Sharing and Selling of Prescription Medications in a College Student Sample

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Objective: To estimate the prevalence of prescription medication diversion among college students; to compare classes of medications with respect to the likelihood of diversion; to document the most common methods of diversion; and to examine the characteristics of students who diverted medications.

Method: A cross-sectional analysis of personal interview data collected between August 2006 and August 2007 as part of an ongoing longitudinal study. The cohort of students, who were between the ages of 17 and 19 years at study onset, attended a large public university in the mid-Atlantic region. Information was gathered regarding a wide variety of variables, including demographics, diversion of medically prescribed drugs, illicit drug use, and childhood conduct problems.

Results: Among 483 students prescribed a medication, 35.8% diverted a medication at least once in their lifetime. The most commonly diverted medication classes were prescription attention-deficit/hyperactivity disorder medication (61.7% diversion rate) and prescription analgesics (35.1% diversion rate). Sharing was the most common method of diversion, with 33.6% of students sharing their medication(s) and 9.3% selling in their lifetime. Comparative analyses revealed that prescription medication diverters had used more illicit drugs in the past year and had more childhood conduct problems than nondiverters.

Conclusion: If confirmed, these findings have important clinical implications for improved physician-patient communication and vigilance regarding prescribing analgesic and stimulant medications for young adults.

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Nonmedical use of prescription medications (eg, using medications prescribed to someone else or using prescribed medications in ways that are inconsistent with the doctor's instructions), including sedatives, tranquilizers, opioids, and stimulants, is a growing concern among college students, with almost one quarter engaging in this behavior at least once in their lifetime.[1] Among all classes of prescription medication, attention-deficit/hyperactivity disorder (ADHD) medications (specifically psychostimulants) and prescription opioids are the most commonly used in a nonmedical context.[2–5] Among college students, friends and peers are the most common sources to obtain prescription medications to use nonmedically.[6–9] Studies have shown that users who obtain the drugs from their peers, as opposed to those who do not use prescription medications nonmedically or who obtain them from other sources such as family members, are at an increased risk for concurrent alcohol and other drug use,[7] heavy drinking,[7,8] alcohol abuse,[7] illicit drug abuse,[8] and alcohol- or drug-related problems.[8]

A growing body of research describes prescription medication diversion in adult and adolescent populations. Diversion of prescription medication includes sharing, selling, and trading prescription medications with someone for whom they were not prescribed. Prevalence of selling prescription medications ranged from 7.3% to 18.6% among adolescents in 7th through 12th grade,[10–12] while estimates of sharing among similar samples ranged from 10.9% to 24%.[11–14] Among adult drug users in treatment, the proportion of participants who sell their prescription medications ranges from 5% to 34%.[15] Up to one third of middle and high school students taking prescription stimulants have been approached to divert their prescriptions.[16,17] In addition, 44% of adults with a current prescription for methylphenidate had diverted it in the past month.[18] However, in a Web-based survey of 7th through 12th graders, Boyd et al[14] found that the prevalence of trading or giving away medications does not differ significantly by drug class (eg, anxiolytics, sedatives, stimulants, analgesics).

A Web-based survey of college students taking prescription medication found that 27% of students prescribed medications in the past year had been approached to sell, trade, or give away their medication.[19] Those who had prescription stimulants (as opposed to other types of medication) were most likely to be approached (54%).[6,19] To our

For Clinical Use

- Among young adults, prescription ADHD medications are the most likely drugs to be shared or sold, with sharing being a much more common behavior.
- Risk factors for diverting prescription medications include having a history of conduct problems and using prescription drugs nonmedically.
- Clinicians should communicate the health risks and illegality of diversion and the advantages of medication adherence to their young adult patients.

knowledge, no published studies have examined the practice of diversion of prescription medications among college students.

A few studies have examined the correlates of prescription medication diversion. Adolescent girls are more likely than boys to have shared or given away a prescription medication in their lifetime.[13,14] Also, one study of young adults with ADHD found that every individual who reported diverting their prescription stimulants had comorbid conduct disorder or substance use disorder.[10] The current study is the first to examine correlates of prescription medication diversion in a college student sample.

