

Parenting, Marijuana Motivations, and Health Behaviors study

A Senior Honors Thesis

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By

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Intro

The annual prevalence for marijuana use among college students was 38% in 2017 (Schulenberg, Johnston, O'Malley, Bachman, Miech, & Patrick, 2018), with annual rates of use increasing by 14% over the past 10 years. A study looking at the current science related to the negative health effects of marijuana found that some long-term effects are increased likelihood of dropping out of school, lower IQ, and lower life satisfaction and achievement. These were also all strongly related with starting to use marijuana in early adolescence (Volkow, Baler, Compton, & Weiss 2014).

Youth motivations for marijuana can vary greatly, including for enjoyment, conformity, coping, insight, to help with sleep, food enhancement, celebration, and many others. Enjoyment, activity enhancement, rebellion, and relaxation were all predictors of using marijuana and/or experiencing problems with use (Lee, Neighbors, & Woods. 2007). A total of 634 incoming first year college students in the northwestern U.S. (57.9% female and 67.5% white) were asked to complete an online survey about their motivations for use. Enjoyment (e.g., be happy, get high, enjoy feeling), conformity (e.g., peer pressure, friends do it), and experimentation (e.g., new experience, curiosity) were the most highly endorsed reasons with 52%, 43% and 41% of participants endorsing them, respectively. Celebration (e.g., special occasion, to celebrate), medical use (e.g., alleviate physical pain, have a headache), and habit (e.g., feeling was addictive, became a habit) were the least chosen motivations with percentages at 1.26%, 1.26%, and 0.95%, respectively.

Some motivations are more closely correlated with negative outcomes than others. Using marijuana to cope has been associated with Cannabis use disorder and psychological distress in a

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study conducted on 288 emerging adults (Moitra, Christopher, Anderson, & Stein 2015). Using marijuana to feel the effect or to gain insight has also been linked with heavy use later in life (Patrick, 2011). The Theory of Planned Behavior (Ajzen, 1991) states that people's behaviors are linked to their beliefs about the specific behavior, normative perceptions about the behavior, and perceived behavioral control over engaging in the behavior. People are more likely to start using marijuana when they have more positive attitudes towards marijuana, believe that society is more accepting about marijuana, and have lower self-efficacy (Malmberg, Overbeek, Vermulst, Monshouwer, Vollebergh, & Engels 2012).

Other theoretical frameworks have value when seeking to understand marijuana use and associated motivations for use. Strain Theory (Agnew, 1992) is one of these theories. It states that people who experience stress are more likely to use substances. One study found that stress, measured by looking at social anxiety, is associated with chronic use of marijuana (Preston, 2006), while another looking at how strain theory can explain the relationship between adolescent and adult substance use found that negative emotionality caused by strain was related to adolescent drug use (Slocum, 2010). Parenting practices have also been found to relate to marijuana use. Researchers looked at the 2012 national survey on drug use and health, which sampled 17,399 youths aged 12-17 years old, and found that students whose parents rarely engaged in parenting behaviors were more likely to use marijuana (King, Vidourek, & Merianos 2015). Another study looked at 7,500 10th-12th graders and found that high levels of parental monitoring were associated with lower levels of marijuana use. (Tragesser, Beauvais, Swaim, Edwards, & Oetting, 2007). To date, however, no link has been established between parenting practices and motivations for use.

The overarching goal of this study is to identify and quantify the relationships among the Theory of Planned Behavior, Strain Theory, parenting practices and motivations for marijuana use among adolescents and young adults. We also want to look at which motivations predict marijuana use and associated negative outcomes.

Method

Participants

A total of 186 undergraduate college students (130 women, 70 %; 52 men, 28%) attending SUNY Brockport participated an online survey study using Qualtrics. The average age of the participants was 19.42 years ($SD = 3.46$). Twenty of the participants were transfer students from another two year/four year college (11 %). With regard to race and ethnicity, 142 identified as White (76 %) and 22 identified as Hispanic (12 %). With regard to class standing, 108 were freshman (58 %), 47 were sophomores (25%), 17 were juniors (9%), and 14 were seniors (8%). The average GPA of the participants was 3.09 ($SD = 0.60$).

