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An Examination of Opinions Toward Marijuana Policies Among High School Seniors in the United States

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Abstract

Support for marijuana (cannabis) legalization is increasing in the US, and state-level marijuana policies are rapidly changing. Research is needed to examine correlates of opinions toward legalization among adolescents approaching adulthood as they are at high risk for use. Data were examined from a national representative sample of high school seniors in the Monitoring the Future study (years 2007-2011; N = 11,594) to delineate correlates of opinions toward legalization. A third of students felt marijuana should be entirely legal and 28.5% felt it should be treated as a minor violation; 48.0% felt that if legal to sell it should be sold to adults only, and 10.4% felt it should be sold to anyone. Females, conservatives, religious students and those with friends who disapprove of marijuana use tended to be at lower odds for supporting legalization, and black, liberal and urban students were at higher odds for supporting more liberal policies. Recent and frequent marijuana use strongly increased odds for support for legalization; however, 16.7% of non-lifetime marijuana users also reported support for legalization. Findings should be interpreted with caution as state-level data were not available, but results suggest that support for marijuana legalization is common among specific subgroups of adolescents.

Keywords

marijuana; adolescents; attitudes; legalization; decriminalization; drug policy

Introduction

The United States (US) is beginning to experience a drastic change in marijuana policy. In 2012, two states legalized recreational use for adults (Hawken et al. 2012; Healy 2012) and despite use still being illegal at the federal level, the majority (64%) of the public feels the federal government should not enforce marijuana laws in these states (Newport 2012). A slim majority (54-58%) of American adults now support marijuana legalization (Pew Research Center 2014; Swift 2013) and three-quarters (76%) of adults now feel that if marijuana use is not legalized, those convicted of possessing small amounts should not be imprisoned (Pew Research Center 2014). At least nineteen states and the District of

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Columbia now allow medical marijuana to be prescribed (Pew Research Center 2013), and other cities and states have also decriminalized marijuana use; for example, possession of small amounts may only be considered a violation and result in a fine instead of an arrest.

Given these recent changes in US marijuana policy, it is likely that additional states will also legalize or decriminalize use, so research is needed to investigate how such policy changes affect use. Recent national studies have found that rates of marijuana use have not changed in light of medical marijuana legalization (e.g., Choo et al., 2014; Lynne-Landsman et al. 2013), yet other national studies suggest marijuana use appears to be higher in states that allow medical marijuana use, but increasing rates of use may have preceded or influenced such policy (Cerdá et al. 2012; Wall et al. 2011). Changes in marijuana use, in states with medical marijuana legalization, may also be influenced by other factors. One recent study consisting of high school seniors found that the idea of legalization is associated with intent to use among certain subgroups (Palamar et al. 2014).

More research is needed to examine potential effects of legalization on use and attitudes toward use, but research is also needed to examine correlates of opinions toward marijuana policies. This is important as public opinion tends to drive policy in the US. With respect to positions toward marijuana policy, a recent study found that voter approval of medical marijuana in Montana was positively related to lifetime and recent use, but such support may have stemmed from a more tolerant environment (Friese & Grube 2013). Marijuana use, levels of perceived risk and support for legalization have fluctuated over the years (Johnston et al. 2013a), but it is particularly important to examine what correlates explain positions toward use in our rapidly changing political climate.

There is much debate about marijuana legalization, but there is a lack of empirical research with respect to legalization. Research is particularly needed to examine positions toward legalization among those who are at high risk for initiation—adolescents approaching adulthood (Johnston et al. 2013a, 2013b; Substance Abuse and Mental Health Services Administration 2012). Currently, our main source for public opinion data on marijuana policy is national poll surveys of adults conducted by organizations such as Gallup® (Newport 2011), the General Social Survey (GSS) (Smith et al. 2013) and the Pew Research Center (2013, 2014). Other surveys about positions toward marijuana policy have been conducted on convenience samples (e.g., via Internet) by news- and websites. While some sources of such poll data provide us with valuable information based on national representative samples, there is lack of literature on positions toward marijuana policy among adolescents approaching adulthood, and few studies delineate correlates of such positions in an epidemiological manner. An analysis of correlates of such positions is important as these adolescents are (or soon will be) of age to vote and perhaps influence marijuana policy. This study examines data from a nationally representative survey of high school seniors and delineates correlates of positions toward marijuana policy. Examining correlates in a multivariable manner allows us to observe relations between covariates and opinions toward policy while controlling for potential confounding factors.

Method

Sample and Study Procedures

High school senior data were examined from Monitoring the Future (MTF), an annual national survey of high school students in approximately 130 public and private schools throughout 48 states in the US (Johnston et al., 2013a). MTF selected schools through multistage random sampling: first, geographic areas were selected, then schools within geographic areas were selected, and then students were selected within schools. MTF assesses a variety of constructs, which are divided into six randomly distributed questionnaire forms. This study examines data collected through Form 4, which assesses opinions toward marijuana policies in addition to demographic and drug use variables. Data from 2007-2011 were examined because these years reflect the most recent positions towards marijuana policy and also because favor towards legalization began to increase in 2007 and continued to increase through 2011 (Johnston et al. 2013a). Data from 2011 was also the most recent data available for this analysis and the last available data prior to the vote in 2012, which legalized recreational marijuana use in two states.

