

THE PENNSYLVANIA STATE UNIVERSITY

SCHREYER HONORS COLLEGE

DEPARTMENT OF SOCIOLOGY

Adolescent Marijuana Use: An Analysis of Protective and Risk
Factors on Adolescent Cannabis Consumption

BLAKE TOLIVER
SPRING 2022

A thesis
submitted in partial fulfillment of the requirements
for baccalaureate degrees
in Criminology and English
with honors in Criminology

Reviewed and approved* by the following:

Jeremy Staff
Professor of Sociology, Criminology, and Demography
Thesis Supervisor

Stacy Silver
Associate Professor of Sociology and Human Development and Family Studies
Honors Adviser

* Electronic approvals are on file.

Abstract

This thesis explores the effect of protective and risk factors on adolescent marijuana use. As the legalization of marijuana across the United States begins to expand, access to marijuana products even amongst adolescents becomes more accessible. This could consequently have detrimental effects to the overall well-being of adolescents across the United States. Literature accessing the harms of marijuana use in relation to deviance has been well documented. These possible harms include lower grades, decreased aspirations, and higher levels of marijuana use. This study looked at several variables in relation to adolescent marijuana use in the last twelve months. These variables relate to extracurricular involvement, peer associations, neutralizations, and academic performance. In order to test these variables, the Monitoring the Future (MTF) 2019 data set was used, and statistical tests were run using R-studio. The subjects being focused on, however, only include adolescent marijuana users, excluding adolescents who did not smoke in the last twelve months. It was found that marijuana use was associated with lower grade point average, fewer concerns about being arrested for cannabis use, and a greater likelihood of further use if offered by a peer. However, some results relating to extracurricular involvement were inconclusive. These results both support and negate the literature presented in this study. Further sections of the thesis will expand on this. Future research into adolescent marijuana use will help researchers and parents as well as adolescents better understand its effects on adolescent well-being.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	iii
Introduction	1
Literature Review and Theoretical Background	3
Social Control Theory	3
Differential Association Theory & Social Learning Theory	5
Neutralization Theory & Rational Choice Theory	9
Hypotheses	11
Data and Methods	13
Sample.....	13
Dependent Variables	14
Independent Variables.....	14
Measures	14
Results	17
Table 1.....	17
Table 2.....	18
Table 3.....	19
Table 4.....	20
Table 5.....	21
Table 6.....	21
Discussion, Limitations and Conclusion	23
Discussion	23
Limitations	25
Conclusion	26
Bibliography	27

Acknowledgements

First, I want to thank Dr. Jeremy Staff and Dr. Stacy Silver for their support and guidance throughout the creation of this thesis. They helped me solidify my ideas and explore them in a way that I believe will be helpful in determining the impacts of marijuana use amongst youth. Next, I would like to thank my parents Yvonne and Brent for being my support system and believing in me before I started believing in myself. Lastly, I would like to thank Penn State for molding me into the young adult I am today. I have learned more at this institution than I could ever have imagined. I am very thankful for all of those who have aided me in my journey during my time at Penn State.

Introduction

Cannabis is a plant that has been cultivated for decades for its psychoactive effects and has become the most frequently used illegal substance in the United States (Volkow et al., 2014). Thus, a large amount of research has been conducted on its effects on the human mind and body. More specifically, research about motivations for marijuana use amongst adolescents and the impact that it can have on their physical, mental, and social wellbeing. In fact, almost half of high school seniors have tried marijuana, and six percent of them are reported to use it daily (Jacobus 2009). Research also shows that as time persists for adolescents and adults, viewpoints that deem marijuana to be harmful continue to increase (Hasin 2017). However, alongside this increased view of marijuana being harmless, research also supports that marijuana has harmful effects such as damage to the adolescent brain, decline in school performance, vehicle crashes, and withdrawal (Hasin 2017). Therefore, an ongoing debate has continued about marijuana and whether or not its possible benefits outweigh its costs. Thus, continued research into this topic is essential as the effects of marijuana within the scientific community have yet to be fully understood, and policies surrounding the substance continue to change as new discoveries arise.

This thesis will explore the potential protective and risk factors associated with adolescent marijuana use. Protective factors are defined as aspects of an adolescent's life that decrease their likelihood of using marijuana, while risk factors are aspects of an adolescent's life that increase their likelihood of using marijuana. Social control theory, neutralization theory, and differential association theory will be utilized to help explain some of the results within our data set. Each theory will serve a unique purpose in explaining why some of the protective and risk factors identified inherently work to encourage or prevent adolescent marijuana use.

Gateway theory will be critical in explaining how certain drugs can act as a gateway for the use of other drugs. For example, marijuana use amongst adolescents has been heavily scrutinized for working as a gateway drug to more illicit drugs such as cocaine and heroin (Lessem et al. 2006). Therefore, theories such as this will help explain how certain behaviors such as cigarette smoking or vaping nicotine can, in the same way, potentially act as a gateway and can lead to marijuana use in the future. Furthermore, neutralization theory will be important in exploring how peer associations can influence attitudes and behaviors about marijuana use. Lastly, differential association theory would explain how these neutralizations form and how they can be weakened or strengthened by protective or risk factors.

Literature Review and Theoretical Background

A plethora of theoretical principles can be applied to explore factors of an adolescent's life that influence their marijuana use. Below, several important theories will be discussed which will work to explain the findings from the data set.

