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Marijuana experiences, voting behaviors and early perspectives regarding marijuana legalization among college students from two states

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Abstract

OBJECTIVE—The purpose of this mixed-methods study was to understand college students' 1) views and experiences regarding marijuana, 2) voting behaviors, and 3) early perceptions of the impact of legislation.

PARTICIPANTS—College students from Washington and Wisconsin were interviewed between May–September 2013

METHODS—Participants completed phone interviews assessing marijuana attitudes, intentions, behaviors, voting behaviors or intentions, and perceptions of the impact of legislation.

RESULTS—A total of 283 participants completed the interview (83.7% retention rate): 56.8% were female, 57.2% were from Wisconsin, and 74.6% were Caucasian. Almost half of Washington participants (46.3%) indicated that they voted for marijuana legalization. Participants most commonly responded that the legislation did not change their attitudes towards marijuana, though some participants discussed perceived safety of the product because legislation passed.

CONCLUSIONS—Findings indicate similarities in views and experiences among college students from states affected and unaffected by legalization; legalization may increase perceptions of safety.

Keywords

adolescent health; college student; marijuana; mixed methods

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Conflict of Interest:

No authors have conflicts of interest to report.

In November 2012, voters passed ballot initiatives in both Washington and Colorado to legalize marijuana for adult recreational use. Little is known regarding how these new laws will impact initiation of marijuana use or use patterns among current users. Marijuana is among the most frequently used drugs by college students, previous studies have reported past-30 day use rates of between 16%–64% and lifetime use rates between 40%–75%.[1,23] While common, marijuana is associated with numerous consequences including increasing levels of academic difficulties and greater psychiatric impairment. [4–7] Associations have been found between marijuana intensity, risky sexual behavior and increased alcohol consumption.[8] The American Academy of Pediatrics recent policy statement regarding marijuana argued that given the evidence regarding negative health and brain developmental effects of marijuana in youth up to age 21 years, "the AAP is opposed to marijuana use in this population."[9]

It is possible that legalization of marijuana will be interpreted by some as an endorsement of marijuana use or that legalization implies that marijuana is safe. A recent study found that marijuana legislation did not affect use rates among younger adolescents;[10] however, another study found small increases in reported intention to use marijuana if recreational use became legal.[11] Further, a recent Pew study found that 69% of US "Millenials" (born between 1981–98) favor legalization of marijuana.[12] At present, college students' views and experiences remain unclear. College students' views towards marijuana are important to understand, as a previous study found that both positive attitude and intention towards marijuana use were predictors of initiating marijuana use during the first year of college.[13] Previous work has illustrated that predictors of marijuana use include perception of benefits of marijuana use[14] and perception of friends' marijuana use or approval of use.[15–17]

College students' views about legislation and whether these new laws influence their attitudes and intentions towards marijuana are not well understood. Understanding these factors may help us predict future support for legalization among college students, as well as patterns in collegiate marijuana use resulting from legalization of recreational use. Thus, the purpose of this mixed-methods study was to understand college students' 1) views and experiences regarding marijuana, 2) voting behaviors and intentions, and 3) early perceptions of the impact of legislation on marijuana intentions or behaviors following the Washington state election in November 2012. This study assessed college students from two states: one affected by the new law (Washington), and one unaffected (Wisconsin). We hypothesized that college students in Washington State would report attitudes, intentions and behaviors that were more supportive of marijuana legislation compared to Wisconsin state participants.

METHODS

Setting and study design

This study included two large state universities, one in the Midwest and one in the Northwest. These universities were selected based on their similarities in size and state funding. as well as for their differences in geographic separation. This approach allowed for differences in campus culture towards increasing the likelihood of heterogeneity in the sample population.

The data reported in this study was selected from a larger longitudinal sample. This study was intended to capture the views and experiences of participants within that ongoing study following marijuana legislation. Thus, data for this study was collected between May 15, 2013 and September 23, 2013. This study received approval from the two university Institutional Review Boards, including the additional questions added in 2013 and represented in this paper.

