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The Impact of University Sanctions on Cannabis Use: Individual Difference Factors that Predict Change in Cannabis Use

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Abstract

Over one-third of college students use cannabis, yet the majority of students experiencing cannabis-use problems are not interested in seeking treatment. Therefore, the campus judicial process following a violation of university cannabis policies may be an important point of intervention. This study examined whether cannabis use decreased following being sanctioned by the university for violation of campus drug policy. We also identified individual difference factors related to changes in post-infraction use. University students ($N = 98$, 73.1% White, 88.2% Male) were referred to participate in a brief motivational intervention study as a component of their sanctions following violation of campus cannabis policies. Data were collected during the intake appointment. Approximately 91% of participants reported decreased post-infraction cannabis use and 58% of the sample reported abstinence in the month prior to intake. The following variables were significantly related to both abstinence or to reducing frequent use (from at least four times per month to less frequently): using less frequently prior to their infraction, descriptive friend norms, and enhancement motives. The following variables were significantly related only to reducing frequent use: injunctive norms regarding parents and expansion motives. Students sanctioned for cannabis violations appear to decrease cannabis use post-infraction. Thus, results support campus efforts to sanction students for violation of campus cannabis use policies. Identification of individual difference variables that predict post-infraction change in cannabis use can inform treatment and prevention efforts.

Keywords

campus sanctions; cannabis; marijuana; mandated college students; university cannabis use policies

Introduction

Over one-third of college students endorse current cannabis use (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2014). Further, nearly one-fourth of past-year cannabis using first-year students meet DSM-IV criteria for a cannabis use disorder (Caldeira, Arria, O'Grady, Vincent, & Wish, 2008) and 67% of cannabis using undergraduates report

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experiencing at least one cannabis-related problem with the most common problems concerning academic functioning (procrastination, lower energy, less productivity, memory loss, missing work or school; Buckner, Ecker, & Cohen, 2010). Among more frequent users (use at least weekly), procrastination (67%), lower productivity (49%), memory loss (41%), and missing work/school (33%) were experienced at especially high rates. These rates are concerning given that college students missing classes is related to lower GPA among cannabis users (Arria, Caldeira, Bugbee, Vincent, & O'Grady, 2015) and students with cannabis problems are more likely to drop out of college (Hunt, Eisenberg, & Kilbourne, 2010). More frequent cannabis using students experience non-academic problems at greater rates as well, including more physical and mental problems (Caldeira, O'Grady, Vincent, & Arria, 2012). Despite the high rates of cannabis use and use-related problems among college students, the vast majority of students with cannabis-related impairment are not interested in treatment to help them manage their cannabis use (Buckner et al., 2010; Caldeira et al., 2008). Thus, the campus judicial process can be a point of intervention for many students who engage in risky cannabis use. Campus alcohol and drug use policies tend to include sanctions for students who use cannabis, even in states in which cannabis has been decriminalized or legalized at the state level (e.g., University of Colorado Boulder, 2016). Further, in light of the recognition of the need to intervene with students engaging in risky cannabis use, many universities' sanction guidelines include completion of brief motivation treatment for cannabis use upon first violation of campus policies regarding cannabis use (e.g., The University of Vermont Center for Student Conduct, 2017). Given that so many campuses include policies such as sanctions for violation of campus cannabis policy, it is imperative to test whether such sanctions result in reductions of cannabis use as such information can inform campus policies.

Among students referred for alcohol treatment following violation of campus alcohol use policies, being sanctioned for violating campus alcohol policies in and of itself has been found to reduce drinking prior to receiving psychotherapy (Hustad, Short, et al., 2011; Merrill, Carey, Reid, & Carey, 2014; Morgan, White, & Mun, 2008; White, Mun, & Morgan, 2008). Yet, little is known about whether being sanctioned for violating campus cannabis policies impacts cannabis use. We were able to locate one study that included students referred for treatment following cannabis-related infractions and results indicated that cannabis use did not decrease following the infraction (White et al., 2008). However, these analyses included students referred for non-cannabis policy violations (over 90% were alcohol-related infractions) and students referred for violating cannabis policies constituted less than 9% of the sample. Further, frequency of cannabis use was related to attrition, making it unknown how many students in the final sample were referred due to cannabis-related infractions. Thus, it is currently unknown to what extent receiving a sanction for violating campus cannabis policies results in decreased cannabis use.