Measures

These analyses examine numerous demographic covariates. Student age (defined by MTF as <18 years vs. >18 years), sex (male vs. female) and race were examined. Race was defined by MTF as white, black or Hispanic. Population density was categorized by MTF into three categories: non-, small- and large-metropolitan statistical areas (MSAs). Small MSAs are defined as counties or groups of counties with at least one city of at least 50,000 inhabitants or twin cities with at least 50,000 inhabitants. The 24 largest MSAs are considered large-MSAs, and non-MSAs reflect the remaining areas (Johnston et al. 2013a). Students were also asked about their political beliefs and answer options were categorized into conservative (including "very conservative"), moderate, liberal (including "very liberal"), radical, and "none of the above, or don't know." Level of religiosity was assessed via two ordinal items which asked about level of religious attendance and importance. These items were computed into a mean religiosity composite (range: 1-4) and divided into tertiles, which indicate low (1.0-2.0), moderate (2.5-3.0) and high (3.5-4.0) religiosity (Palamar, 2013). Students' parental educational attainment was examined as an indicator of socioeconomic status (Wallace et al. 2009). Students were asked about parents' educational attainment on an ordinal scale and a mean score for both parents (or the actual score if only one parent) was trichotomized into three groups representing: 1) low (1.0-3.0), medium (3.5-4.0), and high educational attainment (4.5-6.0) (Wallace et al. 2009).

Students were asked whether they had ever smoked cigarettes and whether they had drunk alcohol ("more than just a few sips") within the last 12 months. Both cigarette and alcohol use were examined as dichotomous (yes/no) variables indicating whether students reported use. With regard to marijuana use, students were asked, "On how many occasions (if any) have you used marijuana (weed, pot) or hashish (hash, hash oil) in your lifetime?" The same question was asked for use in the last 12 months and 30 days. Possible responses for each of the three questions were: 1) 0 occasions, 2) 1-2 occasions, 3) 3-5 occasions, 4) 6-9 occasions, 5) 10-19 occasions, 6) 20-39 occasions, and 7) 40+ occasions. Additional

dichotomous variables were created for the three marijuana variables indicating whether the student used (yes/no). Perceived peer disapproval of marijuana use was also assessed: "How do you think your close friends feel (or would feel) about you trying marijuana (pot, weed) once or twice?" Responses were dichotomized into "disapprove" (from "disapprove" and "strongly disapprove") and "don't disapprove."

The dependent variables in these analyses were two categorical items assessing positions towards various marijuana policies. The survey stated that "There has been a great deal of public debate about whether marijuana use should be legal," and then asked, "Which of the following policies would you favor?" Answer options were: 1) "Using marijuana should be entirely legal," 2) "It should be a minor violation—like a parking ticket—but not a crime," 3) "It should be a crime," and 4) "Don't know." The students were then asked, "If it were legal for people to use marijuana, should it also be legal to sell marijuana?" Answer options were: 1) "No," 2) "Yes, but only to adults," 3) "Yes, to anyone," and 4) "Don't know."

Analyses

Data were examined for the students with complete marijuana and position towards marijuana policy data ($N = 11,594$; weighted $N = 11,580$). Characteristics across the five cohorts were compared before aggregating data. Specifically, Rao-Scott chi-square tests (Rao & Scott 1984) were computed to determine whether there were differences between cohorts on covariates while correcting for the complex study design. After aggregating the data, basic descriptive statistics (percentages) of sample characteristics were computed for each variable. For descriptive purposes, raw proportions of values for each covariate by both outcome variables were computed and potential differences were examined using Rao-Scott chi-square tests.

After examining the unconditional associations through raw proportions, multinomial logistic regression models were computed to estimate conditional (multivariable) associations of covariates between each trichotomous outcome (as compared to a reference), producing adjusted odds ratios (AORs) and 95% confidence intervals. Specifically, in the first model, the outcome variable was favor towards marijuana legality—stating that marijuana use should be 1) legal, 2) a violation, or 3) "don't know," was compared to stating that use should be a crime. In the second model, the outcome variable was favor for who should be able to purchase marijuana if legal— stating that 1) only adults, 2) anyone, or 3) "don't know," should be able to purchase it, compared to the response that no one should be able to purchase it if legal. Potential cohort effects and/or secular trends were controlled by entering indicators for each year (with 2007 as the comparison) in all models (Wray-Lake et al. 2012). Separate models were also fit that included two-way interaction terms of cohort by covariates that showed non-homogeneous distribution over time. Cohort was treated as a continuous variable in interaction models, which were examined to assess possible monotone trends in the relationships of the outcome to those covariates over time.

