reported that several of their interviewees "consciously recognized this period of their life as a time for drug use and suggested that this practice would have to diminish in the future as they completed their studies and entered a new life phase" (922). Given the perceptions of acceptability and low risk, users' knowledge and experiences, and willingness to experiment, Adderall and other controlled stimulants may be particularly valued as a means of engaging in this culturally acceptable behavior (Quintero et al. 2006).

Accessibility

The fourth and final factor contributing to Adderall misuse is the ease of accessibility (Babcock and Byrne 2000; CASA 2005; Hall et al. 2005; McCabe et al. 2006; Quintero et al. 2006; Teter et al. 2005). Adderall is available to students from various sources. The increase in students coming to college with this medication allows for ready access, as is the ability to obtain a prescription for it from campus health centers, family physicians and parents, and to purchase the medication from other students (CASA 2005).

Attention Deficit Disorder (ADD) ranks third among child afflictions and the numbers of children diagnosed with ADD has grown dramatically over the years (Howe and Strauss 2000). Due to the difficulty and subjectivity of diagnosing the condition, it is unclear just how large the number is or how sharp this increase has been. However, information regarding Ritalin and Adderall production shows it has increased dramatically over the past 10 years (CASA 2005), which could be an indicator of the increase in ADD or at least its diagnosis. A possible explanation for this increase is the simplified diagnosis process being used by doctors, thus allowing students to present false symptoms in order to obtain a prescription (Hall et al. 2005). ABC News (2006) reported, "Some kids say it's easy to get a prescription after a brief consultation with a doctor. One [college] student said all she had to do was fill out a true-false questionnaire of 5–10 questions. [She reported she] 'Marked all 10 of them true and was prescribed'" (CASA 2005, 60).

The Diagnostic and Statistic Manual of Mental Disorders (DSM–IV) defines the symptoms and diagnostic procedure for identifying ADD (American Psychological Association 1994), and prescribes

that an ADD/ADHD symptoms checklist be followed by a complete medical history and family testimonials, among other methods, to confirm the diagnosis (CASA 2005). However, the entire process is rarely completed and students have access to diagnostic criteria (Quintero et al. 2006), which provides them with the means to say what is necessary to secure a prescription from the doctor (CASA 2005). A CASA (2005) interviewee described the process succinctly, stating:

> Obviously, doctors don't like to give you controlled substances easily; but if you're aggressive and persistent enough . . . and can talk a good enough game, I don't know how they could not give it to you. I mean they're in the health field and they're caring people and they're trying to take care of their patients' individual needs. (CASA 2005, 55)

His statement suggests a willingness to manipulate a health professional to obtain the prescription that is reminiscent of drug addicts, and there is not much a doctor can do to prevent patients faking symptoms if they answer the questionnaire correctly (CASA 2005). The symptoms checklist, as defined by DSM–IV, includes (a) trouble starting tasks; (b) procrastination on assignments or other tasks; (c) frequent loss or misplacing of items such as ID card, keys, etc.; (d) poor time management skills; (e) forgetfulness; (f) trouble comprehending readings; (g) saying or acting without thinking; (h) feeling as if they are on the go or acting often as if driven by a motor; (i) often avoiding, disliking, or reluctant to engage in tasks that require sustained mental effort; (j) difficulty in waiting their turn; (k) interrupts or intrudes on others (American Psychiatric Association 1994). The questionnaire could arguably define most college students, so they may not even have to lie to answer the questions correctly gaining access to Adderall or other prescription stimulants.

The lack of regulation provides students other avenues to acquire prescription stimulants, such as "doctor shopping." The practice of "doctor shopping" entails visiting various doctors in hopes of obtaining multiple prescriptions for the medication (CASA 2005). Students are then able to fill the prescriptions at various pharmacies. The only preventive measure to this behavior is insurance companies since they regulate prescriptions and will only cover controlled substances every 30 days. In other words, if Adderall is filled the 1st of the month and covered by the insurance company, the insurance company will not pay to have that same medicine filled until the 31st. This does serve as a deterrent for some, but students can easily avoid this by visiting other pharmacies, claim they do not have insurance, and pay full retail cost for the medicine.