Participants

Initial study recruitment took place in 2011 and targeted graduated high school seniors who were incoming students at the two targeted study universities. Potential participants were randomly selected from the full registrar's lists of incoming first-year students from both universities for recruitment to a longitudinal study about collegiate substance use. Participants were eligible if they were between the ages of 17 and 19 years, English speaking and enrolled as full time students at one of these two universities.

Recruitment

Participants were recruited through several steps, including emails and phone calls. Informed consent was obtained over the phone. During the consent procedure, potential participants were informed that this longitudinal study would involve intermittent phone interviews. In 2011, a total of 338 participants were recruited (54.6% response rate) to the longitudinal study. Overall, participants were 56.8% female, 74.8% Caucasian and 58.7% from Wisconsin. Data for this study were drawn from the 283 participants who completed a yearly interview in 2013 (83.7% response rate for this time point).

Interview procedure

In this longitudinal study, phone interviews were conducted yearly at a convenient time and lasted between 30 and 60 minutes. Interviews were conducted by trained research assistants and recorded using a secure online database. This study uses data from a single data point, the 2013 interview that took place between 5 and 7 months post-election in order to focus on the post-legislation period.

Interview variables

Attitude, intention and behavior—Attitudes toward marijuana were measured with the question, "On a scale between 0 and 6, with 0 as very negative, 3 as neutral, and 6 as very positive, what would you say your own attitude towards marijuana is?" Participants' responses to this question were scored and categorized exactly as they appeared on the Likert scale, with 0=very negative, 1=negative, 2=somewhat negative, 3=neutral/don't know, 4=somewhat positive, 5=positive, and 6=very positive. This question format is standard in studies of other substances such as alcohol,[18–20] Chronbach's alpha for use of this question and response format is 0.82. We altered this question by changing the word "alcohol" to the word "marijuana" as has been done in previous work.[13] Intention to use marijuana was measured with the question: "How likely do you think it is that you will consume marijuana in the next 6 months? Please answer from 0 'not at all likely' to 5 'very likely." Participants' responses to this question were scored and categorized exactly as they appeared on the

Likert scale, with 0=not at all likely, 1=unlikely, 2=somewhat unlikely, 3=somewhat likely, 4=likely, and 5=very likely. This question was based on previous work assessing alcohol which found the internal reliability of the measure to be 0.87[18] We altered this question by changing the word “alcohol” to the word “marijuana” consistent with previous work.[13]

Marijuana behavior was measured by asking participants if they had ever used marijuana in their lifetime. For those who reported yes, current use was assessed by asking if they had used marijuana in the past 28 days. For participants who reported marijuana use in the past 28 days, we used the TimeLine FollowBack (TLFB) method to determine quantity and frequency in the last 28 days.[21] During this validated procedure the interviewer worked with the participant to review each day of the past 28 days to assess how many episode of marijuana use took place. This method was adapted from a validated alcohol assessment[22–24] and has been validated for use in marijuana.[22]

Perceived social norms—Perceptions of drinking norms were measured in reference to participants’ friends as the proximity of this reference group renders it more influential than distal reference groups such as typical college students.[25] The approach of the social norms question was to allow participants to estimate percentage of friends who approve rather than providing multiple choice answers, an approach described in previous studies to maximize participant engagement in the question.[26] Thus, social norms about marijuana use were assessed by asking participants to report the percentage of their friends who they perceive approve the use of marijuana.

Voting behavior—As there are no standardized measures to evaluate voting behaviors or intentions regarding marijuana, we developed questions and responses working with college students. Working with undergraduate students, we developed a list of responses to represent the range of voting options available to students. We used response language similar to other studies evaluating voting behaviors nationally and internationally. We drafted questions about voting behavior or intentions and pilot tested them with undergraduate students from both states to ensure comprehension.

We introduced questions about marijuana legislation by telling participants “as you probably know, in the past year Washington State passed proposition I-502 which legalized recreational use of marijuana for those over age 21 years.” To understand voting behaviors, we asked Washington participants to characterize how they voted in the 2012 election. Answer options were read to the participant and included: voted for I-502, voted against I-502, abstained from voting on I-502, did not vote in this election, or voted in another state. Wisconsin participants were asked to report their likely voting action if a similar proposition were on the ballot, using these same response options.