It is also important to identify psychosocial factors related to change in post-infraction cannabis use as such information could inform intervention efforts, including efforts by universities to tailor interventions of sanctioned students to maximize outcomes. No known studies have identified such factors for cannabis. The few studies that have done so for alcohol found that change in post-infraction drinking is predicted by less pre-infraction drinking, time since sanction, and descriptive (believing friends drink more) and injunctive

(believing friends approve of drinking) norms (Merrill et al., 2014). Further, cannabis use motives (i.e., reasons for use) may impact cannabis use. In particular, those who rely on cannabis to cope with negative affect may be less likely to decrease their use following a campus infraction. In fact, coping motives are robustly linked to using despite experiencing more cannabis-related problems (Buckner, 2013) and to continued use (Chen & Kandel, 1998).

Aims of the current study were two-fold: (1) to test whether cannabis use decreased following university sanctions and (2) to identify factors related to post-infraction change in cannabis use. Informed by the alcohol literature and research on predictors of college cannabis use, it was hypothesized that: (1) use would be significantly less in the 30 days prior to intake compared to the 30 days prior to the referring incident and (2) that the following individual differences variable would be related to change in cannabis use: cannabis use frequency prior to the referral incident, normative beliefs about cannabis use, number of cannabis-related problems, greater personal responsibility regarding the referral incident, less time since the infraction, normative beliefs, and coping motivated use.

Method

Participants and Procedures

Participants were recruited from a large state university in the Southern U.S. During presentation of their sanctions for violating the university's policies regarding cannabis use by staff in the university's Office of Student Advocacy and Accountability or the Office of Residential Life, students were referred to our clinic for treatment of risky cannabis use. Students who engaged in "predatory dealing" (i.e., selling cannabis to students other than one's friends) were not referred to the intervention study, as these students were usually expelled from the university. During the intake appointment, students were invited to participate in a study of the utility of brief motivational interventions for students referred for treatment by the university for violation of campus policies regarding cannabis use. Inclusion criteria were: (1) having received a campus disciplinary referral following a recent cannabis policy violation; (2) being at least 18 years of age; (3) being a current student at the university; (4) endorsing cannabis use in the month prior to referral incident; and (5) denial of mental health problems that could preclude participation. Students who declined to participate were re-referred to their referring office to arrange an alternate treatment program. Participants were charged the standard clinic intake fee (\$60) for their intake appointment. They were not compensated for study participation. The study was approved by the university's institutional review board. The confidentiality of research data was assured with a Certificate of Confidentiality from the U.S. Department of Health and Human Services. The referring office was informed only of students' attendance, not of their self-reported cannabis use. The current study is based on secondary analyses of pre-treatment data collected during the intake appointment as part of a larger study of factors related to cannabis use among sanctioned students (e.g., Buckner, Jeffries, Terlecki, & Ecker, 2016).

Of the 142 students who were referred for treatment, 1 was ineligible due to not being a current student at the university, 31 declined to attend an intake appointment, 4 did not respond to attempts to contact, 2 were found to be ineligible after intake and provided with

alternative treatment recommendations (1 due to diagnosis of a psychological disorder that precluded enrollment and 1 due to current suicidal ideation), and 6 were excluded due to denial of cannabis use in the month prior to infraction for which they were referred.

The final sample for this study included 98 students. The majority were in their first (57.0%) or second (25.8%) year of college. The sample was 73.1% White, 11.5% African American/Black, 7.7% Asian, 2.6% Native American, 2.6% Hispanic/Latino/a, and 2.6% multiracial. Participants were racially representative of the university (76% White). Compared with the larger university student body (49% male), participants were more likely to be male (88.2%). The majority of participants (61.8%) lived in their own residence, 18.4% in residence halls, 14.5% with parents, and 5.3% in fraternity housing. The assessment took place on average 126.1 ($SD = 108.0$) days after the violation.

Measures

Data regarding the nature and number of offenses for which students were referred for treatment were obtained from incident reports provided by the referring offices (i.e., Office of Student Advocacy and Accountability, Office of Residential Life). The reports included police reports (when applicable) and a list of campus policy violations committed by the student.

The Structured Clinical Interview for DSM-IV Disorders (SCID; First, Spitzer, Gibbon, & Williams, 2007)—The SCID is a semi-structured interview that was used to assess for DSM-IV cannabis use disorder (CUD). The SCID was administered by trained graduate students in the clinical psychology graduate program under the supervision of the first author (a licensed clinical psychologist). It has demonstrated good interrater reliability in prior work (Ventura, Liberman, Green, Shaner, & Mintz, 1998) and among our therapists (e.g., % agreement between two raters for primary CUD diagnosis was over 90%; Buckner, Zvolensky, Ecker, & Jeffries, 2016).

