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College Student Drug Use: Patterns, Concerns, Consequences, and Interest in Intervention

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Abstract

Although previous surveys have indicated high rates of illicit and prescription drug misuse among college students, few have assessed negative consequences, personal concerns, or interest in interventions for drug use. In a survey of 262 college students who self-reported lifetime use of an illicit drug, 69% reported at least one negative consequence over the course of their lifetime and 63% in the past year. Many also reported being moderately concerned (28%) about their drug or medication misuse and moderately interested in some form of intervention (76%). The frequency of marijuana use and medication misuse in the past month was related to increased negative consequences and personal concerns even when controlling for the frequency of past month alcohol use. There were relatively few differences as a function of gender or year in college.

Keywords

college students; drug use; negative consequences; drug abuse; drug dependence

Despite substantial attention to misuse of alcohol among college students, less is known about drug use on college campuses. The Monitoring the Future report (Johnston, O'Malley, Bachman, & Schulenberg, 2006, 2008) indicated that 37% of college students had used an illicit drug, and 19% had used an illicit drug other than marijuana in the prior year. Studies have shown that marijuana is the most frequently used drug among college students and approximately 25-33% reported use in the past year and 16% in the past month (Johnston et al., 2006; Gledhill- Hoyt, Lee, Strote, & Wechsler, 2000; Globetti, Lo, & Globetti, 1994). In comparison to non-marijuana using college students, marijuana users perceived reduced risk

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of experiencing negative consequences despite already having experienced such a consequence (Kilmer, Hunt, Lee, & Neighbors, 2007). Of those students who reported drug use, almost half (44%) had driven a car while on drugs, approximately one-third reported preoccupation with drug use or trying to limit or stop use, and one-quarter had taken more drugs than they planned or had used during school or work.

In recent years, prescription drug misuse has become increasingly prevalent among college students and has been related to poorer academic performance and high-risk behavior (Johnston et al., 2006, 2008; McCabe, Knight, Teter, & Wechsler, 2005; McCabe, Teter, & Boyd, 2005; McCabe, West, & Wechsler, 2006). Students who misused pain medications were more likely to have a lower grade point average (McCabe, Teter, & Boyd, 2005), and those who used prescription stimulants and anxiolytics reported use of other substances and risky driving behaviors (McCabe, Knight, Teter, & Wechsler, 2005). When compared with other drug users, students who used prescription stimulants were more likely to have engaged in polydrug use, illegal activities, experienced blackouts and withdrawal symptoms (McCabe and Teter, 2007). Although some research has been conducted with college students to assess the prevalence of drug use and negative consequences, no studies have evaluated the association of these problems with the student's level of concern about their drug use or their interest in receiving help.

In contrast to the extensive college drinking assessment, prevention, and treatment literature, a review by Larimer, Kilmer, and Lee (2005) emphasized both the scope of the drug problem on college campuses and the scarcity of prevention and intervention approaches. Larimer et al. (2005) emphasized the need for further research on assessment specific to drug use and drug-related negative consequences to inform the development of preventive and clinical interventions. In a college sample of self-identified drug or medication misusers, we evaluated the extent and association of frequency of use, negative consequences, personal concerns and interest in an intervention to inform prevention and treatment development for this at risk group. We predicted that marijuana and prescription drug use would be the most commonly used substances. In addition, we predicted that more extensive and recent drug use would be associated with greater consequences, concern, and interest in getting help.

METHOD

Participants and Procedure

The sample for this study included 262 undergraduates attending a small private university located in suburban southern Connecticut who self-reported lifetime use of an illicit drug or misuse of a prescription medication. The sample had an average age of 19.6 (SD=1.5), was gender-balanced (52% female) and predominantly (77%) White (13% African American, 4% Hispanic American, 6% Other). All four undergraduate classes were adequately represented (37% freshmen, 22% sophomore, 22% junior, 19% senior), and most (85%) of the students were living in a university residence hall. Demographic statistics provided by the university indicated that the sample was representative (with the exception of average age which was younger due to over 1/3 of our sample being freshmen) of their larger undergraduate population which is 50/50 male/female, 72% White, 11% African American, and 7% other. We recruited students utilizing flyers distributed throughout campus and the residence halls by residence hall staff. The flyers stated: "Complete a survey: We want to understand the pattern of alcohol, tobacco, and other risky behaviors among college students." A total of 399 students completed a packet of questionnaires in one of two large group testing sessions held in the student union building during the Fall semester of 2005. Of these surveys, 17 were judged to be invalid based on obvious response sets or extreme inconsistency. An additional 120 students reported never having used a drug or misused a