The goal of this study is to learn more about prescription medication diversion and its association with risk factors in an effort to better inform health care professionals regarding behavioral markers and demographic characteristics associated with diversion. Specifically, the study aims to: (1) estimate the prevalence of prescription medication diversion among college students; (2) compare classes of medications with respect to the likelihood of diversion; (3) document the most common methods of diversion; and (4) examine the characteristics of students who diverted medications.

METHOD

Study Design

Data were derived from the College Life Study, a prospective, longitudinal study of health behaviors of a cohort of college students from a large public university in the mid-Atlantic region of the United States. During new student orientation in the summer of 2004, a brief screening survey was administered to 3,401 first-time, first-year students aged 17 to 19 years regarding previous alcohol and drug use. Screener responses were used to purposively oversample illicit drug users and nonmedical prescription drug users for the longitudinal cohort, with 1,253 students participating in a face-to-face baseline interview administered by a trained interviewer during their first year of college (response rate = 86.5%). More information on the sampling procedures and response rates can be found in Arria et al.[20] These individuals were reinterviewed every 12 months thereafter, regardless of continued college attendance. Participants received $5 for completing the screener survey and $50 for each annual interview. Beginning with the second annual interview, a $20 bonus was offered for timely response (within 4 weeks of the anniversary date of their first annual interview). The present analyses utilized data from the third annual interview (response rate = 87.9%; n = 1,101), which was conducted between August 2006 and August 2007, corresponding with the cohort's third year of college. Participants signed an informed consent form during their baseline interview. This study was approved by the university's institutional review board and a federal Certificate of Confidentiality was obtained.

Participants

The sample was restricted to college students who were currently taking at least 1 prescribed medication for the treatment of a health condition. Of the 1,101 individuals who completed the third annual interview, 48.5% (n = 534) were excluded from the analyses because they did not report being prescribed any medications; 1.1% (n = 12) were excluded because the only prescription medication they reported taking was a gender-specific medication (eg, sildenafil citrate, oral contraceptives); 6.3% (n = 69) were excluded because the participant was unable to identify the ADHD medication, other psychotropic medication, analgesic, or asthma/allergy medication prescribed; and 0.3% (n = 3) were excluded due to missing data. Therefore, the final analytic sample size was 483. Sociodemographic characteristics of the sample are presented in Table 1. More than three-quarters of the sample (76.6%) were white, and 46.0% were male.

Measures

Health conditions and prescribed medications. Participants were asked about the presence of *current* health conditions and medications prescribed to treat them. In addition, separate questions addressed whether they had *ever* been diagnosed with attention deficit disorder/ADHD, anxiety, depression, or sleeping problems or if they had any pain, surgeries, or injuries. If the participant answered affirmatively to any of these questions, he or she was asked to specify any medications prescribed to treat these conditions, regardless of whether or not the medications were currently prescribed. Responses were recorded verbatim.

Medications were coded by class (ADHD medication, analgesics, asthma/allergy medication, other psychotropic medications, and other nonpsychotropic medications)

Table 1. Characteristics of College Students Prescribed a Medication (n = 483)

Variable	n (%)
Sex, male	222 (46.0)
Race, white	370 (76.6)
Fraternity/sorority membership	119 (24.6)
Living situation	
Off-campus	198 (41.0)
On-campus	160 (33.1)
Fraternity/sorority house	57 (11.8)
Relative's home	56 (11.6)
Other	12 (2.5)
Alcohol use disorder (met criteria in past year)	222 (46.0)
Attention-deficit/hyperactivity disorder (ever diagnosed)	95 (19.7)
	Mean (SD)
No. of illicit drugs used in past year	1.7 (1.9)
No. of conduct problems endorsed	3.2 (2.4)

and denoted further by brand name. Attention-deficit/hyperactivity disorder medications included stimulants and nonstimulant medications such as atomoxetine. Analgesics included both opioid analgesics and prescription nonsteroidal anti-inflammatory drugs(NSAID). Asthma/allergy medications included steroids, antihistamines, and other medications. Other psychotropic medications included antidepressants, anxiolytics, antipsychotics, and tranquilizers. The other nonpsychotropics category included muscle relaxants, gastric secretion inhibitors, and other miscellaneous medications. It is important to note that all of the categories described include a variety of medications with varying abuse potentials.