Finally, cumulative logistic regressions were modeled to examine how positions toward marijuana policy relate to the ordinal frequency of lifetime, last year and last 30 day use variables, controlling for all covariates (other than 30-day marijuana use). These models produce AORs that represent an average change in odds for each additional point-increase

on the ordinal measure. All analyses described above were weighted according to the survey's sampling scheme to adjust for differential probability of selection. Goodness-of-fit is reported in terms of Nagelkerke R^2. All analyses were design-based for survey data (Heeringa et al. 2010) and conducted using SAS 9.3 software (SAS Institute, Inc. 2011).

All multivariable models included missing data indicators (a.k.a.: "dummy" variables) for covariates with missing data in order to maximize the sample size. For example, 13.9% of the sample was missing race and 23.7% were missing religiosity. Utilizing case-complete data (with no missing values) would have required the deletion of 45.5% of the sample. Including a missing data indicator for covariates with missing data (e.g., including an indicator representing the 13.9% of students with missing race data) allowed the full analytic sample to be retained. For example, while "female" is the dichotomous indicator (or "dummy") variable for sex, a dichotomous indicator representing the 4.7% of the sample with missing sex data, representing a third level of the variable, was also included. Thus, each model technically contained no missing data, which would have led to listwise deletion of missing cases. In order to ensure that inclusion of missing data indicators did not bias results, all models were recomputed using case-complete data ($N = 6,315$) and results (e.g., AORs, R^2) were almost identical (although some results only approached significance in the case-complete sample due to lack of power). This has also been done in previous MTF analyses (e.g., Palamar et al., 2014; Terry-McElrath et al. 2013).

Results

Table 1 presents the descriptive statistics and raw proportions of each covariate by each position-related outcome, which corresponds to the two multinomial logistic regression models. Lifetime and 12-month marijuana use were included for descriptive purposes and percentages of missing data for covariates are also presented as these cases were not removed from analyses. The majority (56.4%) of the sample was >18 years old and 59.8% identified as white. Regarding positions towards policy, 33.0% reported that marijuana should be entirely legal and 28.5% felt it should be treated as a violation; 25.6% felt that it should be a crime and 12.9% were unsure. With regard to who should be able to purchase marijuana (if legal), 29.2% said no one, 48.0% felt only adults should be able to purchase; 10.4% felt anyone should be able to purchase and 12.4% were unsure (data not presented in table). Percentages of race, population density, cigarette use, marijuana use, friend disapproval of marijuana use and positions toward legalization significantly differed across cohorts (cohort comparison data not shown), but there were no significant interactions between cohort and any covariate (in later multinomial models) that significantly changed across cohorts.

There were significant differences (all ps < .001) between almost all covariates and favor for marijuana policy and favor for who should be able to buy (if legal), although the significant difference by age and favor for marijuana policy was weaker ($p < .01$), and the difference by population density and favor for who should be able to buy (if legal) was non-significant. Percentages correspond to the levels of each covariate later examined in the multinomial models, but of note, 7.1% of lifetime marijuana users felt that marijuana use should be a crime while 16.7% and 27.1% of non-lifetime users felt that use should be legal or a

violation, respectively. Likewise, 17.7% of lifetime users felt that if legal, marijuana should be sold to no one, and 38.5% of non-lifetime users felt marijuana should be able to be sold to adults.

Table 2 presents the AORs of each covariate in the model examining positions toward legalization policy ($R^2 = 37\%$). With all else equal, compared to younger students, older students were at lower odds for reporting that marijuana use should be a violation and females (in comparison to males) were at lower odds for reporting that marijuana should be legal. Compared to white students, identifying as black increased the odds for supporting legalization or treating use as a violation, and identifying as Hispanic increased the odds for favoring use being treated as a violation. Residing in a small or large MSA (compared to residing in a non-MSA) increased the odds for both legalization and treating use as a violation. Compared to those who did not specify a political affiliation, conservatives were at lower odds for favoring legalization or treating use as a violation. Liberals were at increased odds for favoring both legalization and treating use as a violation. Compared to non-religious students, those who were highly religious were at low odds for favoring legalization or treating use as a violation, and those who were moderately religious were also at low odds for supporting legalization. With regard to parent education, compared to those with parents of low educational attainment, those with high parent educational attainment were at higher odds for supporting legalization. Cigarette and alcohol use both increased the odds for legalization or for treating use as a violation and recent marijuana use robustly increased the odds for both of these outcomes. Having friends who disapprove of use strongly decreased the odds of all three outcomes.