The current study utilizes data from the 114 students who reported using marijuana in college. Their demographic information is located in Table 1. Participants came from Principles of Psychology classes in spring 2019 and earned partial course credit for being in the study. Of these students, 65 were freshmen, 27 were sophomores, 13 were juniors, and 9 were seniors.

Measures

The Comprehensive Marijuana Motivations Questionnaire (CMMQ; Lee et al., 2007) is a 36 item measure with 12 types of motivations for using marijuana: Perceived Low Risk, Enjoyment, Sleep, Altered Perception, Boredom, Celebration, Coping, Social Anxiety, Availability, Conformity, Alcohol-Related, and Experimentation. Participants are asked how

often they use marijuana for that specific reason on a scale from 1 (never) to 5 (always). An example of one of the items is, "To enjoy the effects of it." All of the subscales consist of 3 items with internal consistency estimates ranging from 0.78 to 0.89 (Lee et al., 2009).

Marijuana Use. Frequency of marijuana use was measured by the following item, "In the past 30 days, how many days have you used marijuana?" The scale was from 0 to 30 days.

The Rutgers Marijuana Problem Index (White et al., 2005) was used to measure negative consequences of marijuana use. It consists of 23 items of possible negative consequences from use. Some examples are: neglected your responsibilities, caused shame or embarrassment to someone, got into fights with other people (friends, relatives, strangers), and missed a day (or part of a day) of school or work. Participants answer how many times that specific consequence has occurred in the last year, from 0 (never) to 4 (more than 5 times). Items were summed to create one consequence score. The internal consistency of this scale is .96.

Theory of Planned Behavior Indices. The marijuana use expectancies and perceptions (synonymous with the Theory of Planned Behavior) were adapted from measures used in Malmberg et al., 2012. This study showed these items/scales had high internal consistency and were distinct from each other using structural equation modeling. The theory of planned behavior involves three constructs: perceived behavioral control regarding marijuana, subjective norms regarding marijuana, and attitudes regarding marijuana. Each of these had their own set of questions. Some examples of questions on participants' perceived behavioral control were, "To think of a reason to not use marijuana is..., to stay or become a non-user is..., and to refuse marijuana when it is offered to me is..." They answered how easy they thought these behaviors were for them to do, from 0 (Very hard) to 4 (Very easy). Some questions about participants

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subjective norms regarding marijuana were “Do you think that your best friend would approve you using marijuana, do you think that your friends would approve you using marijuana, and do you think that your parents would approve you using marijuana?” They answered on a scale from 0 (Definitely No) to 4 (Definitely Yes). Lastly, examples of items relating to participants attitudes towards marijuana were, “Using marijuana is fun, marijuana makes me anxious or frightened, and marijuana helps me loosen up.” The scale that was used was from 0 (Totally Disagree) to 4 (Totally Agree).

Academic and Life Strain. Items tapping recent strains from adverse life events were taken from Drapela, 2006, where the cumulative value (adding all responses) was shown to be predictive of a variety of psychological (e.g., despair) and behavioral (e.g., substance use) outcomes. Examples of questions used to measure academic strain were “I am concerned about passing all my courses, I feel overwhelmed with school work, and I am comfortable with how I am doing in classes.” Participants were asked to rate how these statements related to how they felt in the last 30 days. The scale used was from 0 (Not at all) to 2 (A lot). Some questions used to measure life strain were, “My parents got divorced or remarried, a family member used drugs, and my family has been on welfare/public assistance.” Participants checked yes or no if that specific event happened to them in the past two years.

Parental Active Tracking (Abar et al., 2019) includes 14 items that ask about how often youth perceive their parents take part in specific tracking behaviors. For example, “Do your parents ask about what your do with your free time, do your parents ask you about your alcohol and other substance use, and do your parents ask about what you do online?” Respondents indicate how often their parents ask these questions on a scale from 0 (never) to 5 (Always).

Procedure

Students in Principles of Psychology were provided with a link to the survey webpage. Those that were interested were given an online informed consent document. Participants could only proceed to the survey if consent was provided. No identifiable information was linked to the survey responses, though the participants' names and email addresses were collected in a separate database in order to receive credit through SONA. Students had to be 18 years or older to gain access to the survey. The survey took around 35 minutes to complete.