However, getting these drugs can be even easier. A student at Florida State University explains, "it's so easy to get now, especially at college . . . I usually get it from friends that have prescriptions" (Emerick 2006, 8). A fellow classmate elaborated "[Adderall] really is so easy to get whenever you need it . . . Usually anyone with a prescription will sell it to you" (Emerick 2006, 10). Students are widely reported to be willing to sell their prescriptions to others for a price (CASA 2005; Emerick 2006). Stealing roommates' medication, asking parents with prescribing powers or doctors who are friends of the family, lying to new doctors that they have previously held prescriptions, and getting drugs from extended family members are other common means of acquisition (CASA 2005). The Internet also provides access to online pharmacies that illegally dispense legitimate and counterfeit prescription stimulants (CASA 2005). And students have shared yet other methods they have used including forging prescriptions or claiming to have lost a prescription (CASA 2005).

Discussion

Adderall abuse is a convoluted problem with an eclectic group of factors contributing to the epidemic of its use on college campuses. Students start using Adderall and Ritalin for any number of reasons. Some students engage in abusive behavior to manage the academic pressures and family stressors. Others become involved for recreational purposes, or to avoid the use of "hard" drugs. For whatever reasons, students are engaging in abusive behaviors on college campuses and there are few signs of its slowing down. On the contrary, it appears to be increasing. Thus for higher education, the use and abuse of stimulants has serious implications.

Effects of Prolonged Use

Illicit use of Adderall on college campuses combined with its high potential for leading to addiction poses a serious situation for college personnel concerned with the health and welfare of students. Use may start innocently enough, but illicit use increases gradually as does the need to increase the supply. A teenager interviewed by *ABC News* explained the journey he took: "It all started with Ritalin and Adderall. I started taking them every day [to get high] and pretty soon it didn't work anymore and I needed something more. I needed a bigger, faster boost" (CASA 2005, 16). The path to addiction does not exclude harder drugs. In fact, Adderall abusers are 20 times more likely to use cocaine and heroin once the body builds a tolerance for Adderall (CASA 2005). Addiction and increased drug use on college campuses is an important, likely implication of Adderall abuse, particularly since college is viewed as a "time off" period where experimentation with drugs is deemed appropriate. A focus group participant for CASA (2005) explained how the addiction began: "I realized that taking drugs was fun so I wanted to experiment. Before that I was against it, but this [Adderall] was a pill from a doctor that helped you take tests better ... There couldn't be anything bad about it" (16). A teenage girl interviewed by *New York Magazine* explained, "You swallow Adderall to study, and snort it for fun" (CASA 2005, 18). The potential for addiction alone underlies the need to address Adderall abuse on college campuses before more students fall victim.

The long- and short-term effects of stimulant drugs are known to always increase with continual use. Short-term side effects include gastrointestinal problems, blurred vision, increased body temperature, increased blood pressure, increased heart rate, reduced circulation, irritability, and insomnia (CASA 2005). As usage continues or becomes excessive, more long-term side effects begin evolving. Long-term and excessive use of Adderall may result in hallucinations, psychotic episodes, cardiac arrest, a comatose state, or even death (CASA 2005). Intense mood changes and physical and mental cravings are common symptoms long-term users can also experience. Furthermore, drug tolerance increases with continual use, resulting in heightened physiological dependency, which intensifies the impact of withdrawal symptoms when usage ceases. Individuals entering withdrawal can experience violent mood swings, extreme fatigue, and uncontrollable cravings (CASA 2005).

Addiction and recreational use are certainly important implications of cavalier attitudes regarding Adderall and Ritalin abuse. Moreover, students are placing their lives, and the lives of those they share their medication with, in danger. Death is a possible outcome of self-medication. Less severe but no less serious side effects include comas, cardiac arrest, high blood pressure, and others. The long-term effects of this drug are still unknown, since it is relatively new to the market, but students could be damaging their brains or bodies. These realities and possibilities raise questions of liability for higher education institutions. Despite the moral obligation to ensure the health, safety, and overall well-being of students, higher education institutions *do* (emphasis added) have a legal obligation to address Adderall and other drug abuse on campuses. In fact, two pieces of litigation require colleges and universities to intervene.