Table 3 presents the AORs for each covariate in the examining positions towards who marijuana should be sold to if legal ($R^2 = 14\%$). With all else equal, compared to younger students, older students were at lower odds for reporting that marijuana should be sold to anyone, and females (compared to males) were at lower odds for reporting that it should only be sold to adults. Compared to white students, black students were at higher odds for reporting that marijuana should only be sold to adults. Compared to those residing in a non-MSA, residing in a small MSA increased the odds for reporting that it should only be sold to adults. Compared to those who did not report a political affiliation, conservatives were at low odds for supporting marijuana being sold to adults or to anyone. However, moderates and liberals were at high odds for supporting sales to adults and low odds for supporting sales to anyone. With regard to religiosity, compared to non-religious students, students who were moderately or highly religious were at low odds for supporting sales to adults or anyone. Compared to students of parents with lower educational attainment, students of parents with medium or high educational attainment were also at higher odds of favoring that marijuana only be sold to adults. Students who have smoked cigarettes or used alcohol were at higher odds for reporting that it should only be sold to adults. Recent marijuana use strongly increased the odds for favoring that marijuana be sold to adults or anyone, and students with friends who disapprove of marijuana use were at lower odds for all three outcomes.

Results from the cumulative logistic regression models are presented in Table 4. In comparison to reporting that marijuana use should be a crime, favor for it being legal or a

minor violation robustly increased the odds for each level of marijuana use for lifetime (R^2 = 52%), last year (R^2 = 49%) and last 30 day use (R^2 = 39%). Frequency of use was more strongly associated when use was more recent. Similar, but less robust findings were associated with reporting that marijuana should be sold to only adults or anyone, in comparison to favoring that it should be sold to no one.

Discussion

Support for marijuana legalization is on the rise in the US and there is increasing political debate regarding such policies. Studies of the effects of various forms of decriminalization and depenalization on use have been conducted internationally (e.g., Greenwald 2009; MacCoun & Reuter, 2001; Vuolo 2013), but few studies in the US have examined the effects of more liberal marijuana policies (e.g., Cerdá et al. 2012; Schuermeyer et al., 2014; Wall et al. 2011). Thus, much debate about the effects of legalization in the US is not yet evidence-based. This study delineated correlates of high school seniors' positions towards various legalization policies.

Favor for marijuana being legalized among high school seniors has been assessed by MTF since 1975 and support has fluctuated over time, but support has increased in recent years and reached an all-time high of 39.3% in 2012 (Johnston et al. 2013a). This study found that males are more likely to support legalization than females. This corroborates findings from the Pew Research Center and GSS and adds to them as results also suggest that males report higher support for adults being able to purchase marijuana if legal (Caulkins et al. 2012a; Pew Research Center 2013). This is not surprising as males report higher rates of marijuana use than females (Johnston et al. 2012). With respect to age, the Pew Research Center (2013, 2014) found that the Millennial generation (age 18-29) supports legalization more than older generations. This study compared seniors younger than age 18 to those who are age 18 or older and found that older students are less likely to support treating use as a violation. They are also less supportive of marijuana being sold to anyone if legal. High school seniors tend to have the highest rates of annual use, higher than college students and other young adults (age 18-29) (Johnston et al. 2013b); therefore, since rates of recent use decrease after age 18, it appears that support for more liberal policies may also decrease.

Also corroborating the results of adults assessed by the Pew Research Center and GSS (Caulkins et al. 2012a; Pew Research Center 2013, 2014), black students were at higher odds for support for legalization and decriminalization (treating use as a violation), compared to white students. They were also at higher odds for reporting support for sales to adults. Hispanics were also at higher odds for supporting use being treated as a violation. Compared to whites, black and Hispanic students are more likely to support more liberal marijuana policies, yet they report lower rates of use than White students (Johnston et al. 2012). This may be due, in part, to the fact that blacks and Hispanics have higher rates of arrest related to use (American Civil Liberties Union [ACLU] 2013; Golub et al. 2007; Johnson et al. 2008), which is likely due to minorities engaging in riskier purchasing practices (e.g., buying out in the open, buying from strangers) and from "Stop and Frisk" policies (ACLU 2013; Ramchand et al. 2006). Arrest disparities are common in large MSAs like New York City, and MSAs also tend to have higher rates of use than non-MSAs

(Johnston et al. 2012), which may help explain why students in cities tend to support more liberal policies. Higher prevalence, exposure to users, arrest rates in particularly in minority-dense areas, and possibly more "liberal-minded" mentalities, may help drive these MSA findings.

Political affiliation tended to be strongly correlated with positions toward legalization. Conservatives were consistently against legalization and decriminalization and liberals were consistently at higher odds for supporting more liberal policies. However, while conservatives were less likely to support marijuana being sold to anyone or only adults, both liberals and moderates were at higher odds for supporting marijuana only being sold to adults and were at low odds for favoring sales to anyone. This implies that these groups tend to support legalization, but in an age-restricted manner. While support for legalization has increased among both major US political parties in recent years, poll data show that Democrats (63%) still favor legalization at higher rates than Republicans (39%) (Pew Research Center 2014). However, differences are not as large between Democrats (79%) and Republicans (69%) with regard to agreement that possession for small amounts of marijuana should not result in imprisonment. Another somewhat unexpected finding was that religious students were less likely to support enactment of liberal marijuana laws. While highly religious students were at low odds for supporting more liberal policies, almost half (47.4%) of highly religious students said they favor either legalization or treating use as a violation. This may be because marijuana use is becoming seen as less of a moral issue (Palamar et al. 2014; Pew Research Center 2013). In 2013, only 32% of adults in the US felt use was morally "wrong" as compared to 50% in 2006 (Pew Research Center 2013).