medication and were excluded given the focus of the current report. Because data were collected voluntarily and anonymously, the packet of questionnaires were distributed with a waiver of consent form on the cover that participants could remove and take with them. All students completed the survey within 20 to 45 minutes and were compensated \$15. All study procedures were approved by the institutional review boards for human subjects from the authors' institutions.

Measures

Illicit Drug Use/Medication Misuse—A questionnaire was developed for this study based on a format used in the Addiction Severity Index (McLellan et al., 1980) and measured lifetime use of illicit drugs (i.e., yes or no), and number of days used in the past month from nine different categories. Using a similar format, a list of prescription medications was added to document lifetime and past month use and misuse of medications organized into six broad categories (see Table 1 note for different examples of each drug and medication category provided to participants as a reference). In addition to rating lifetime and recent frequency of use, an additional rating of medication use circumstance was obtained: 0 = never taken, 1 = taken as recommended, 2 = taken more than recommended/prescribed to me, 3 = someone gave me some that were prescribed for them or someone else, 4 = took some that belonged to someone else without their knowledge, 5 = bought or obtained illegally. Misuse was defined as a response of 2 or higher for any medication.

Negative Consequences—A *Drug Use Consequences Scale* was developed based on items from the Young Adult Alcohol Problem Screening Test (YAAPST; Hurlburt & Sher, 1992) and the InDUC (Tonigan & Miller, 2002) and assessed past year ($\alpha = .95$) and lifetime ($\alpha = .92$) prevalence of negative consequences due to use/misuse. To insure that students were completing these items with regard to drug or medication misuse, the instructions indicated that they should not consider their alcohol use and most items also included repeated clarification (because, due to, after, while) of “using drugs.” Items were rated on a 10-point ordinal scale reflecting different frequencies (e.g., 0=never, 1=lifetime but not past year, 2=once in past year; 9=40+ times in past year). This scale also provided an estimate of drug abuse and dependence criteria from the Diagnostic and Statistical Manual-IV-TR (American Psychiatric Association, 2000). The note to Table 2 indicates which items from this scale were used to estimate diagnoses for abuse (at least one of the relevant items occurring at least twice in the past year) and dependence (at least three of the relevant items in the past year).

Personal Concerns—For each of the nine drug and six medication categories, students rated their level of personal concern with their use/misuse on a Likert scale from 1-5. The concern variable was calculated taking the maximum level of concern endorsed from any drug or medication category.

Interest in Interventions—Participants' were asked to report their willingness to participate in 11 different intervention/counseling/therapeutic modalities if offered in a variety of on-campus and off-campus locations. The instructions for these items stated: “Hypothetically, if you were a college student concerned about your use of alcohol, street or prescription drugs, please rate how willing you would be to do the following.” Table 4 lists the options which were rated on a 7-point Likert scale: 0 = very unwilling or not interested to 6 = very willing or interested. Students' highest interest rating was used in the correlational analyses.

Data Analysis

To describe our sample and evaluate our predictions regarding the prevalence of marijuana and prescription misuse, we reported the frequencies of drug use/ medication misuse (lifetime; past month), negative consequences (lifetime; past year), current personal concerns, and current intervention interest. Subsequent analyses focused on those reporting current (past month) use/misuse ($n=166$) and specifically marijuana use as well misuse of any prescription medicine. For further descriptive purposes, we used analysis of covariance (controlling for days of drinking in past month) to compare gender and year in college on past month frequency of marijuana and medication misuse, consequences, concerns, and intervention interest. Partial correlational analyses (again controlling for past month drinking) were then used to test the association between: 1) past month frequency of marijuana use and any medication misuse with past year negative consequences, current personal concerns, and intervention interest; 2) current intervention interest with current concerns and with past year consequences. Analyses were repeated for the subgroup of current users/misusers ($n=100$) who met our diagnostic criteria for substance abuse or dependence and revealed a similar pattern of results.