Plan of Analysis

We first ran basic descriptive statistics (i.e., means and standard deviations) on each of the motivation for marijuana use categories. We then used bivariate correlations to examine the relationships among the different motivations for marijuana use categories, active tracking, behavioral control, perceived norms, attitudes/beliefs, life events strain, and education strain. Finally, we ran multivariate regressions predicting frequency of marijuana use and negative consequences. In the regressions for predicting frequency we controlled for age, college GPA, race (White vs non-White), gender, ethnicity, parental active tracking, perceived behavioral control regarding marijuana, subjective norms regarding marijuana, attitudes regarding marijuana, life events strain, and academic strain. The regressions for negative consequences included all of these as well as frequency of use. Separate regressions were performed for each motivation category due to substantial multicollinearity concerns when the motivation categories were included in the regressions simultaneously. An alpha level of 0.05 was used to indicate statistically significant findings.

Results

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We performed descriptive statistics on each of the motivations for marijuana categories. We found that enjoyment was the most commonly endorsed motivation by far, with an average score in the “Most of the time” range. Sleep and relative low risk were the next most endorsed motivations. Conformity was the least often endorsed motivation category, followed by social anxiety, coping, and alcohol alternatives (see Table 2).

Next, we analyzed the bivariate associations among the motivations for marijuana use, active tracking, behavioral control, perceived norms, attitudes/beliefs, life events strain, and education strain (See Table 3). The majority of motivations were positively associated. The average magnitude was roughly 0.40 (i.e., moderate associations; range from <0.01 to 0.80), with most relationships shown to be statistically significant. Active tracking was not significantly associated with any of the motivations. Behavioral control regarding marijuana use was negatively associated with all motivation categories except for conformity and alcohol. Perceived norms regarding marijuana was positively associated with enjoyment, celebration, altered perceptions, relative low risk, and sleep motivations. Attitudes and beliefs regarding marijuana use were associated with all motivations except for experimentation and availability. Life strain was positively associated with the sleep motivation. Educational strain was positively associated with coping, boredom, sleep, and availability motivations. In general, attitudes and beliefs and behavioral control demonstrated the largest magnitudes of associations across the predictors of interest.

Lastly, we ran linear regressions predicting frequency of use and negative consequences of use based on motivations for use. When accounting for age, college GPA, race (White vs non-White), gender, ethnicity, parental active tracking, perceived behavioral control regarding marijuana, subjective norms regarding marijuana, attitudes regarding marijuana, life events

strain, and academic strain, sleep, enjoyment, and coping were the strongest predictors for frequency of use, though boredom, celebration, altered perceptions, anxiety, low risk, and availability were also significantly related to use (see Table 4). With regard to negative consequences of use, when controlling for the same set of covariates used previously, as well as frequency of use, coping, boredom, and enjoyment were found to be the strongest predictors. Alcohol alternative, altered perceptions, and anxiety were also significantly predictive of negative consequences.

Discussion

Our study's main goal was to look at the relationship between the Theory of Planned Behavior variables, Strain Theory, parenting practices, and motivations for marijuana use among adolescents and young adults. A secondary goal was to identify the extent to which motivations predict use and negative outcomes.

Our findings were similar to other studies in that we each found enjoyment to be the highest endorsed motivation (Lee, Neighbors, & Woods. 2007; Patrick 2011). We differed, however, in what was the least endorsed motivation observed. In the current study, conformity was least endorsed, while habit was found to be the least endorsed motivation in the previous studies.