Students who have used cigarettes in their lifetime or alcohol in the last year are at higher odds for supporting legalization, treating use as a violation and for marijuana being sold to adults if legal. Marijuana use, however, was more robustly associated with these positions, particularly full legalization. Marijuana users were also at higher odds for supporting marijuana being sold to individuals of any age. It should be noted that almost half of the sample was under age 18 so the age restriction item applied more directly to these individuals. This study also adds to previous findings suggesting recent users report the highest support for legalization (Pew Research Center 2013; Williams et al. 2011). This study found that not only more recent, but more frequent use, is robustly associated with support for each form of legalization assessed. Some lifetime marijuana users, however, do not support legalization. Many cigarette smokers regret smoking and are now against cigarette use (Williams et al. 2011), and this situation may be similar for some marijuana users as 7.1% of lifetime users felt marijuana should be illegal. Yet, one does not have to be a lifetime marijuana smoker to support more liberal policies; 16.7% of non-lifetime users in this sample support legalization. Support for legalization can be based on support for liberty, raising tax revenues, eliminating arrests, reducing black markets and associated corruption and harm, and even to reduce access to youths (Caulkins et al. 2012b). Finally, friend disapproval towards use decreases the odds for support for more liberal policies. Having more peers who use increases support for legalization (Williams et al. 2011) so having friends who have not used or do not support use may influence students' positions towards policy.

This study has only begun to disentangle correlates of positions towards legalization. However, "legalization" has not been well-defined in surveys and polls, and the terms legalization and decriminalization are often used interchangeably despite having different meanings (Bayer & Oppenheimer 1993; Caulkins et al. 2012a; Hughes & Stevens 2010). Over half of adults now approve of legalization, but more research is needed to assess specific positions towards various regulations. Specifically, "legalization" generally still implies regulations regarding production, availability, product control, supplier and outlet controls, and purchaser and user controls (Rolles 2009). So enforcing a minimum age is an example of a regulation under legalization, although it can still be seen as a form of partial prohibition (MacCoun 2010). Research is needed to examine positions towards other regulations that fall under the umbrella term of legalization. This study was unique as it used national data to examine positions toward various forms of legalization, and it also assessed positions towards a specific user control—age-restricted access. However, MTF asks about legal use among those 18 or older, but Colorado and Washington now allow individuals to use who are at least 21 years of age (Hawken et al. 2010; Healy 2012) so more research is also needed regarding opinions toward various age restrictions.

Limitations

Although data were derived from a representative sample, students who dropped out of school were not included and missing data might limit the generalizability of findings. Missing data was problematic; however, missing data indicators were included in all models to maximize the full sample and results were nearly identical to the case-complete dataset. There were some systematic demographic and substance use differences across cohorts (data not presented); however, no interactions by cohort were found (in multivariable models) by any variables that significantly changed over time. Specificity analyses were also conducted, comparing model results across separate cohorts and results were similar, although the combined sample had more power to detect associations.

Only seniors were asked about positions towards marijuana policy so students in other grades could not be examined, and other than friend disapproval, no other attitudinal or belief variables (e.g., perceived risk) were assessed in the same survey form as positions toward legalization. Causality cannot be determined as the study is cross-sectional so it is unknown, for example, whether use occurred before or after individuals held such views toward use. Adults residing in states with more liberal marijuana laws have higher support for legalization (Pew Research Center 2013); however, this could not be examined as MTF does not provide state-level data. Lack of state-level data is also a limitation because some states had decriminalized use or began to allow medical marijuana use before or during the time period examined. So although use was not legal in any state, varying policies may have influenced students' responses. MTF also did not differentiate between medical and illicit marijuana. Finally, "don't know" responses can be problematic in public opinion surveys (Krosnick et al. 2002), and legalization questions in this study had high rates of "don't know" (>12%) compared to "no opinion" or "unsure" responses on most adult surveys. "Don't know" responses were included in analyses to utilize all data and match published MTF rates. It is possible that some students did not understand the questions as specific

regulations were not mentioned with regard to policies (e.g., whether marijuana would be sold by dispensaries or "street" dealers).