Diversion. Participants were divided into "diverters" and "nondiverters." Individuals were classified as diverters if they answered "once or twice," "occasionally," or "regularly" to either the question "How often have you shared for free your prescription drug(s) with someone else?" or "How often have you sold your prescription drug(s) to someone else?" Individuals who answered "none" to both questions were classified as nondiverters. Participants were also asked to specify the medication(s) shared and/or sold.

Fraternity/sorority involvement. Participants were classified as a member of a fraternity or sorority if they answered "irregularly" or "regularly" to the question, "How regularly do you participate in a (sorority/fraternity) during a typical week in the current academic year?" Participants were classified as a nonmember if their response to the question above was "none."

Living situation. Participants were asked where and with whom they were living. The options were "parent or guardian's home," "other relative's home," "university residence hall," "fraternity or sorority house," "off-campus," and "other place of residence." For these analyses, parent or guardian's home and other relative's home were combined because only 2 individuals reported living in another relative's home.

Conduct problems. Childhood conduct problems were assessed through a set of questions that screened for the presence of *DSM-IV* criteria for conduct disorder.[21] These questions, adapted from Johnson et al,[22] ask participants the number of times they have ever engaged in a variety of 18 behaviors, including damaging property, shoplifting, hurting others physically, and setting fires, before they turned 18 years of age. The options to measure lifetime incidence of each conduct problem were "never," "once," "twice," "3 times," and "more than 3 times." Consistent with Johnson et al,[22] behaviors were weighted based on severity (eg, firesetting had to occur only twice to be considered a "problem," whereas lying had to occur more than 3 times to be considered a "problem"). A conduct problem score was obtained by summing the number of conduct problems that were present. When using the *DSM-IV* diagnostic threshold of having 3 or more conduct problems,[21] 249 (51.6%) participants met criteria for conduct disorder.

Alcohol use disorder. Questions used to evaluate alcohol abuse and dependence were derived from the National Survey on Drug Use and Health (NSDUH)[23] and correspond with *DSM-IV* criteria.[21] Participants were asked questions regarding problems they may have experienced over the past 12 months as a result of their alcohol use. Consistent with *DSM-IV* guidelines, *dependence* was defined by the endorsement of 3 or more of the following 7 criteria: tolerance, withdrawal, using more than intended, being unable to cut down, spending a lot of time obtaining or using, giving up important activities, or continuing to use despite problems with physical or mental health. *Abuse* was defined as nondependent individuals endorsing 1 or more of the following 4 problems as a result of their alcohol use: having serious problems at home, work, or school; regularly putting oneself in physical danger; repeatedly getting into trouble with the law; or continuing use despite problems with family or friends. Participants meeting criteria for either abuse or dependence were coded as having an alcohol use disorder (46%). Specifically, 74 (15.3%) met criteria for alcohol dependence, and 148 (30.6%) met criteria for alcohol abuse.

Illicit drug use and nonmedical prescription medication use. Participants were asked how many days in the past 12 months they had used marijuana, inhalants, cocaine, hallucinogens, heroin, amphetamines, or methamphetamines. Participants were coded as having used a substance if they used it at least once in the past 12 months. The number of illicit drugs used in the past 12 months was summed to produce an index of illicit drug use. In addition, participants were asked how many days in the past 12 months they had used 3 categories of prescription medications (stimulants, analgesics, and tranquilizers) nonmedically (defined in the interview as taking a medication without a legitimate prescription or taking a prescribed medication "in a way that is inconsistent with a doctor's prescription, like using too much or too frequently"). Participants were coded as having used each prescription drug nonmedically if they had used it at least once in the past year. The number of prescription drugs used nonmedically in the past 12 months was summed to produce an index of nonmedical prescription drug use.