RESULTS

Patterns of Use/Misuse, Consequences, Concerns, and Intervention Interests

Table 1 lists the frequency of drug use and medication misuse among all students who self-reported any lifetime use/misuse as well as the subsample (63%) who also reported use/misuse in the past month. As indicated, marijuana was the most prevalent illicit drug (89% in past month) and pain medication was the most commonly misused (22% in past month). Approximately half (45%) of the sample reported lifetime use/misuse of only one substance, 19% reported two, 10% reported three, 8% reported four, 6% reported five, and 11% reported six or more different substances. Students who reported current marijuana use averaged 12.16 ($SD=11.77$) days of use in the past month. Students who reported any current medication misuse averaged 4.94 ($SD=8.93$) days of use in the past month.

Lifetime reports of negative consequences associated with lifetime use/misuse of substances are summarized in Table 2 as are the rates of past year consequences for students reporting past month use/misuse. As shown, students reported a broad range of negative consequences. Intrapersonal consequences were frequent and included doing something embarrassing, feeling guilty or ashamed, or feeling bad physically. Among the subsample ($n=166$; 63%) who reported past month use, 26% endorsed past year consequences suggestive of a DSM-IV-TR current diagnosis of substance dependence, and an additional 13% endorsed items consistent with a current diagnosis of substance abuse (without dependence).

Students generally conveyed low levels of concern about their lifetime or recent drug use/ medication misuse with almost half reporting no level of concern. Although most of the sample used marijuana, only 28% reported being somewhat concerned about their use. Despite this overall low concern about their drug use or medication misuse, 55% reported moderate or greater interest in at least one type of substance use intervention. The top two commonly endorsed interventions were “brief feedback and counseling” and “talk to a trusted teacher, administrator or coach” (See Table 3).

Gender and School Year Differences in Frequency, Consequences, Concerns, and Interest

The ANCOVA model (controlling for frequency of past month drinking) for past month marijuana use was significant overall, $F(8, 150) = 3.51$, $p < .001$, with a significant univariate effect for gender $F(1, 150) = 10.94$, $p < .001$. Men used marijuana more frequently than

women. This gender difference was not found for past month frequency of any medication misuse, and no school year differences were found for either substance frequency measures.

The overall ANCOVA model testing gender and year differences for past year negative consequences was also significant, $F(8, 149) = 2.54, p < .05$, but the only effect was for the alcohol covariate, $F(1, 149) = 4.34, p < .05$. Likewise, past month drinking (covariate), $F(1, 150) = 10.34, p < .01$, was the only significant predictor in the overall ANCOVA, $F(8, 150) = 2.87, p < .05$, for interest in interventions. There were no significant findings for drinking, gender, or school year for the personal concerns measure.

Relations Between Frequency of Use, Consequences, Concerns, and Interest in Intervention

Partial correlations (controlling for past month alcohol frequency) were conducted for students who were past month marijuana or medication misusers. As predicted, significant positive associations were found between days of past month marijuana use and past month medication misuse, $r(160) = .16, p < .05$, current level of concern, $r(160) = .22, p < .01$, and number of past year negative consequences, $r(160) = .54, p < .001$. Past month medication misuse frequency also was correlated with the number of negative consequences, $r(160) = .22, p < .01$. As predicted, negative consequences were associated with increased personal concerns about drug/medication use, $r(160) = .28, p < .001$, although contrary to our predictions, greater personal concerns was not associated with greater interest in an intervention, $r(160) = .12, p > .05$.

DISCUSSION

This report focused on college students who reported lifetime use of drugs or misuse of medications. Our hypothesis that marijuana use and prescription misuse would be common was supported as 90% reported use of marijuana, and 42% indicated some type of medication misuse. These results supported McCabe et al.'s (2005) findings of prevalent use on college campuses. As well, our hypothesis that extensive and recent drug use would be associated with greater negative consequences and concern was supported. Among students who used drugs in the past month, men used marijuana more days of the month and past month drinking effected drug related negative consequences as well as students' interest in interventions. Use of marijuana in the past month was associated with medication misuse, concern about drug use, and experiencing drug related negative consequences within the past year. Additionally, past month medication misuse was also associated with negative consequences. Overall, these findings are consistent with research by Kilmer et al. (2007) and McCabe and colleagues (2005; 2006) regarding drug use and students' report of a wide range of drug related negative consequences. However, the results also highlight students' level of concern regarding their drug use and interest in interventions which support Larimer and colleagues (2005) recommendation for the development of further assessment, prevention and intervention services specific to drug use.