Conclusion

Adolescent support for marijuana legalization has fluctuated considerably over recent decades, and has increased in recent years. This analysis delineated correlates of support for some specific policies. While recent marijuana users are at highest odds for supporting legalization, little is known regarding how such policy changes would affect non-users. However, arrest and incarceration for marijuana possession are serious consequences of use, and while support for legalization is strongest among users, many non-users also now support such policies. Research needs to continue to examine positions towards marijuana policy because public opinion is a driving factor of policy and opinions may predict future use.

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TABLE 1

Sample Characteristics and Raw Proportions of Variables along Position-Related Outcomes, 2007-2011 (Weighted *N* = 11,580)

	Full Sample %	Favor for Marijuana Policy				Favor for Who Should be Able to Buy (if Legal)			
		Crime %	Legal %	Violation %	Don't Know %	No one %	Adults %	Anyone %	Don't Know %
Age *									
<18	42.6	24.3	33.1	30.4	12.2	28.2	47.6	12.1	12.1
18	56.4	26.6	32.9	27.0	13.5	30.0	48.4	9.1	12.6
(Missing Data)	1.0								
Sex									
Male	45.6	23.1	39.2	25.6	12.0	26.6	51.1	10.5	11.7
Female	49.6	28.1	26.7	31.5	13.8	31.9	44.8	10.3	13.0
(Missing Data)	4.7								
Race									
White	59.8	28.4	35.4	26.1	10.1	29.7	48.7	10.5	11.0
Black	11.5	17.2	29.8	32.8	20.2	25.3	46.7	10.8	17.2
Hispanic	14.8	24.1	26.5	32.6	16.8	35.2	54.5	10.3	38.0
(Missing Data)	13.9								
Population Density *									
Non-MSA	21.4	32.2	30.9	24.6	12.3	32.3	45.8	10.5	11.5
Small MSA	49.1	25.6	33.6	28.3	12.5	28.3	49.0	10.3	12.4
Large MSA	29.5	20.6	33.6	31.7	14.0	28.6	47.9	10.6	12.9
Political Affiliation									
Conservative	17.6	40.6	25.3	22.8	11.4	38.4	40.7	10.0	11.0
Moderate	23.8	26.9	31.6	30.6	10.9	29.2	52.1	8.6	10.0
Liberal	18.9	15.2	43.0	31.8	10.1	24.3	57.4	9.2	9.0
Radical	1.9	10.7	62.8	19.4	7.2	22.2	54.8	14.7	8.3
Don't Know	35.5	24.0	30.9	28.5	16.6	27.9	43.9	11.9	16.3
(Missing Data)	2.4								
Religiosity									
Low	31.1	17.3	41.6	29.4	11.6	22.4	54.5	11.5	11.7

	Full Sample %	Favor for Marijuana Policy				Favor for Who Should be Able to Buy (if Legal)			
		Crime %	Legal %	Violation %	Don't Know %	No one %	Adults %	Anyone %	Don't Know %
Moderate	21.7	22.7	32.8	29.9	14.6	28.8	46.9	9.6	14.7
High	23.5	39.9	21.5	25.9	12.7	37.6	40.3	9.9	12.2
(Missing Data)	23.7								
Parent Education									
Low Education	29.5	25.7	30.7	29.5	14.1	31.1	45.1	10.7	13.1
Medium Education	28.3	25.5	32.8	28.7	12.9	27.7	49.2	10.4	12.7
High Education	37.6	26.4	35.2	27.9	10.4	29.6	50.3	9.7	10.4
(Missing Data)	4.6								
Lifetime Cigarette Use									
No	56.9	34.3	22.2	27.8	15.6	34.7	42.1	9.7	13.5
Yes	42.8	13.9	47.4	29.5	9.3	21.8	56.0	11.4	10.8
(Missing Data)	0.3								
Alcohol Use in Last 12 Months									
No	34.2	39.8	18.2	24.1	17.8	37.9	37.2	9.8	15.0
Yes	62.7	17.1	41.8	31.1	10.0	24.1	54.4	10.7	10.8
(Missing Data)	3.1								
Marijuana Use in Lifetime [+]									
No	57.6	39.2	16.7	27.1	17.1	37.7	38.5	9.6	14.2
Yes	42.4	7.1	55.2	30.5	7.2	17.7	61.0	11.5	9.8
Marijuana Use in Last 12 Months [+]									
No	67.0	36.2	18.9	28.4	16.5	36.2	40.4	9.4	14.0
Yes	33.0	4.1	61.6	28.7	5.6	15.1	63.4	12.5	9.0
Marijuana Use in Last 30 Days									
No	79.9	31.6	23.5	29.7	15.2	33.5	43.7	9.2	13.6
Yes	20.1	1.7	70.7	23.6	3.9	12.3	65.2	15.3	7.2
Friends Disapprove of Marijuana Use									
No	36.8	10.7	49.3	29.3	10.7	20.4	57.0	11.9	10.8
Yes	51.6	39.5	17.7	27.8	15.0	37.5	39.6	9.0	13.8
(Missing Data)	11.6								

Note. Weighted percentages are rounded so they do not always add up to exactly 100%.