Table 2. Prescription and Diversion Rates for the Top 3 Most Prescribed Attention-Deficit/Hyperactivity Disorder (ADHD), Analgesic, Other Psychotropic, Asthma/Allergy, and Other Nonpsychotropic Medications Among 483 College Students

Medication	Individuals With a Prescription for This Medication,[a] n	Individuals in the Class Population (N = 2,893[b]) Prescribed This Medication, Weighted %	Individuals Who Diverted This Medication,[c] n (%)
ADHD medication	81	$5.3\%_{wt}$	50 (61.7)
Amphetamine/dextroamphetamine	44		31 (70.5)
Methylphenidate	27		10 (37.0)
Methylphenidate extended release	23		9 (39.1)
Other	11		3 (27.3)
Analgesic medication	288	$22.0\%_{wt}$	101 (35.1)
Acetaminophen/oxycodone	109		30 (27.5)
Acetaminophen/hydrocodone	100		31 (31.0)
Hydrocodone	38		14 (36.8)
Other	99		37 (37.4)
Other psychotropic medication	145	$10.2\%_{wt}$	20 (13.8)
Sertraline	54		3 (5.6)
Escitalopram	30		1 (3.3)
Bupropion	19		0 (0.0)
Other	90		15 (16.7)
Asthma/allergy medication	110	$8.2\%_{wt}$	14 (12.7)
Albuterol	32		5 (15.6)
Fexofenadine	28		4 (14.3)
Loratadine	18		1 (5.6)
Other	77		3 (3.9)
Other nonpsychotropic medication	108	$5.7\%_{wt}$	6 (5.6)
Antibiotic	27		1 (3.7)
Anti-inflammatory	16		1 (6.3)
Muscle relaxant	12		2 (16.7)
Other	56		2 (3.6)
Total	483	$36.2\%_{wt}$	173 (35.8)

[a]The sum of individuals prescribed each medication within a category may exceed the total number in the category because individuals may be prescribed multiple medications of the same type.
[b]2,893 is the weighted N of the 1,101 who participated in the third annual assessment.
[c]Diversions were measured as prescription medications either shared or sold—if a medication was diverted through both sharing and selling, it was counted only once.

Statistical analyses. Descriptive statistics were computed to document the prevalence of diversion by medication class. A series of logit models conducted in STATA IC 10.0 (StataCorp LP, College Station, Texas) were employed to test the possible association of the hypothesized risk factors (conduct problems, alcohol use disorder, and illicit drug use) and demographic variables (sex, race, fraternity/sorority involvement, and living situation) with diversion of prescription medications. Interestingly, the proportion of the sample with alcohol use disorder was quite high (46%), almost twice as high as earlier estimates of the general population.[24] This discrepancy is most likely due to the fact that the sample was selected on the basis of being prescribed some type of medication and by definition has higher risk of psychiatric disorders. Logit models were used because very few individuals regularly diverted their medication, resulting in small cell sizes for a diversion frequency variable. Variables were first tested in a series of bivariate logit models, followed by 1 multivariate model in which all demographic variables and risk factors were entered simultaneously.

RESULTS

Table 2 shows that more than one-third (35.8%) of the college students with a prescribed medication diverted it at least once in their lifetime. Within each medication class, the highest rates of diversion were for ADHD medications (50/81; 61.7%), followed by analgesics (101/288; 35.1%), other psychotropic medications (20/145; 13.8%) and asthma/allergy medications (14/110; 12.7%). Irrespective of percentages, it is important to note that because analgesics were prescribed to the greatest number of people, there were more individuals diverting a prescription analgesic (n = 102) than a prescription ADHD medication (n = 50).