Perceived effects of legislation on attitude, intention and behavior—To understand the perceived effects of legislation we developed a semi-structured qualitative interview guide to explore these concepts. Questions were developed working with a group of undergraduate students from both states and pilot tested to ensure comprehension.

To assess change in attitude related to legalization of marijuana in Washington, we asked all Washington participants "since passing this bill, is your attitude towards marijuana now more positive, negative or has it stayed the same?" For Wisconsin participants, we asked "since learning these bills were passed in Washington and Colorado is your attitude toward marijuana now more positive, negative or has it stayed the same?" We then asked both groups "why is that?"

To assess change in intention to use marijuana related to legalization of marijuana in Washington, we asked Washington participants *who reported that they had never used marijuana* in the past: "since passing this bill, is your intention to use marijuana now more likely, less likely or has it stayed the same?" For Wisconsin participants, we asked participants *who reported that they had never used marijuana* in the past "since learning these bills were passed in Washington and Colorado is your intention to use marijuana now more likely, less likely or has it stayed the same?" We then asked both groups "why is that?"

To assess change in behavior *among marijuana users* related to legalization of marijuana in Washington, we asked all Washington participants who reported that they had used marijuana in the past: "since the bill passed in Washington State have you used marijuana more often, less often or has it stayed the same?" For Wisconsin participants, we asked "since learning these bills were passed in Washington and Colorado have you used marijuana more often, less often or has it stayed the same?" We then asked "why is that?"

Analysis

Quantitative—Descriptive statistics were calculated for Likert-scale variables including means, medians and ranges. All p values were 2-sided, and $p < .05$ was used to indicate statistical significance. Participant attitude, intention and behavior were compared for Washington versus Wisconsin participants using chi squared tests for proportions or t-tests as appropriate. Voting behavior was compared using chi square test for proportions.

A dichotomous variable was created to reflect whether the participant voted/would vote for legalization (1) versus whether they voted/would vote against it or abstained/would abstain from voting (0). Logistic regression models were used to assess whether university, demographic factors, marijuana attitudes, intentions, or behaviors, or perceived norms about marijuana impacted actual or likely voting behavior. Statistical analyses were performed using Stata version 10 (StataCorp: College Station, TX).

Qualitative—Although interview questions were open-ended, the highly structured nature of the questions allowed coding of several categorical variables.[27,28] Before coding, three investigators reviewed all transcripts and identified several *a priori* categories of interest linked to positive responses (more positive attitude, more likely to use marijuana, using marijuana more often), neutral responses and negative responses (more negative attitude, less likely to use, using marijuana less often). These categories included views about the safety of marijuana after legislation passed, potential changes in social norms and legal aspects of marijuana legislation.

Two investigators then read and independently coded a random sample of transcripts to identify additional coding categories using an iterative approach; FileMaker and Excel were used to manage data during coding. In addition to coding the pre-specified categories, an open-coding approach was used to identify additional categories not anticipated by the researchers. The unit of coding was considered an unique concept within a comment, thus, one participant response could include more than one codable comment. Three investigators met and reviewed categories, and then coding files were merged. All discrepancies were discussed, and the investigators agreed upon specific definitions and codes to use in future coding rounds. Two additional rounds of coding were conducted to ensure categories were complete, interrater reliability for these rounds was 70% and 90%. After these rounds of coding were discussed, the remaining transcripts were then randomly divided evenly amongst two investigators and coded such that the full sample of transcripts was evaluated. Ambiguous or unclear cases were discussed amongst the investigators and a consistent approach for such cases was agreed upon. In total, there were four rounds of coding.

RESULTS

Of our initial sample of 338 participants, a total of 283 participants completed the summer 2013 interview (83.7% response rate at this time point), demographic characteristics of these participants is shown in Table 1. Among these participants, 56.1% were female, 57.2% were from Wisconsin, and 74.6% were Caucasian.