Timeline Follow Back (TLFB; Sobell & Sobell, 1992)—The clinician-administered TLFB was used to assess cannabis use during the 30 days prior to the intake appointment and infraction. Both quantity (i.e., number of cigarette-sized joints used) and frequency of cannabis use were assessed. The TLFB is a reliable and valid self-report measure of cannabis use (O'Farrell, Fals-Stewart, & Murphy, 2003; Robinson, Sobell, Sobell, & Leo, 2014).

Marijuana Problems Scale (MPS; Stephens, Roffman, & Curtin, 2000)—The MPS assesses 19 cannabis-related problems in the past 90 days. Endorsed items were summed to create an index of total number of cannabis-related problems. The MPS has demonstrated good internal consistency in prior research (Buckner et al., 2010) and the adapted version demonstrated good internal consistency ($\alpha = .83$) in the current sample.

Reasons for Quitting Questionnaire (Steinberg et al., 2002)—This scale consisted of a list of 29 reasons to change their cannabis use (e.g., “To show myself that I can quit if I really want to”) and instructions were “Following are different reasons to reduce or stop marijuana use. Please select all that apply to you”. Endorsed items were summed to create

an index of total number of reasons. This measure evidenced good internal consistency in the current sample ($\alpha = .89$).

Descriptive norms—These were assessed using items from the *Core Institute's Campus Assessment of Alcohol and Other Drug Norms*. Participants were asked to indicate how often they think students in each category (i.e., “your friends”, “students in general”) typically use cannabis. Response options were as follows: daily, nearly every day, 2–3 times per week, 1 time per week, 2–3 times per month, 1 time per month, 3–6 times per year, 1–2 times per year, and never. This measure has been used to successfully assess perceived peer substance use in prior work (e.g., Ecker & Buckner, 2014).

Injunctive norms—These were assessed using a modified measure of injunctive norms of alcohol (Baer, 1994) by asking how friends/parents would respond if they knew the participant (a) used cannabis every weekend, (b) used cannabis daily, (c) drove after using cannabis, and (d) used enough cannabis to pass out. Each item was rated from 1 (*strong disapproval*) to 7 (*strong approval*). Responses from the four items assessing friend approval were summed to create a total score for friend injunctive norms and responses from the four items assessing parent approval were summed to create a total score for parent injunctive norms. Higher scores reflect greater approval of risky cannabis use. The friend and parent scales demonstrated excellent internal consistency in our sample ($\alpha = .92$, $\alpha = .90$, respectively).

Marijuana Motives Measure (Simons, Correia, Carey, & Borsari, 1998)—The MMM is a 25-item measure assessing on a 1 (*almost never/never*) to 5 (*almost always/always*) scale the degree to which participants smoked cannabis for particular reasons: enhancement (e.g., to get high), coping (e.g., to forget my worries), social (e.g., to enjoy a party), conformity (e.g., to fit in with a group I like), and expansion (e.g., to expand my awareness). Subscales have demonstrated adequate internal consistency in prior work (Chabrol, Ducongé, Casas, Roura, & Carey, 2005) and demonstrated at least adequate internal consistency in the present sample: conformity ($\alpha = .77$), enhancement ($\alpha = .91$), social ($\alpha = .80$), coping ($\alpha = .81$), and expansion ($\alpha = .94$).

Results

Nature of the Offenses

Cannabis possession was the most common campus violation (77.6%), followed by possession of cannabis-related paraphernalia (52.0%), possession of schedule II drugs (7.1%), possession of cannabis with intent to distribute (4.1%), suspected but unconfirmed possession of cannabis (4.1%), battery (3.1%), and other (12.2%; e.g., hospitalization for consumption of drugs, trespassing, resisting arrest). The majority were charged with one (47.4%) or two (44.2%) offenses, with 5.3% being charged with three and 3.2% being charged with four offenses.

Cannabis use and related problems

Using DSM-IV criteria, 29.6% met criteria for cannabis dependence and 13.3% met criteria for cannabis abuse. Age of first use ranged from 12–24 ($M = 16.7$, $SD = 2.1$), with the majority (62.7%) using before the age of 18. Number of cannabis-related problems ranged from 0–14 ($M = 3.2$, $SD = 2.6$) and number of reasons to change cannabis ranged from 0–20 ($M = 4.8$, $SD = 4.7$).

Impact of Sanctions on Cannabis Use

In the 30 days prior to their referring incident, participants used cannabis a mean of 29.62 ($SD = 33.77$) times over a mean of 15.47 ($SD = 9.99$) days. In the 30 days prior to their intake appointment, participants used cannabis a mean of 7.12 ($SD = 17.22$) times over a mean of 4.11 ($SD = 7.94$) days. Results from paired samples t-tests indicated that pre-intake cannabis use quantity was significantly less than pre-incident quantity, $t(85) = 6.30$, $p < .001$, $d = 0.68$, a medium-to-large effect (Cohen, 1992). Pre-intake cannabis use frequency was significantly less than pre-incident frequency, $t(87) = 9.65$, $p < .001$, $d = 1.03$, a large effect.