[+] Lifetime and last 12-month use of marijuana were not modeled, but included in this table included for descriptive purposes. Rao-Scott Chi-square tests were used to compare proportions.

[*] All chi-squares were highly significant ($p < .001$) other than age × favor for marijuana policy ($p < .01$) and population density × favor for who should be able to buy (if legal) (not significant).

TABLE 2

Multinomial Logistic Regression Model Explaining Students' Positions towards Potential Legal Statuses of Marijuana

	Legal (N = 3,822)		Violation (N = 2,961)		Don't Know (N = 1,495)	
	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Age						
<18	1.00		1.00		1.00	
18	0.90	(0.78, 1.03)	0.83**	(0.73, 0.95)	1.06	(0.91, 1.24)
Sex						
Male	1.00		1.00		1.00	
Female	0.62***	(0.54, 0.71)	1.02	(0.90, 1.16)	1.00	(0.85, 1.17)
Race						
White	1.00		1.00		1.00	
Black	2.03***	(1.59, 2.59)	2.40***	(1.92, 3.02)	3.13***	(2.44, 4.02)
Hispanic	0.83	(0.67, 1.04)	1.24*	(1.02, 1.51)	1.47***	(1.18, 1.85)
Population Density						
Non-MSA	1.00		1.00		1.00	
Small MSA	1.34**	(1.12, 1.59)	1.47***	(1.25, 1.73)	1.23*	(1.01, 1.50)
Large MSA	1.45***	(1.19, 1.77)	1.77***	(1.47, 2.13)	1.46***	(1.17, 1.82)
Political Affiliation						
Don't Know	1.00		1.00		1.00	
Conservative	0.58***	(0.47, 0.71)	0.61***	(0.51, 0.73)	0.55***	(0.44, 0.68)
Moderate	0.95	(0.80, 1.14)	1.03	(0.87, 1.21)	0.65***	(0.53, 0.79)
Liberal	1.77***	(1.44, 2.18)	1.51***	(1.24, 1.84)	0.93	(0.73, 1.18)
Radical	1.82	(0.96, 3.43)	0.98	(0.50, 1.91)	0.75	(0.34, 1.62)
Religiosity						
Low	1.00		1.00		1.00	
Moderate	0.75**	(0.62, 0.91)	0.85	(0.71, 1.02)	0.97	(0.78, 1.21)
High	0.45***	(0.37, 0.55)	0.55***	(0.46, 0.66)	0.54***	(0.44, 0.68)

	Legal (N = 3,822)		Violation (N = 2,961)		Don't Know (N = 1,495)	
	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Parent Education						
Low Education	1.00		1.00		1.00	
Medium Education	1.08	(0.89, 1.30)	1.08	(0.91, 1.28)	1.12	(0.91, 1.36)
High Education	1.23*	(1.03, 1.47)	1.15	(0.97, 1.35)	1.01	(0.83, 1.23)
Lifetime Cigarette Use						
No	1.00		1.00		1.00	
Yes	2.14***	(1.83, 2.50)	1.63***	(1.41, 1.89)	1.27*	(1.06, 1.52)
Alcohol Use in Last 12 Months						
No	1.00		1.00		1.00	
Yes	2.00***	(1.71, 2.35)	1.97***	(1.71, 2.27)	1.08	(0.91, 1.28)
Marijuana Use in Last 30 Days						
No	1.00		1.00		1.00	
Yes	15.10***	(10.19, 22.37)	5.86***	(3.92, 8.76)	2.75***	(1.73, 4.38)
Friends Disapprove of Marijuana Use						
No	1.00		1.00		1.00	
Yes	0.18***	(0.15, 0.22)	0.35***	(0.29, 0.41)	0.45***	(0.36, 0.55)

Note. The comparison group is "Crime" (N=2,961). Adjusted Odds Ratios (AORs) were adjusted for all other covariates in the model. The model was adjusted by cohort and includes missing data indicators. Model results derived using the case-complete dataset (without missing data) were nearly identical.

*
$p < 0.05$

**
$p < 0.01$

***
$p < 0.001$.

TABLE 3

Multinomial Logistic Regression Model Explaining Students' Positions Regarding Who Should be Able to Purchase Marijuana if Legal