Attitude, intention and behavior

Among participants, attitude towards marijuana on a 0–6 scale was a mean of 2.7 (SD=1.7), median was 3. The mean intention on a scale of 0–5 was 1.9 (SD=2.1), with median of 1. Approximately half of participants (n=155, 54.8%) reported lifetime marijuana use, and approximately a quarter (n=63, 22.3%) of participants reported past-28 day use. Among current marijuana users, the mean number of days of use was 1.5 (SD=4.9) with a range of 0 to 28. The mean reported proportion of friends who approve marijuana was 48.2 (SD=27.9), with median 50. There were no statistically significant differences between Washington and Wisconsin participants regarding attitude or intention towards marijuana, or regarding lifetime or current use or regarding number of days of use in past 28 days.

Voting behavior

Almost half of Washington participants (46.3%) indicated that they voted for legalization of recreational marijuana, while just over half (50.6%) of Wisconsin participants indicated they would vote for a similar initiative in their state. Voting behaviors and intentions are summarized in Table 2. Among Wisconsin participants, 16.1% indicated that they would abstain from voting in such an initiative, compared to 5.8% of Washington participants who reported that they did abstain in the 2012 election.

In regression analyses, a more positive attitude towards marijuana was associated with an increased likelihood of voting for or reporting that one would vote for legalization (OR=1.72; 95% CI: 1.27–2.32). A stronger intention to use marijuana in the next 6 months was also associated with an increase the odds of voting for/would vote for legalization

(OR=1.35; 95% CI: 1.08–1.69). We did not observe an association between voting behavior and university location, demographic variables, current or lifetime marijuana behaviors or the percent of friends who approve of marijuana use. We then conducted a stratified analysis for each study location, in each case the main predictor for voting or intending to vote for marijuana legalization was a positive attitude (Washington OR=1.74, 95% CI 1.1–2.8; Wisconsin OR=1.75, 95% CI: 1.2–2.6) and no other variables were significant.

Effects of legislation on attitude, intention and behavior

Attitude—All 283 participants were asked about the effects of legislation on participant's attitudes towards marijuana, and both Washington and Wisconsin participants most commonly responded that the legislation did not change their attitudes. When assessing qualitative responses about attitude, the majority of comments specifically stated that attitudes would not change. Example quotes and further data are provided in Table 3.

Intention—We asked 128 non-users of marijuana about the effects of legislation on intention to use marijuana. The majority of participants indicated that their intention to use would not change. In qualitative comments, the major category of comments was related to disliking marijuana. Example quotes included: "*I've been more exposed to people smoking it and I really hate the smell so I'm less likely to try it now" described by a Washington participant.* Two comments indicated increased interest related to the increased accessibility of marijuana, with example quote from a Washington participant: "*It becomes even easier to get*." Two comments addressed increased intentions to use related to changed perceptions of safety after legalization, an example quote was: "*If it was approved by the government then it would mean its safe for your health and I wouldn't be as concerned*" stated by a Wisconsin participant.

Behavior—We asked the 155 participants who had reported lifetime marijuana use about the effects of legislation on use patterns. Most participants indicated they would use marijuana the same amount. In the qualitative comments, a major category of response was discussion of reduced fear of legal consequences with example quotes from Washington participants including: "*Just knowing there's no ramification might make me use it more*," and "*Because it is legal and I would not be able to get in trouble*," and *"[I] only started using once I knew it was legal*."

In this group of marijuana users, some participants indicated that their interest in marijuana had diminished so legalization would be unlikely to lead to increased use. One example quote from a Wisconsin participant was: "*I don't smoke anymore - don't like how I feel after it*." Other participants commented on accessibility of marijuana changing after legalization with comments such as "*It would be more available and less risky to use"* from a Washington participant and *"[Marijuana] would be easier to obtain in public*" from a Wisconsin participant.

COMMENT

This study investigated college students from two states, one affected by and one unaffected by legislation that legalized recreational marijuana use that passed in 2012. This study data

was collected in 2013, illustrating early views and experiences prior to stores opening in 2014. Our study had several key findings. First, we found unexpected similarities between Washington and Wisconsin, despite policy differences regarding marijuana. We found similar marijuana attitudes, intentions and behaviors among our Washington and Wisconsin participants, suggesting similar views and experiences leading up to the 2012 legislation. We also found similar voting behaviors and voting intentions among these two populations. Second, we found that actual or intended voting behaviors were predicted by a positive attitude towards marijuana, rather than past experience with its use. Third, we found that most participants indicated that legalizing marijuana for recreational use would not change their existing attitudes, intentions or behaviors towards that substance, with the exceptions of some increased perceptions about safety and decreased perceptions of legal consequences. Participants' comments provide insights into rationale behind their attitudes, intentions and behaviors. Finally, we found that a small proportion of students felt that legalization implied safety, or government endorsement of marijuana.