Our findings suggest the more frequently occurring negative intrapersonal consequences are relatively minor in nature and may not be easily detected without assessment. Almost half of the sample reported feeling embarrassed, receiving a lower grade, or feeling guilty or ashamed by their drug or medication use. In addition, approximately 17-19% of all participants reported experiencing consequences suggestive of more significant problems such as taking drugs in larger amounts over longer period, failing to fulfill role functions, and losing interest in activities. Thus, for some students, marijuana or other drug use appears to be having a substantially adverse impact on their lives and they may benefit from some type of intervention to prevent additional negative effects. This may be particularly relevant given that 13% of the sample of lifetime drug users reported consequences consistent with a

current diagnosis of drug abuse and 26% reported symptoms indicative of drug dependence. It is important to note that less than 10% of the students in this sample reported experiencing negative consequences that had come to the attention of school or legal officials. This suggests that a substantial amount of problematic drug/medication misuses is going undetected and may represent a hidden risk factor for compromised academic and future occupational functioning.

We acknowledge several study limitations. First, this was a sample of undergraduate students on a single campus and should not be generalized to all college students. Second, our rates of drug and medication use should not be misinterpreted as prevalence estimates given that our recruitment strategy over-sampled for students with substance-related behaviors. Other possible limitations include the cross sectional nature of this assessment and the exclusive reliance on self-report data. However, the survey was conducted anonymously to increase the probability that students would accurately self-report risky and potentially illegal behavior. Finally, we acknowledge the limitations of using the Drug Use Consequences measure administered in a large group paper-pencil format to estimate students' endorsements of lifetime drug abuse or dependence criteria. The diagnostic estimates in this report are tentative as this measure has not been validated and does not provide the same level of diagnostic information as a structured clinical interview. However, it is an instrument which can be delivered with ease to a large group of college students to assess drug-related negative consequences while also obtaining an approximate estimate of abuse and dependence criteria.

Consistent with concerns raised by Larimer and colleagues (2005), our findings suggest that future studies should examine negative consequences and the need for brief or extended intervention for illicit and prescription drug use on college campuses. Many of the consequences reported in this survey may be very important in the lives of students, but not sufficiently severe to lead to detection by campus authorities or law enforcement officials. The development and evaluation of drug-specific interventions poses considerable challenges to researchers and college administrators particularly because current intervention methods for alcohol incorporate a harm reduction model that may conflict with campus zero tolerance policies around illicit drugs. We also emphasize that students who endorse consequences suggestive of a drug abuse/dependence disorder may be most in need of intervention to prevent the development of further problems. This high risk group may need some form of administrative mandate to participate in an intervention for drug use. Innovative approaches also are needed to encourage self-assessment of substance abuse and help-seeking and may include: incorporating drug prevention programming into ongoing campus alcohol prevention efforts; a greater emphasis on policies that would allow a student to receive some type of intervention versus more punitive actions; student counseling centers and clinics attending to seemingly minor negative consequences; and more research aimed at the development and evaluation of campus interventions specific to drug use.

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Table 1

Lifetime and Past Month Prevalence of Drug Use and Medication Misuse.