Within the class of ADHD medications, amphetamine/dextroamphetamine was the most likely to be diverted, with 70.5% (n = 31) of students diverting their amphetamine/dextroamphetamine at least once. Amphetamine/dextroamphetamine accounted for more than half of the diverted prescription ADHD medications (31/50; 62.0%). Among other medication classes, there was not a high degree of variability in diversion by specific formulation.

Frequency and Diversion Method

Diversion was a fairly infrequent occurrence, with many diverters sharing only once or twice in their lifetime (Table 3). A small minority of the sample shared regularly (n = 9; 1.9%) and/or sold regularly (n = 3; 0.6%). Sharing was more common than selling, with 33.1% (n = 160) of participants sharing at least once and 9.3% (n = 45) selling. Of all diverters,

Table 3. Frequency of Sharing and Selling Prescription Medications Among 483 College Students Prescribed a Medication[a]

Frequency	Sharing, n (%)	Selling, n (%)
Never	321 (66.5)	438 (90.7)
Once or twice	99 (20.5)	22 (4.6)
Sometimes	54 (11.2)	20 (4.1)
Regularly	9 (1.9)	3 (0.6)

[a]Of all of the diverters, 26.5% (n = 128) exclusively shared, 2.7% (n = 13) exclusively sold, and 6.6% (n = 32) both shared and sold their prescription medication.

74.0% (n = 128) had exclusively shared, 7.5% (n = 13) had only sold, and 18.5% (n = 32) had done both.

Correlates of Diversion

As shown in Table 4, being male, living off-campus, having an alcohol use disorder, using illicit drugs or prescription drugs nonmedically, and having a history of childhood conduct problems were each associated with increased odds of diversion when entered into a model alone. However, multivariate analyses revealed that only the number of prescription drugs used nonmedically in the past year and childhood conduct problems remained significantly associated with diversion, independent of demographics and other risk factors. Specifically, each prescription drug used nonmedically in the past year increased the odds of diverting a prescription medication by 52% ($P = .003$). Moreover, each childhood conduct problem increased the odds of diversion by 13% ($P = .006$).

DISCUSSION

This study examined diversion of prescription medication among college students, a population shown to be at risk for nonmedical use of prescription medications.[1] More than one-third of students given a prescription medication had diverted at least once in their lifetime, with prescription ADHD medications and prescription analgesics being the 2 most commonly diverted medication classes, respectively. This finding is consistent with prior evidence from McCabe et al[19] that college students who are prescribed stimulants are more likely than students with any other type of medication to be approached to divert their prescriptions, likely because of the unique properties of the college environment where the demand for prescription stimulants is probably higher than in other settings due to the desire to use them as a study aid.[25,26] In the present study, diversion typically occurred infrequently, and sharing prescription medications was more common than selling them, indicating that the motivation for diversion does not, in most cases, appear to be financial.

This study was the first to examine, albeit in a preliminary fashion, possible risk factors for diversion. After controlling for demographic characteristics, nonmedical use of prescription medications and childhood conduct problems were both significantly related to diversion, indicating that diversion by college students may be part of a larger pattern of problem behavior. Notably, sex, living situation, having an alcohol use disorder, and illicit drug use did not retain significance in the multivariate model. These findings extend prior research in which McCabe et al[8] observed that drug use was associated with being a recipient of a diverted medication, and Wilens et al[27] observed an association between subclinical levels of conduct problems and diversion in their study of young adults with ADHD.

Limitations

Several limitations of the study must be noted. The first is that participants might be hesitant to disclose illegal behavior like diversion in a face-to-face interview, and historical estimates might not be accurate; thus, the prevalence of diversion reported in this study could be underestimated. We were careful to train our interviewers to maintain a nonjudgmental attitude about all information gathered in the interview, which included discussion of sensitive topics, to minimize this possible problem. Future studies could be designed to measure diversion in real time (eg, asking a participant to record exactly what happened with a particular prescription over time) to perhaps increase the validity of the estimates. Second, because these data come from 1 large public university, the study may have limited generalizability to other college student populations. Third, the interview questions addressed only lifetime diversion, and we have no information on when diversion occurred. Lastly, the diversion questions might not have captured prescription trading behavior. A few studies have been published examining prescription trading[6,14,17,19]; however, this study did not specifically ask about trading one type of medication for another, so it is possible that diversion was underestimated by this omission.