First, in contrast to our hypothesis, we found similarity between Washington and Wisconsin participants regarding their attitudes regarding marijuana, as well as their intended or actual voting patterns. Findings are consistent the study findings that 69% of US "Millenials" (born between 1981–98) favor legalization of marijuana.[12] Thus, the national dialogue about marijuana legalization may have impacted college students regardless of the legality of marijuana on their campus. Further, we found little difference in intentions to use marijuana between the two study locations. These findings are consistent with recent data that suggests that 12th graders report similar views about their intentions to use marijuana if legislation passes.[29] It may be reassuring that legislation efforts did not significantly impact attitudes and intentions for Washington participants, as these factors have been shown to be associated with initiation of marijuana use.[13] However, it is important to consider that other key predictors in marijuana use include social norms and ease of access,[15,29] which are both likely to be directly affected by legalization.

A second prominent finding in our study is that voting behaviors were predicted by attitudes towards marijuana, rather than by previous use of the substance. This finding may help explain how citizen's initiatives regarding legalizing marijuana have passed, as it is likely that non-users of marijuana with a positive attitude towards it may have voted in favor of legalization.

Interestingly, we also found that participants felt that their marijuana use patterns would not change as a result of legalization. A recent study applied data from the Youth Risk Behavioral Surveillance Survey and found no differences in adolescent marijuana use before or after the 2012 policy change.[10] Taken together, findings regarding attitudes, intentions and behaviors suggest that older adolescents have likely had enough experiences in their environments at school or within existing social circles that their views were positive yet their expected behaviors were less likely to change.

A finding of concern is that among a small percentage of our participants, legislation that legalized recreational marijuana use was perceived as endorsement that marijuana was safe. Participants' comments suggest that some college students view legalization of recreational

marijuana use as tacit governmental support of marijuana, rather than understanding that the bill passed by a citizen's initiative. While this viewpoint was expressed by a minority of participants, this represents a population of students who may not have had interest in or tried marijuana if it had remained illegal. These findings are consistent with a recent study that found small increases in reported intention to use marijuana if recreational use became legal.[11] This finding also suggests that educational efforts are needed to inform adolescents that marijuana legalization does not imply governmental support, nor does it imply that the product has been deemed safe.

Limitations

Though we included two large universities in this study with varied locations and student profiles, we had a smaller sample size with limited racial diversity. Our participant population was representative of the schools from which samples were drawn in terms of gender and race. However, generalization to other colleges or non-college attending older adolescents should be approached with caution. Second, our study used measures regarding attitudes, intentions and social norms that were initially developed for use with alcohol and subsequently adapted for use in marijuana. Third, in cases in which participants discussed government support of marijuana, we did not clarify whether they meant state or federal governments. Finally, our study utilized self-reported marijuana behaviors, which may be subject to social desirability or recall bias. Participants were informed that a federal certificate of confidentiality was obtained for the study, with the objective of allowing the participants to feel comfortable accurately reporting views and behaviors related to marijuana. We used the TLFB method to assess recent marijuana use, which has strong validity to support its use.[21]

Conclusions

Despite these limitations, our study has important implications. To the best of our knowledge, this is the first mixed-methods study to examine college students' views, voting and behaviors since the legalization of marijuana in 2012. Our findings support that for many college students, attitudes and intentions about marijuana may not change if state legislation to legalize marijuana for recreational use is successful. While legislation itself may not influence intentions to use or behaviors on a large scale among this population, even a small percentage of new initiators due to legislation may have large impact at the population level. Findings indicate prevention messages will be critical to understand the health risks of marijuana and emphasize separation of legislation success from governmental endorsement.

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References

1. Arbour-Nicitopoulos, KP.; Kwan, MY.; Lowe, D.; Taman, S.; Faulkner, GE. J Am Coll Health. Vol. 59. United States: 2011. Social norms of alcohol, smoking, and marijuana use within a Canadian university setting; p. 191-196.