	Lifetime Use/ Misuse		Past Month Use/ Misuse	
	N	(%)	N	(%)
<u>Any Illicit Drug</u>	262	----	166	----
1. Marijuana	240	92	148	89
2. Cocaine	43	16	34	21
3. Amphetamines	63	24	28	16
4. Hallucinogens	56	21	24	14
5. Opiates	15	6	8	5
6. Inhalants	21	8	6	4
7. Designer Drugs	30	12	12	7
8. Steroids	3	1	1	<1
9. PCP	11	4	3	2
<u>Any Medication Misuse</u>	153	42	75	45
1. Mood	18	7	10	6
2. Pain	61	23	37	22
3. ADHD	37	14	20	12
4. Anxiety	43	16	26	16
5. Respiratory	39	15	26	16
6. OTC	24	9	15	9

Note. Lifetime Use sample (n = 262); Past Month Use Sample (n = 166). Participants were given the substance names with examples listed parenthetically as follows: marijuana (pot, hash, hash oil), cocaine (crack, rock, freebase), amphetamines (speed, methamphetamine), hallucinogens (LSD, mushrooms, mescaline), opiates (heroin), inhalants (glue, solvents, gas, nitrates), designer drugs (ecstasy, MDMA, Special K), steroids, PCP= phencyclidine (angel dust, illy), mood/sleep (e.g., Prozac, Celexa, Paxil, Zoloft, Elavil, Nardil), pain (e.g., Codeine, Percodan, Oxycontin, Vicodin), ADHD=attention/hyperactivity (e.g., Ritalin, Adderall, Concerta), anxiety (e.g., Xanax, Valium, Librium, Ativan, Klonopen), respiratory (e.g., cough medicine, allergy medicine, inhalers), and OTC=over-the-counter (e.g., diet pills, analgesics).

Table 2**Lifetime and Past Year Prevalence of Negative Consequences Due to Drug Use**

	Lifetime Consequence (Total Sample; 262) (%)	Past Year Consequences (Current Use Sample; 166) (%)
1. Said or done something embarrassing	46	50
2. Felt guilty or ashamed	45	50
3. Not done homework, not study for a test, or received lower grade	44	58
4. Felt bad physically	43	46
5. Spent too much money or lost a lot of money	39	48
6. Missed school, work, or activities with friends	35	45
7. Done impulsive things you later regretted	34	40
8. Spent a significant amount of time thinking about, looking for, or using	33	42
9. Taken drugs in larger amounts or over longer period of time than you planned	28	34
10. Failed to do what was expected of you	27	31
11. Need more drugs to get the same effect or don't get the same effect with the usual amount	27	33
12. Lost interest in activities or hobbies	25	23
13. While stoned or high, been physically hurt, burned, or injured	22	27
14. While high or stoned, broken or damaged property	21	26
15. Gotten into a physical fight	18	22
16. Lost a close relationship	16	13
17. While high or stoned, injured someone	15	16
18. Take more to avoid or reduce withdrawal	15	18
19. Gotten into legal trouble or arrested	13	9
20. Been suspended or expelled from school	11	10
21. Enjoyed using drugs	65	76
22. While high or stoned, driven a car	42	48
23. Wanted or tried to limit, cut down, or stop.	41	42
24. Continued to use despite psychological or physical consequence	24	29

Note. Most of the above phrases ended or including a clarification of (because of, when, due to) "using drugs." Items also were used to estimate diagnostic criteria for substance abuse (6, 10, 15, 16, 19, 20, 22) and dependence (6, 7, 8, 11, 18, 23, 24) based on the Diagnostic and Statistical Manual-IV-TR (American Psychiatric Association, 2000).

Table 3

Interest in Intervention Modalities by Past Month Use and Past Month Diagnosis Subsamples

Type of Intervention	Past Month Substance Use	Past Month Abuse/Dependence
1. Brief feedback/counseling	39	35
2. Brief feedback/counseling on campus with someone from student counseling center	35	31
3. Brief feedback/counseling with counselor unaffiliated with your college in private office	38	32
4. Confidential conversation with counselor on phone	37	33
5. Confidential conversation with a counselor via internet	28	24
6. Attend Alcoholics Anonymous/Narcotics Anonymous/12 step meeting in community	17	14
7. Alcohol or drug treatment from clinic in community	27	21
8. Talk to trusted teacher, administrator, or coach	39	37
9. Talk with parent or other family member	37	34
10. Complete a confidential, self-guided web-based program about drugs and alcohol	34	29
11. Daily self- monitoring of substance use using a handheld computing device	20	18

Note. n = 166 students reporting Past Month Substance Use, n = 100 for those past month substance using students who reported past year negative consequences consistent with an estimated diagnosis of substance abuse or dependence.