Behavioral control was significantly negatively associated with all motivations except for conformity and alcohol. This means that those who feel like they have more power over their behavior were less likely to use for all those motivations. Knowing this, we could create interventions with the goal of increasing the perceived behavioral control over use among youth. Previous studies have already found that interventions based on the Theory of Planned Behavior can be effective (Steinmetz, Knappstein, Ajzen, Schmidt, & Kabst 2016). Educational strain was

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found to have a positive relationship with the motivations of coping, sleep, availability, and boredom. This could mean that some people are using marijuana to help cope with the stress of school. Interventions should include efforts to decrease students' academic-related stress. Potential targets may include teaching students healthy coping skills to deal with school, and by providing them with helpful resources to decrease stress (e.g., physical activity, meditation). A person's attitudes and beliefs were found to have both positive and negative relationships with specific motivations of use. This shows that how a person feels about marijuana influences what reasons they use it for. These, again, represent potential targets for intervention, as previous work has already started trying to target attitudes to reduce use (Giannotta, Vigna-Taglianti, Rosaria Galanti, Scatigna, & Faggiano 2014). Lastly, active tracking was not found to be related to any motivations for marijuana. This implies that parental efforts to monitor their adolescent or young adult children may be of limited utility for predicting motivations for use, demonstrating effects earlier in adolescence when youth are choosing to use marijuana or not (Tragesser, Beauvais, Swaim, Edwards, & Oetting, 2007).

Students who used marijuana to sleep, cope, or for enjoyment predicted the highest levels of frequency of use. This means that those who use marijuana to help them sleep, deal with stress, and because they like the way it feels were found to use marijuana the most frequently. These findings make sense, as someone who uses it to help them sleep might use marijuana every day before bed, increasing their frequency of use. People who use it to cope might not have other healthy coping skills to turn to, so they use marijuana as their primary coping technique, thereby increasing their frequency of use. Most people use it because it feels good so it is intuitive that this would have a strong connection to frequency. This relationship has also previously been observed (Patrick, 2011). Negative consequences were most strongly predicted

by the coping, boredom, and enjoyment motivations. Those that use it marijuana to help with stress, for something to do, and because they like it dealt with more negative consequences than people that used marijuana for other reasons. These findings are largely in line with previous research. We've already found that those who use it to cope are more likely to experience negative outcomes (Moitra, Christopher, Anderson, & Stein 2015). Enjoyment has also already been linked to negative outcomes as well (Lee, Neighbors, & Woods. 2007). It was somewhat surprising to see the boredom motivation connected to negative outcomes. Perhaps this is because those who use marijuana out of boredom don't take part in other healthy activities that might prevent negative outcomes associated with marijuana use.

Limitations

There were several limitations to this study that should be addressed. Our study relied on youth retrospective self-reports which may have impacted the motivations reported. Future studies could have them report several times rather than just once to have more confidence from consistent answers. Our sample was also entirely made up of college students from a single public school in the mid-Atlantic. Future studies should be done on a more geographically diverse sample to help increase the generalizability of the findings. Our sample also disproportionately consisted of White and female participants, such that replication with a more demographically diverse sample would strengthen interpretations.

Conclusion

Our study found that sleep, enjoyment, and coping were the strongest predictors of frequency of use, while coping, boredom, and enjoyment were the strongest predictors of negative consequences. We found that behavioral control and attitudes/beliefs had the strongest associations with marijuana motivations. Interventions may prove successful by either targeting

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these predictors of motivations before problem use develops and/or these specific motivations in a more intervention or treatment framework.

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Table 1

Demographic Characteristics

	Frequency	% ^a	Mean	Standard Deviation
Gender				
Man	36	31.6%		
Woman	76	66.7%		
Gender queer/Gender fluid	2	1.8%		
Sexual Orientation				
Straight	103	90.4%		
Bisexual	7	6.1%		
Pansexual	2	1.8%		
Questioning or unsure	2	1.8%		
Age			19.44	3.08
Racial Background				
White / Caucasian	89	78.1%		
Black or African American	12	10.5%		
Multiracial	3	2.6%		
Asian	1	< 1%		
Other	9	7.9%		
Hispanic Ethnicity	13	11.4%		

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Transfer Student

Yes – from a Community College	5	4.4%
Yes – from a Four Year College	6	5.3%
No	103	90.4%

Overall GPA at Brockport		3.03	58
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^a Based on non-missing data.