2. Association ACH. American College Health Association: National College Health Assessment. Baltimore: American College Health Association; 2013.
3. Administration SAaMHS. 2007 National Survey on Drug Use and Health: National Findings. Rockville, MD: Substance Abuse and Mental Health Services Administration; 2008.
4. Zickler, P. Marijuana Smoking Is Associated With a Spectrum Of Respiratory Disorders. National Institute on Drug Abuse; 2006. http://www.drugabuse.gov/news-events/nida-notes/2006/10/marijuana-smoking-associated-spectrum-respiratory-disorders
5. Gater, P. [Accessed July 19, 2012] Respiratory Effects of Marijuana. 2012. http://adai.uw.edu/marijuana/factsheets/respiratoryeffects.htm
6. James A, James C, Thwaites T. The brain effects of cannabis in healthy adolescents and in adolescents with schizophrenia: a systematic review. Psychiatry Res. 2013; 214(3):181–189. [PubMed: 24139960]
7. Chadwick B, Miller ML, Hurd YL. Cannabis Use during Adolescent Development: Susceptibility to Psychiatric Illness. Front Psychiatry. 2013; 4:129. [PubMed: 24133461]
8. Simons, JS.; Maisto, SA.; Wray, TB. Addict Behav. Vol. 35. England: Elsevier Ltd; 2009. Sexual risk taking among young adult dual alcohol and marijuana users; p. 533-536.
9. Pediatrics AAo. The Impact of Marijuana Policies on Youth: Clinical, Research and Legal Update. Elk Grove Village, IL: AAP; 2015.
10. Choo EK, Benz M, Zaller N, Warren O, Rising KL, McConnell KJ. The impact of state medical marijuana legislation on adolescent marijuana use. J Adolesc Health. 2014; 55(2):160–166. [PubMed: 24742758]
11. Palamar JJ, Ompad DC, Petkova E. Correlates of intentions to use cannabis among US high school seniors in the case of cannabis legalization. Int J Drug Policy. 2014; 25(3):424–435. [PubMed: 24589410]
12. Motel, S. 6 facts about marijuana. Pew Research Center; 2014.
13. Stewart M, Moreno M. Changes in Attitudes, Intentions, and Behaviors toward Tobacco and Marijuana during U.S. Students' First Year of College. J Adolescent Health. 2013; 6:7–16.
14. Elliott, JC.; Carey, KB. Psychol Addict Behav. Vol. 27. United States: 2013. Pros and cons: Prospective predictors of marijuana use on a college campus; p. 230-235.
15. Neighbors C, Geisner IM, Lee CM. Perceived marijuana norms and social expectancies among entering college student marijuana users. Psychol Addict Behav. 2008; 22(3):433–438. [PubMed: 18778137]
16. Elliott JC, Carey KB. Correcting exaggerated marijuana use norms among college abstainers: a preliminary test of a preventive intervention. J Stud Alcohol Drugs. 2012; 73(6):976–980. [PubMed: 23036216]
17. Lewis TF, Mobley AK. Substance abuse and dependency risk: the role of peer perceptions, marijuana involvement, and attitudes toward substance use among college students. Journal of Drug Education. 2010; 40(3):299–314. [PubMed: 21313988]
18. Devos-Comby L, Lange JE. Standardized measures of alcohol-related problems: a review of their use among. Psychol Addict Behav. 2008; 22(3):349–361. [PubMed: 18778128]
19. O'Callaghan F, Chang D, Callan V, Baglioni A. Models of alcohol use by young adults: an examination of various attitude-behavior theories. Journal of Studies on Alcohol. 1997; 58(5):502–507. [PubMed: 9273915]
20. Benevene P, Scopelliti M. Building a multi-dimensional scale on attitudes toward alcohol consumptions. European Journal of Social Sciences. 2012; 34(1):58–69.
21. Sobell, L.; Sobell, M. TimeLine Follow-Back: A technique for assessing self-reported alcohol consumption. In: Litten, R.; Allen, J., editors. Measuring Alcohol Consumption. Totowa, New Jersey: Humana Press; 1992. p. 41-72.
22. Robinson SM, Sobell LC, Sobell MB, Leo GI. Reliability of the Timeline Followback for Cocaine, Cannabis, and Cigarette Use. Psychol Addict Behav. 2012
23. Sobell, L.; Sobell, M. Timeline FollowBack: A technique for assessing self-reported alcohol consumption. Totowa, New Jersey: Humana Press; 1992.