Significance

The issue of diversion is significant for practicing psychiatrists, especially those who deal with young adult populations. Given the magnitude of nonmedical prescription drug use among young adults[28] and the fact that many young adults receive prescription medications from their peers, clinicians should be vigilant about the possibility of diversion. The current study identified 3 classes of individuals who are at particular risk for diversion: (1) students prescribed an ADHD medication; (2) students with conduct problems; and (3) nonmedical users of prescription drugs. Given that all 3 of these populations have regular contact with either primary care clinicians or psychiatrists, physicians are in a unique position to reduce diversion behavior by engaging in communication with their patients about the risks and illegality of diversion. Prescribing physicians should be especially attentive about communicating

Table 4. Bivariate and Multivariate Logistic Regression Examining the Effect of Demographics and Risk Factors of Diversion in a Sample of College Students Prescribed a Medication (n = 483)

Demographic Characteristic	Nondiverters (n = 310), n (%)	Diverters (n = 173), n (%)	Unadjusted Odds Ratio (CI)	Adjusted Odds Ratio (CI)
Sex				
Female[a]	180 (58.1)	81 (46.8)	1.00	1.00
Male	130 (41.9)	92 (53.2)	1.57 (1.08–2.29)*	1.19 (0.78–1.81)
Race				
Nonwhite[a]	77 (24.8)	36 (20.8)	1.00	1.00
White	233 (75.2)	137 (79.2)	1.26 (0.80–1.97)	1.01 (0.62–1.66)
Fraternity/sorority membership				
Nonmember[a]	233 (75.2)	132 (76.3)	1.00	1.00
Member	77 (24.8)	41 (23.7)	0.94 (0.61–1.45)	0.87 (0.47–1.60)
Living situation				
On campus[a]	113 (36.5)	47 (27.2)	1.00	1.00
Off campus	115 (37.1)	83 (48.0)	1.74 (1.11–2.70)*	1.34 (0.83–2.16)
Fraternity/sorority house	40 (12.9)	17 (9.8)	1.02 (0.53–1.98)	1.01 (0.41–2.47)
Relative's home	34 (11.0)	22 (12.7)	1.56 (0.82–2.94)	1.43 (0.71–2.87)
Other	8 (2.6)	4 (2.3)	1.20 (0.35–4.19)	0.97 (0.25–3.79)
Alcohol use disorder				
No *DSM-IV* abuse/dependence[a]	189 (61.0)	72 (41.6)	1.00	1.00
Presence of *DSM-IV* abuse/dependence[b]	121 (39.0)	101 (58.4)	2.19 (1.50–3.20)*	1.33 (0.87–2.05)
Risk Factor	Mean (SD)	Mean (SD)	Unadjusted Odds Ratio (CI)	Adjusted Odds Ratio (CI)
Number of illicit drugs used	0.85 (0.98)	1.50 (1.36)	1.62 (1.57–2.38)*	1.21 (0.97–1.50)
Number of prescription drugs used nonmedically	0.42 (0.78)	0.99 (1.06)	1.93 (1.56–2.38)*	1.52 (1.16–1.99)*
Conduct problems[c]	2.87 (2.18)	3.91 (2.86)	1.19 (1.10–1.29)*	1.13 (1.04–1.23)*

[a]Reference group.
[b]Meeting *DSM-IV* criteria for abuse or dependence was determined based on modified National Survey on Drug Use and Health questions regarding *DSM-IV* criteria for alcohol abuse and dependence.[23]
[c]The measurement for conduct problems is the number of conduct problems meeting the criteria for conduct disorder endorsed on Johnson et al,[22] Conduct Problem Scale.
*$P < .05$.
Abbreviation: *DSM-IV* = *Diagnostic and Statistical Manual of Mental Disorders*, Fourth Edition.

the dangers of diversion to patients with nonmedical prescription drug use or behavioral problems and be especially vigilant in monitoring high-risk patients who might divert. Urine toxicology screens might be indicated in cases in which the patient has both ADHD and a history of conduct problems. In addition, doctors should be vigilant of attempts to obtain medication, especially in patients who are at high risk for diversion.