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Table 2

Motivations for marijuana use categories

	Mean	Standard Deviation
Enjoyment	3.08	1.37
Conformity	1.46	0.82
Coping	1.77	1.10
Experimentation	1.93	1.07
Boredom	2.02	1.24
Alcohol	1.77	1.04
Celebration	2.18	1.04
Altered Perceptions	2.01	1.28
Social Anxiety	1.75	1.08
Relative Low Risk	2.36	1.31
Sleep	2.38	1.27
Availability	2.15	1.18

^a Based on non-missing data.

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Table 3

Correlation Coefficients with Motivations for Marijuana Use

Variables	1	2	3	4	5	6	7	8	9
1. Enjoyment	–								
2. Conformity	<.01	–							
3. Coping	.45**	.35**	–						
4. Experimentation	.16	.56**	.34**	–					
5. Boredom	.60**	.33**	.67**	.37**	–				
6. Alcohol	.12	.42**	.29**	.53**	.30**	–			
7. Celebration	.62**	.24*	.50**	.34**	.53**	.22*	–		
8. Altered Perceptions	.59**	.35**	.65**	.42**	.60**	.29**	.63**	–	
9. Social Anxiety	.47**	.41**	.80**	.43**	.70**	.36**	.57**	.68**	–
10. Relative Low Risk	.59**	.11	.51**	.21*	.49**	.19*	.51**	.58**	.58**
11. Sleep	.62**	.16	.68**	.17	.58**	.22*	.56**	.54**	.64**
12. Availability	.45**	.44**	.61**	.37**	.67**	.50**	.50**	.61**	.68**
13. Active Tracking	-.12	.09	-.13	.01	-.09	.06	-.08	-.01	-.06

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Table 3

Continued

Variables	1	2	3	4	5	6	7	8	9
14. Behavioral Control	-.39**	-.03	-.43**	.01	-.40**	.01	-.24*	-.27**	-.32**
15. Perceived norms	.55**	-.01	.13	.01	.19	-.04	.33**	.24*	.17
16. Attitudes/ Beliefs	.64**	-.26**	.19*	-.12	.30**	-.20*	.37**	.28**	.28**
17. Life Events Strain	.10	.09	.07	.02	.03	-.13	.03	.09	.08
18. Education Strain	.01	-.01	.20*	.00	.27**	-.02	-.01	-.02	.16

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Table 3

Continued

Variables	10	11	12	13	14	15	16	17	18
10. Relative Low Risk	–								
11. Sleep	.51**	–							
12. Availability	.51**	.59**	–						
13. Active Tracking	-.10	-.13	-.02	–					
14. Behavioral Control	-.28**	-.42**	-.29**	.07	–				
15. Perceived norms	.38**	.32**	.13	-.06	-.28**	–			
16. Attitudes/ Beliefs	.54**	.35**	.13	-.13	-.35**	.50**	–		
17. Life Events Strain	.18	.19*	.08	-.08	-.05	.25**	.17	–	
18. Education Strain	.09	.19*	.19*	-.01	-.09	-.10	-.03	.20**	–

* $p < .05$. ** $p < .01$. *** $p < .001$

Table 4

Standardized regression coefficients predicting marijuana use and negative consequences

Motivation	Frequency of Marijuana Use ^a		Negative Consequences of Marijuana Use ^b	
	Coefficient	<i>p</i> -value	Coefficient	<i>p</i> -value
Enjoyment	0.31	0.003	0.32	0.005
Conformity	0.10	0.248	0.21	0.015
Coping	0.31	<0.001	0.37	<0.001
Experience	0.05	0.523	0.16	0.048
Boredom	0.27	0.001	0.35	<0.001
Alcohol Alternative	-0.01	0.878	0.28	<0.001
Celebration	0.27	0.001	0.22	0.016
Altered Perceptions	0.28	<0.001	0.23	0.007
Anxiety	0.28	0.001	0.28	0.002
Low Risk	0.25	0.006	0.20	0.037
Sleep	0.34	<0.001	0.22	0.030
Availability	0.20	0.014	0.18	0.037

^a Coefficients when controlling for age, college GPA, race (White vs non-White), gender, ethnicity, parental active tracking, perceived behavioral control regarding marijuana, subjective norms regarding marijuana, attitudes regarding marijuana, life events strain, and academic strain

^b Coefficients when controlling for all of the covariates listed above, as well as frequency of marijuana use

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