24. Cooper AM, Sobell MB, Sobell LC, Maisto SA. Validity of alcoholic's self-reports: duration data. Int J Addict. 1981; 16(3):401–406. [PubMed: 7275392]
25. Festinger. A Theory of Social Comparison Processes. Human Relations. 1954; 7:117.
26. Labovitz H, Hagedorn R. Measuring social norms. Pacific Sociologic Review. 1973:283–303.
27. Plewis I, Mason P. What Works and Why: Combining Quantitative and Qualitative Approaches in Large-scale Evaluations. International Journal of Social Research Methodology. 2005; 8(3):185–194.
28. Bazeley P. The Bricoleur with a Computer: Piecing Together Qualitative and Quantitative Data. Qualitative Health Research. 1999; 9(2):279–287.
29. Palamar J, Ompad D, Petkova E. Correlates of Intentions to Use Cannabis Among US High School Seniors in the Case of Cannabis Legalization. International Journal of Drug Policy. 2014:23.

Table 1

Participant demographic information from college students from Washington and Wisconsin

Demographics	**Total (n=283)**	**Washington (n=121)**	**Wisconsin (n=162)**
Gender	n (*%*)	n (*%*)	n (*%*)
Male	122 (*43.2%*)	53 (*43.8%*)	69 (*42.6%*)
Female	161 (*56.8%*)	68 (*56.2%*)	93 (*57.4%*)
Race			
Asian/Pacific Islander	37 (*13.1%*)	29 (*23.9%*)	8 (*4.9%*)
Black/African American	4 (*1.4%*)	3 (*2.5%*)	1 (*0.6%*)
Caucasian	211 (*74.6%*)	67 (*55.4%*)	144 (*88.9%*)
Hispanic/Latino	6 (*2.1%*)	4 (*3.3%*)	2 (*1.2%*)
More than one	23 (*8.1%*)	17 (*14.1%*)	6 (*3.8%*)
Other	2 *(0.7%)*	1 (*0.8%*)	1 (*0.6%*)

Table 2

Voting behaviors and intentions among Washington and Washington college student participants

	Washington n=121		Wisconsin n=162		Total n=283		p-value*
	n	*%*	**n**	*%*	**n**	*%*	
Voting Behavior - (n=272)							
Did/would vote for	56	*46.3*	82	*50.6*	138	*48.7*	0.002
Did/would vote against	28	*23.1*	30	*18.5*	58	*20.5*	
Did/would abstain	7	*5.8*	26	*16.1*	33	*11.7*	
Did/would not vote	23	*19.0*	16	*9.9*	39	*13.8*	
Voted in other state	4	*3.4*	0	*0*	4	*1.4*	
Not sure/don't know	3	*2.4*	8	*4.9*	11	*3.9*	

* p value from Chi square test comparing Washington and Wisconsin responses

Table 3

Perceptions of the impact of marijuana legislation among college student participants from Washington (WA) and Wisconsin (WI)