When students enter college, it is important that clinicians remind their patients, especially those with ADHD whose medications will be in high demand, about the need to take their medications as directed, disposing of unused pills, and caution against diversion. In addition, although diversion, when it occurs, is typically infrequent, asking patients who are approaching college age or are in college how often they take their medication and adjusting prescribing practices to match their actual need can reduce the amount of "extra" medication in their possession. Given that amphetamine/dextroamphetamine was the most commonly diverted prescription ADHD medication, psychiatrists managing patients who have ADHD may also want to consider alternative medications with a lower likelihood of abuse and diversion, such as extended-release formulations or nonstimulant agents.[29–31]

Having discussions with patients about the risks of diversion could both decrease the likelihood of diversion as well as increase the likelihood that the patient will benefit therapeutically. A diverted medication obviously does not help the individual for whom it was prescribed and could potentially cause problems for the recipient. Sharing was the most common method of diversion, while selling was relatively uncommon, suggesting that many students who divert their prescriptions are motivated by social reasons, such as being "nice" to their friends, rather than financial gain. Importantly, clinicians can counsel their patients that the research shows that nonmedical users are students likely to be heavy drinkers and use illicit drugs and that there appears to be a link between marijuana use disorder, skipping class, and low academic performance and the nonmedical use of prescription stimulants as a compensatory mechanism.[32,33] Therefore, if their patients are approached by another student to divert their medication for academic reasons, it is not prudent to do so to help that student succeed academically. It is possible that students are unaware of the legal and medical consequences of diverting a prescription and think they are being helpful. Increasing knowledge about the medical consequences of sharing prescriptions, both for the patient and the recipient, could be part of the solution.

Future research is warranted to document prescription medication diversion behavior using more in-depth

measurement tools (eg, in what settings does diversion occur, to whom). Most college students who use prescription medications nonmedically say they received diverted medications from friends,[6–9] but it is unclear if diversion is done within an intimate friend network or if it extends to a network of acquaintances. Diverters should also be questioned about their reasons for diverting their prescription. Individuals who give their medication to a friend because they think their friend has a health condition or mental health problem and will benefit from the prescription may differ from those who sell their prescription to an acquaintance knowing that the acquaintance will use the medication for recreational purposes. Research with the current cohort is underway to examine perceptions regarding legal and medical consequences of diversion and how these perceptions influence behavior.

Finally, the results have implications for medical education and postgraduate continuing education in that they suggest a need to develop strategies and tools for physicians to engage their patients in responsible use of prescription medications. By openly addressing misperceptions with their patients, prescribing physicians might reduce patients' tendency to rationalize diversion and nonmedical use.

Drug names: albuterol (Proventil, Ventolin, and others), amphetamine (Adderall), atomoxetine (Strattera), bupropion (Aplenzin, Wellbutrin, and others), dextroamphetamine (Dextroamp, Dexedrine, and others), escitalopram (Lexapro and others), fexofenadine (Allegra and others), hydrocodone (Vicodin, Zydone, and others), loratadine (Clarinex), methylphenidate (Daytrana, Ritalin, and others), oxycodone (Percocet, Oxycet, and others), sertraline (Zoloft and others), sildenafil (Revatio, Viagra).

Disclosure of off-label usage: The authors have determined that, to the best of their knowledge, no investigational information about pharmaceutical agents that is outside US Food and Drug Administration–approved labeling has been presented in this article.

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