	Adults (N = 5,560)		Anyone (N = 1,206)		Don't Know (N = 1,431)	
	AOR	**(95% CI)**	**AOR**	**(95% CI)**	**AOR**	**(95% CI)**
Age						
<18	1.00		1.00		1.00	
18	0.95	(0.85, 1.06)	0.71***	(0.60, 0.83)	1.00	(0.86, 1.17)
Sex						
Male	1.00		1.00		1.00	
Female	0.78***	(0.70, 0.87)	0.91	(0.77, 1.07)	0.95	(0.82, 1.12)
Race						
White	1.00		1.00		1.00	
Black	1.40**	(1.16, 1.69)	1.25	(0.95, 1.65)	1.79***	(1.42, 2.26)
Hispanic	0.98	(0.83, 1.15)	0.80	(0.62, 1.03)	1.12	(0.89, 1.40)
Population Density						
Non-MSA	1.00		1.00		1.00	
Small MSA	1.18**	(1.03, 1.35)	1.11	(0.90, 1.37)	1.27*	(1.04, 1.54)
Large MSA	1.04	(0.90, 1.22)	1.07	(0.85, 1.34)	1.24	(1.00, 1.54)
Political Affiliation						
Don't Know	1.00		1.00		1.00	
Conservative	0.77***	(0.66, 0.90)	0.71***	(0.56, 0.89)	0.57***	(0.46, 0.71)
Moderate	1.17*	(1.01, 1.34)	0.73***	(0.59, 0.91)	0.62***	(0.50, 0.75)
Liberal	1.27***	(1.09, 1.49)	0.79***	(0.62, 1.00)	0.62**	(0.49, 0.78)
Radical	0.91	(0.58, 1.41)	0.98	(0.57, 1.68)	0.56	(0.28, 1.14)
Religiosity						
Low	1.00		1.00		1.00	
Moderate	0.75***	(0.64, 0.87)	0.73***	(0.58, 0.91)	1.00	(0.81, 1.23)
High	0.63**	(0.54, 0.74)	0.72**	(0.58, 0.90)	0.67**	(0.54, 0.83)

	Adults (N = 5,560)		Anyone (N = 1,206)		Don't Know (N = 1,431)	
	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Parent Education						
Low Education	1.00		1.00		1.00	
Medium Education	1.21 *	(1.05, 1.39)	1.09	(0.88, 1.34)	1.18	(0.97, 1.43)
High Education	1.19 *	(1.04, 1.46)	1.00	(0.81, 1.22)	1.01	(0.83, 1.23)
Lifetime Cigarette Use						
No	1.00		1.00		1.00	
Yes	1.28 ***	(1.13, 1.45)	1.15	(0.96, 1.39)	1.18	(0.99, 1.41)
Alcohol Use in Last 12 Months						
No	1.00		1.00		1.00	
Yes	1.47 ***	(1.30, 1.66)	1.12	(0.92, 1.36)	0.97	(0.82, 1.15)
Marijuana Use in Last 30 Days						
No	1.00		1.00		1.00	
Yes	2.15 ***	(1.81, 2.55)	3.01 ***	(2.41, 3.76)	1.13	(0.88, 1.46)
Friends Disapprove of Marijuana Use						
No	1.00		1.00		1.00	
Yes	0.53 ***	(0.46, 0.60)	0.59 ***	(0.49, 0.72)	0.77 **	(0.63, 0.93)

Note. The comparison group is "Should Not be Legal" (N = 3,383). Adjusted Odds Ratios (AORs) were adjusted for all other covariates in the model. The model was adjusted by cohort and includes missing data indicators. Model results derived using the case-complete dataset (without missing data) were nearly identical.

*
$p < 0.05$

**
$p < 0.01$

***
$p < 0.001$

TABLE 4

Cumulative Logistic Regression Models Explaining Frequency of Marijuana Use, Adjusting for All Other Covariates

	Frequency of Lifetime Use		Frequency of Last-Year Use		Frequency of Last 30-Day Use	
	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Favor for Marijuana Policy						
It Should be a Crime	1.00		1.00		1.00	
It Should be Entirely Legal	6.92 ***	(5.80, 8.25)	9.49 ***	(7.57, 11.89)	14.39 ***	(9.66, 21.41)
It Should be a Minor Violation	2.86 ***	(2.40, 3.41)	3.75 ***	(2.99, 4.71)	5.52 ***	(3.68, 8.27)
Don't Know	1.50 ***	(1.20, 1.87)	1.80 ***	(1.36, 2.38)	2.78 ***	(1.73, 4.47)
Should it be Legal to Sell (if Legal)						
No	1.00		1.00		1.00	
Adults Only	1.23 **	(1.08, 1.40)	1.29 ***	(1.11, 1.49)	1.32 **	(1.10, 1.59)
Yes, Anyone	1.42 ***	(1.18, 1.70)	1.70 ***	(1.39, 2.07)	2.12 ***	(1.68, 2.68)
Don't Know	1.12	(0.93, 1.35)	1.23 *	(1.00, 1.51)	1.17	(0.90, 1.53)

Note. All findings are adjusted for covariates in previous models: cohort, age, sex, race, population density, political affiliation, religiosity, parent education, lifetime cigarette use, 30-day alcohol use and friend disapproval of marijuana use. 30-day marijuana use was not included as marijuana frequency was the outcome variable. The models also included missing data indicators. Model results derived using the case-complete dataset (without missing data) were nearly identical.

*
 $p < .05$

**
 $p < 0.01$

***
 $p < 0.001$