The majority (90.9%) decreased their use following their infraction and 58% of the sample reported abstinence in the month before intake. Further, of those ($n = 76$, 86.4%) that reported frequent pre-infraction use (using at least four times in the pre-infraction month), 71.1% reported using less than four times per month in the month prior to intake. Given that cannabis outcome variables were not significantly skewed or kurtotic (per Kline, 2005), a series of analyses of variance (ANOVA) was conducted to test whether pre-intake abstainers ($n = 33$) differed from those that continued to use ($n = 52$) on a number of cannabis outcomes (see Table 1). Separate models were examined for each DV. ANOVA was also used to test whether pre-intake decrease users ($n = 22$; use at least four times in the pre-infraction month that decreased in the month prior to intake to less than four times per month) differed from those that did not reduce their use ($n = 55$; frequent pre-infraction use that remained frequent in the month prior to intake). The following variables were significantly related to both abstinence or to reducing frequent use (from four times per month to less frequently): using less frequently prior to their infraction, descriptive friend norms, and enhancement motives (Table 1). Given the large number of comparisons, we highlight effect size estimates – differences between abstainers and users were in the medium range as were those between the decrease and sustainers, except for Expansion motives, where a large effect was observed (Cohen, 1992). The following variables were significantly related to reducing frequent use: injunctive norms regarding parents and expansion motives.

Discussion

This is the first known study to test whether sanctions for violation of campus cannabis policies results in decreases in cannabis use among students referred by a university for CUD treatment. Results indicate that university sanctions do result in decreases in cannabis. In fact, the size of the observed effects was large. Further, 58% of students abstained from cannabis use following their violation and over 70% of frequent pre-infraction users

decreased their use. Given that, regardless of frequency of use at intake, students, on average, experienced over three cannabis-related problems, reductions in use is an important step in reducing cannabis-related problems for these students. Together, these data support the use of sanctions for students who violate university code of conduct policies concerning cannabis use.

Several individual difference variables predicted decreases in use. Those who used cannabis more frequently prior to the infraction were less likely to become infrequent users or to abstain by intake. The finding that frequency of pre-infraction use predicts the degree of decrease in use is consistent with alcohol literature (Merrill et al., 2014). Given that heavy drinkers respond to brief interventions for drinking (Carey, Carey, Maisto, & Henson, 2006; Larimer & Cronce, 2002; Terlecki, Buckner, Larimer, & Copeland, 2015), more frequent cannabis users may benefit from interventions to explore and resolve ambivalence about reducing risky cannabis use and/or skills to help them reduce risky use.

Several psychological factors were also related to post-infraction use. Individuals who did not abstain or reduce cannabis use from cannabis at least 30 days prior to the intake were more likely to report that they believed their friends used more cannabis. This finding is consistent with the limited literature on change in post-infraction drinking (Hustad, Eaton Short, et al., 2011; Merrill et al., 2014; Morgan et al., 2008; White et al., 2008). Similarly, believing that parents approve of cannabis use was negatively related to reducing frequent use (although not to abstinence). This is consistent with prior work finding injunctive norms are related to more frequent college cannabis use (Buckner, 2013). Further, greater parental monitoring is related to less college cannabis use (Pinchevsky et al., 2012). Taken together, these data suggest that parents continue to influence their children's cannabis use even into college.

Contrary to expectation, enhancement and expansion motives (but not coping motives) were related to post-infraction use. This is consistent with prior work finding enhancement and expansion (but not coping) motives were positively related to intention to use cannabis among adolescents (Dash & Anderson, 2015). Taken together, these data suggest that enhancement and expansion motives may play important roles in continued cannabis use, especially following university sanctions. Thus, these students may benefit from intervention techniques aimed at teaching students more adaptive skills to increase positive affect and expand their awareness (e.g., meditation). The failure of number of cannabis problems to predict a decrease in cannabis use is reflective of the mixed findings regarding whether a greater number of alcohol-related problems predict higher (Diulio, Cero, Witte, & Correia, 2014; Shealy, Murphy, Borsari, & Correia, 2007) or lower (Barnett, Goldstein, Murphy, Colby, & Monti, 2006) motivation to reduce alcohol use.