Post-secondary schools are required to enforce the Drug-Free Schools and Campuses regulations, which require institutions to adopt and implement "a program to prevent unlawful possession, use, or distribution of illicit drugs and alcohol by students and employees" (Office of National Drug Control Policy 2004, 29). Failure to comply with the regulations can lead to forfeit of financial assistance under any federal program. Furthermore, if an institution fails to enforce or abide by their written plan, the Secretary of Education not only has the power to cease financial assistance, but also can demand repayment of funds provided to assist with implementing the drug campaigns (Office of National Drug Control Policy 2004, 29). This potential financial loss is in addition to any potential civil suit.

In addition, Congress passed the Illicit Drug Anti-Proliferation Act, sometimes referred to as the "Rave" Act, "which prohibits individuals from knowingly opening, leasing, renting, or maintaining any place for the purpose of using, distributing,

or manufacturing any controlled substance" (Office of National Drug Control Policy 2004, 30). Adderall abuse on college campuses may well fall within the province of this legislation. Students abusing drugs during social events on campus place the institution in an interesting situation if punitive actions are not pursued. For example, if a fraternity advisor is aware of drug use at a fraternity party located on campus, then the advisor could be liable in his or her personal capacity and also as an agent of the university.

Similar to liability concerns, another potential implication might be hypothesized. Students are abusing Adderall to increase their abilities to outperform peers and secure admission into graduate school or employment. In any other situation, the question of whether or not that is cheating would arise. Academic dishonor in higher education is already at an all-time high (Taylor et al. 2002). Violators are typically expelled and do not receive a degree when the institution was aware of the cheating. It is also highly likely that high school students would not be admitted to college if cheating were on their transcripts. Grade inflation and increasing standardized test scores have led colleges to increase their standards for admission, causing students to do more to meet those standards (Cavagnero 2006). Interestingly, Adderall production and ADD diagnoses have increased alongside grade inflation and increasing test scores. Students using Adderall may increase their chance of acceptance over sober students. This may also be true for college seniors seeking admission into graduate school, which has also steadily increased its admission standards (Cavagnero 2006). It raises questions about cheating and the affect of Adderall abuse on others. First, an illicit user of Adderall admitted into college can directly affect another student unable to gain admission due to a finite number of spaces. Second, the ranking system of some standardized tests (e.g., LSAT) determines whether a score is decent (Cavagnero 2006). Adderall abusers could skew the percentages and directly affect other students earning lesser scores. Students illicitly using Adderall to study and take tests not only have an unfair advantage over others, but the standards literally increase, placing other students at an apparent disadvantage (Cavagnero 2006). The irony of the situation is non-users may be cheated out of a career or graduate school because they refuse to engage in illegal behavior.

When abusers of Adderall achieve goals with the help of prescription medications, colleges and universities indirectly validate the benefits perceived by the student and condone cheating as well as illegal drug abuse. The integrity of an education system that rewards cheaters and indirectly penalizes honest students is questionable. Students charged with cheating usually receive sanctions ranging from probation, to suspension, to expulsion for violating the academic integrity of the institution. It is for this purpose schools have honor codes, value statements, and judicial reviews. Is it possible to maintain academic and institutional integrity if 20% of the student population is illegally using prescription stimulants to enhance their personal agenda?

Recommendations

Correcting students' dangerous and careless behavior may prove difficult for various reasons. Since Adderall abuse is self-reported, the actual extent of the problem on a campus cannot be accurately known; therefore, populations cannot be targeted to attempt to reduce the problem. Moreover, the secretive nature and number of legitimate prescriptions on campus almost ensure accessibility; thus, a constant supply makes Adderall increasingly easy to acquire. Colleges and universities cannot singlehandedly stop or prevent students from abusing Adderall, especially since students may engage in this behavior while in middle school. However, schools can take steps to protect the institution and non-users. The first step to addressing any problem is to recognize its existence and determine the level of severity.

Colleges should assess the campus culture; identifying rate of abuse, level of acceptance, and factors that contribute to use in order to develop an effective campaign against Adderall abuse. After assessing the situation, institutions can begin

educating students, faculty, and staff on the dangers, signs, and symptoms of Adderall abuse. In addition, through assessing the drug abuse epidemic, other contributing aspects of the campus culture may be revealed, such as a competitive environment and campus pressures, as well as needs for mental health and counseling services and for self-help groups. Students may feel more inclined to seek help if there is a place for it.