	Washington n=121		Wisconsin n=162		Total n=283		*% lifetime marijuana users in this category*	*Example quotes from lifetime marijuana users (state)*	*Example quotes from non-users (state)*
	n	*%*	**n**	*%*	**n**	*%*			
Perceived impact on personal marijuana attitude (n=283)									
More negative	6	*4.9*	2	*1.2*	8	*2.8*	*2 (1.3)*	*None*	Sometimes I smell it when I walk around, I feel like more people use it openly and I feel less safe. (WA) I've never been pro marijuana, legalizing it is pointless, people abuse the law. (WI) I just have never liked it and I think it's gross, and now it's legal and I just don't think it's something people should do, and now I think it will be easier for kids to get a hold of. (WA) I don't approve of recreational use, only medicinal. (WI)
The same	83	*68.6*	118	*72.8*	201	*71.0*	*74.0 (n=114)*	Legalization would have no effect on my thought process. (WI) Legalization should happen, I was expecting it to happen eventually so it didn't effect me. (WA) Never saw a problem with it, it's about time its legalized. (WA) The laws are catching up with reality. (WI) Its positive because its been legalized, but my personal attitude is that its up to the individual user to decide their attitude, not up to the government to decide my attitude. (WA) Didn't see any changes to how people get marijuana and use it after it became legal, nothing changed for me after it became legal. (WA) The legalization of marijuana doesn't really change anything for me. I still think it is bad even if it is legal. (WI) I've been around it since high school, I don't think it's a big deal. (WI) So many people smoke anyway with it being illegal that i don't really think it made a difference. (WA)	I don't really approve of it but I tolerate it. (WA) just don't see it as a good thing (WI) I think it's fine and has it's benefits, but I think smoking in general is bad for health. Marijuana just has benefits for health and to relax. (WI) The legislation doesn't have an impact on me, it's an affirmation of what I already know. (WA) Attitude is probably the same because it has been negative the whole time. (WA) Marijuana use is pretty darn accepted on the west coast as is, so I was already seeing it every single day before it was legalized. I'm desensitized to seeing it around. Everyone uses it. It feels like the police know about it, and its not a menace to society so I was neutral to it. (WA) Marijuana is a natural thing, medical use has always been around, it's fine to use in moderation (WI) My attitude is just what I believe and the law isn't going to change that. (WI) I don't know much about it. It is not positive, but I don't think it is as bad. I don't know how it affects people's health. (WA)
More positive	32	*26.5*	39	*24.2*	71	*25.1*	*24.0 (n=37)*	Marijuana is no longer a hardcore drug, not that it ever was, but it was taboo, now it's on the same level as alcohol. (WI)	I'm not afraid of breaking the law as much or my friends breaking the law.(WA) I just learned more about it and how it doesn't really have a negative effect on your health and might improve your health. (WA)

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	Washington n=121		Wisconsin n=162		Total n=283		*% lifetime marijuana users in this category*	***Example quotes from lifetime marijuana users (state)***	***Example quotes from non-users (state)***
	n	*%*	**n**	*%*	**n**	*%*			
								Now legalized, it is easier to access so people may not see it as such a 'evil' drug.(WI) I never really had a negative opinion in first place and now don't have to fear having it on my record. (WA) Now you get in less trouble. (WA) There's medical reasons for it, it must not be all bad if the state passed the bill. (WA)	I took a legal class and discussed and read papers - Netherlands had more lenient drug rules and less crime. (WI) Um you know the fact that is legal, makes it seem like it can't hurt you quite so much I guess. (WA) Marijuana is not as bad because it is legal even though the drug hasn't changed. (WA) Lots of people, the voters, believe that is safe to use, so there is a more positive image of it. (WA) Probably not as bad as I thought it is if they're legalizing it. (WI) If it is accepted by the government, it is more acceptable by me, too. (WA)
Not sure/don't know	0	*0*	3	*1.8*	3	*1.1*	*0*	Um, I don't really know.(WA)	I'm not sure.(WI)

Table 4

Perceptions of the impact of marijuana legislation among college student participants from Washington and Wisconsin

	Washington n=121		Wisconsin n=162		Total n=283		p-value*
	n	%	n	%	n	%	
Perceived impact on personal intention to use marijuana *among never-users* (n=128)							
Less likely to try	3	*5.1*	0	*0*	3	*2.3*	0.059
The same	48	*81.4*	52	*75.4*	100	*78.1*	
More likely to try	8	*13.5*	17	*24.6*	25	*19.6*	
Perceived impact on personal frequency *among participants who reported lifetime use of marijuana* (n=155)							
Use less often	6	*9.7*	1	*1.1*	7	*4.5*	0.000
The same	49	*79.0*	53	*56.9*	102	*65.8*	
Use more often	6	*9.7*	38	*40.9*	44	*28.3*	
Not sure/don't know	1	*1.6*	1	*1.1*	2	*1.4*	

* p value from Chi squared test comparing Wisconsin and Washington responses

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