The study should be considered in light of limitations that can inform future work in this area. First, the sample was predominantly male. Although this probably reflects that cannabis use is greater among college men than women (Johnston et al., 2014), the alcohol literature suggests that women may be more motivated to change substance use following a campus citation (Barnett et al., 2006). Thus, future work could benefit from inclusion of more women to examine whether results generalize to samples with a greater representation

of women or whether gender differences exist on problems experienced and/or motivation factors. Second, data were collected in a state in which cannabis remains illegal. Thus, the majority of offenses for which students received citations were possession. Additional work is necessary to investigate whether campus citations are effective in reducing cannabis use in states in which cannabis is legal. Third, data were self-report and future work could benefit from multi-method (e.g., biological verification of cannabis use) and multi-informant (e.g., collateral reports of cannabis use and problems) approaches. Although post-infraction cannabis use was not reported to the referring agencies, it could be especially important to biological verify post-infraction cannabis use. Fourth, data were cross-sectional and relied on retrospective recall of pre-infraction cannabis use; thus, prospective studies of the impact of university sanctions are necessary to determine their long-term impact on cannabis use.

Conclusions

Despite these limitations, this is the first known study to test whether university sanctions impact cannabis use. It is important to note that they do, although there is variability in the magnitude of the impact on post-sanction use. This study is also the first to identify factors that are related to change in post-sanctions use. It is our hope that this information will inform efforts to improve treatment outcomes among students sanctioned for treatment following violation of campus cannabis policies.

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Public Significance Statement

The present study suggests that the campus judicial process following a violation of university cannabis policies may be an important point of intervention for cannabis-using college students. 91% of participants decreased cannabis use post-infraction while 58% remained abstinent. Pre-infraction use, norms, and motives were linked to abstinence and decreased use.

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Table 1

Factors related to post-infraction abstinence and decrease in use frequency.

	Abstinence				Use Frequency					
	Past-month Abstainer (<i>n</i> = 33) <i>M</i> (<i>SD</i>)	Past-month cannabis user (<i>n</i> = 52) <i>M</i> (<i>SD</i>)	<i>F</i>	<i>p</i>	<i>d</i>	Use decreaser ^a (<i>n</i> = 22) <i>M</i> (<i>SD</i>)	Use sustainer ^b (<i>n</i> = 55) <i>M</i> (<i>SD</i>)	<i>F</i>	<i>p</i>	<i>d</i>
Number of reasons to change	5.93 (5.31)	4.39 (4.11)	1.84	.179	.211	6.13 (5.56)	3.90 (3.70)	2.69	.106	.472
Number of cannabis problems	3.27 (3.10)	3.51 (2.09)	.14	.705	.091	3.60 (3.10)	3.60 (1.79)	.00	.996	.000
Number of offenses	1.72 (.90)	1.65 (.49)	.21	.645	.097	1.83 (.83)	1.60 (.50)	1.35	.249	.336
Past-month use frequency	13.16 (9.94)	18.74 (8.49)	6.45	.013	.604	15.83 (8.89)	20.80 (7.47)	4.31	.032	.605
Descriptive norms	4.77 (2.42)	6.08 (1.55)	5.92	.018	.660	5.28 (2.11)	6.41 (1.58)	4.00	.050	.613
Injunctive norms-Friends	14.40 (5.97)	15.76 (5.40)	.884	.350	.240	14.74 (5.56)	16.71 (6.17)	1.43	.237	.336
Injunctive norms-Parents	7.12 (3.79)	8.44 (5.12)	1.49	.227	.296	7.05 (3.61)	9.76 (5.38)	5.18	.027	.465
Social motives	9.93 (4.23)	11.77 (3.73)	3.82	.054	.462	10.81 (3.97)	12.35 (3.87)	2.14	.148	.392
Coping motives	8.09 (3.83)	9.29 (3.22)	2.05	.156	.340	9.06 (3.98)	9.05 (3.27)	.000	.990	.003
Enhancement motives	14.84 (6.07)	17.94 (5.86)	4.90	.030	.520	16.17 (5.80)	19.35 (5.41)	4.42	.039	.567
Conformity motives	5.89 (1.97)	6.16 (1.97)	.352	.555	.137	6.08 (2.32)	6.50 (2.33)	.454	.503	.181
Expansion motives	9.20 (5.07)	11.58 (6.04)	3.46	.067	.428	9.69 (4.89)	13.90 (6.23)	8.89	.044	.757

Note. Bolded results indicate significant differences.

^a frequent pre-infraction use (using at least four times in the pre-infraction month) that decreased in the month prior to intake to less than four times per month;^b frequent pre-infraction use that remained frequent in the month prior to intake.