In order to address student drug abuse, the perceptions held by the students should become the focal point. Students perceive the drugs as a safe alternative to cocaine and harder drugs, which is not necessarily true. Educating students on the fallacies of their perceptions is one method of prevention. Secondly, students need to be preparing for the pressures of collegiate work prior to their arrival. Furthermore, a majority of institutions have first-year orientations, which could be an ideal place to inform students on the rigors and differences of college. Incorporating a seminar on drug abuse, college expectations, and study habits might help to prevent some use. Additionally, a concomitant result would be an identifiable strategy for institutional protection against liability since each student is mandated to attend the seminar. Teaching students stress management and proper study and time management skills may also help prevent the use of Adderall. These methods will at least provide students with the tools necessary to succeed independently and be academically successful without stimulants.

A third precautionary measure could involve students entering college with prescription stimulants. Although it is unlawful to ask students to disclose prescription medications they may be taking, providing a seminar on the legal consequences of sharing, selling, trading, or stealing prescription medications may make students reluctant to openly share their medication. Allowing the DEA to speak on this matter might add authority to the seriousness of the legal consequences. Most students fail to realize it is a serious and illegal offense to sell, trade, steal, or consume any prescription drug not prescribed for them, let alone a schedule II drug. Increasing this awareness may affect those students who are using the drug for achievement and recreational purposes.

Faculty and staff encounter students continually throughout the day. Their engagement and relationships with students should serve as a primary focal point for helping to communicate to students the dangers of abusing prescription stimulants. Educating faculty and staff on symptomatic behaviors of Adderall abuse could provide help to those students. In addition, establishing preventative measures in residence halls and libraries would also confront the problem by addressing the most common places of transaction. Increased training for residence hall staff to better assist students addicted to, or abusing, Adderall, and educating library staff on suspicious behavior or mannerisms related to the sale of prescription stimulants might enable them to provide assistance and supervision.

On average, parents are extremely close to their son and daughter and serve as the primary source of academic pressure. Informing parents on the consequences of the pressure may be helpful to students. However, this is an extremely difficult task. Despite the level of difficultly, parents must understand the problems their love can cause. Encouraging parents to listen to students and the problems they are facing, providing methods for parents to be supportive while their son or daughter transitions to college, and educating parents on the symptoms and signs of Adderall abuse will give them information they may not have. More often than not, parents know when something is wrong, potentially even before the student realizes it. This presents parents with a valuable opportunity to recognize substance abuse symptoms and alert college administrators or private physicians to intervene. Finally, alerting parents to the difficulties associated with student life can provide parents with a student perspective of college life.

An additional recommendation will not only address Adderall abuse, but also bring recognition and finances. Research institutions have the luxury of discovering knowledge and new methods for current and future problems. It would be beneficial

if some of these institutions would undertake research projects to develop new understandings of prescription drug abuse and addiction or augment current treatments for ADD/ADHD to phase out stimulates.

Longitudinal research on college students and Adderall abuse is currently lacking in the literature. Establishing a research team to address this gap could provide invaluable information to institutions and the health profession across the country. Finally, validating the accuracy, effectiveness, and flaws of current ADD/ADHD testing methods would provide rich data that could prevent false or improper diagnoses.

Finally, medical and pharmacy school curricula should be reviewed to include prescription abuse and diversion awareness classes. The doctors prescribing stimulants and pharmacists who fill prescriptions should receive thorough and continual training on prescription drug abuse. Focusing on the severity of the problem and their contribution to it is a start in controlling access. Adequate training for medical professionals could reduce actions such as "doctor shopping" or other means that are used to manipulate inexperienced doctors.

These recommendations will not solve the problem, but may increase awareness and slow the illicit use of Adderall on college campuses. The implementation of Federal programs and legislation can address problems such as accessibility, doctor shopping, and acquiring multiple prescriptions more effectively. Legislation such as the Rave Act and the Drug-Free Schools and Campuses Regulations are a start. Nevertheless, the problem needs to address the source—students—which complicates the problem considering that increased pressure, competition, and societal pressures are contributing to Adderall abuse. Educating students on the dangers of recreational use is likely to be more effective than attempting to reduce competition, pressures, and a drive for achievement. Eventually, cooperation with middle and high schools may be possible, but as of now, higher education institutions must protect the academic integrity of the institution as well as the health of the student. It will take society as a whole to address the problem of stimulant abuse similar to steroids, hard drugs, and smoking. Colleges and universities can only address the problems on campuses. Society holds the key to challenging the mentality behind its use.

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