Social Control Theory

Social control theory, first proposed by American sociologist Travis Hirschi explores the concept of delinquency and the inverse relationship it shares with social bonds. In theory, one's descent into delinquency can be caused by a weakening of their attachments to the general values and norms held by conventional society. Consequently, this adoption of new norms and values can manifest themselves into behaviors and attitudes that are favorable to crime. Hirschi's theory establishes four elements that act as the catalyst to this drift: attachment; commitment; involvement; and belief. First, the term attachment refers to the strength of one's social ties to other individuals within conventional society. Next, commitment refers to one's investment of time and energy in efforts to conform to the norms established by this society. Furthermore, involvement pertains to the amount of time one spends involving themselves in socially accepted practices viewed positively by the society in which they are in. Lastly, Hirschi's term belief refers to one's level of confidence that these norms and values hold moral validity (Cullen 2018). These factors, collectively, are all significant as they can predict one's likelihood of deviating away from crime or continuing it. When attempting to reduce recidivism, these factors are crucial to consider since they can help explain the reasons why some offenders adhere to deviant behavior while others do not.

When examining adolescents and marijuana use, their social bonds with peers and their level of attachments and commitments to different social groups could impact the frequency in

which they use marijuana. These prosocial bonds and attachments can be built through extracurricular activities. Extracurriculars can be defined as the activities that an adolescent partakes in outside of their primary curriculum. This includes involvement in school programs “such as performing arts, team sports, academic focused clubs, and school involvement activities like student government” (Fredricks and Eccles 2005). These involvements can not only dictate the amount of time adolescents have to participate in marijuana use but also the attitudes they build about its use.

Recent studies have shown that adolescents who spend less time participating in extracurricular activities, due to marijuana use, miss out on experiencing its overall benefits. These benefits were reported in a study conducted by Nancy Darling and her team of researchers who found that “ adolescents who participated in school-based extracurricular activities reported lower levels of marijuana use, higher grades, and aspirations, and more positive academic attitudes” (Darling et al., 2017). Thus, adolescents who spend less time participating in extracurricular activities, due to marijuana use, are likely to miss out on experiencing this form of scholastic involvement. Structured activities such as school sports found that creating more available organized activities for youth to participate in enhances prosocial behaviors and increases adult supervision. Under social control theory, adolescents would be expected to make attachments/bonds in environments such as school extracurriculars that encourage conformity to conventional norms and values.

Furthermore, research also suggests that perceived availability of structured activities, for example such as fewer available structured extracurricular activities, was associated with marijuana use. Adolescents who participate in more unstructured activities were found to have an increased chance of both ever using marijuana and alcohol (Spillane, Schick, Kirk-Provencher et

al. 2020). As mentioned previously, involvement in extracurricular activities can have a positive effect on adolescents' use of substances such as marijuana. However, the frequent use or marijuana can have opposite effects. Students who use marijuana more frequently, especially in school, are less likely to perform well academically. A study comparing non-users, general users, and those who used marijuana at school found that those who used marijuana to any capacity showed poorer behavior in school. Additionally, those who used marijuana in school were more likely to have lower grades, poor attendance, greater academic dishonesty, classroom participation, greater academic dishonesty, and received more disciplinary referrals when compared to general users and non-users. These results don't appear to differ when considering the race and the sex of the students (Finn 2012). Nevertheless, adolescents who use marijuana were more than twice as likely to drop out of high school (McCaffrey, Pacula, Han et al. 2009). Peer associations with both friends and family showed to be statistically significant in influencing the odds of high school dropout (McCaffrey, Pacula, Han et al. 2009).

Social control theory's elements of involvement and commitment explain how aspects of extracurricular involvement during adolescence can influence both deviant and conventional behavior. In relation to attachment and belief, theories found in the following literature will detail how adolescent marijuana use relates to the remaining elements established by Hirschi's theory of social control.

Differential Association Theory & Social Learning Theory

Differential Association Theory, pioneered by American sociologist Edwin Sutherland, argued that criminal behavior is learned by interacting with others and these deviant relationships can lead to an individual learning skills and techniques necessary for committing criminal acts. Differential association theory helps explain how an adolescent's peer associations help to shape

individual attitudes, motivations, and techniques that are ultimately favorable or unfavorable to crime. Peers are individuals in an adolescent's life who are similar to them in age, social status, or background to the individual. Existing research has demonstrated that peer associations are a good predictor of adolescent marijuana use (Schuler, Joan S. Tucker, Eric R. Pedersen, Elizabeth J. D'Amico 2019).

Differential Association theory supports existing research that has found that adolescents create attitudes favorable to marijuana use based on the perceived use of others. Adolescent marijuana use was found to be strongly tied to their perceived use of the drug by their best friend. After sampling 4,230 adolescents from grades 7-12, research has found that peer drug use had a reasonably large effect on individual adolescent drug use. These substances included marijuana, cigarettes, alcohol, and other illicit substances (Stephen J. Bahr, John P. Hoffmann, and Xiaoyan Yang 2005). Adolescent marijuana use was also correlated strongly with adolescents' perceptions of its use among siblings and adults. Adolescent substance use was associated with perceived sibling and adult-use (Schuler, Megan S., Joan S. Tucker, Eric R. Pedersen, Elizabeth J. D'Amico 2019). It was found that across all grades siblings had a stronger impact than adults in influencing adolescent marijuana use (Schuler, Megan S., Joan S. Tucker, Eric R. Pedersen, Elizabeth J. D'Amico 2019). Prevention methods for adolescent marijuana use, thus, needs to begin prior to middle school and high school as peers and family members seem to have a greater influence.

Additionally, research has found that the impact of peer influence on an adolescent's marijuana use also differs based on how the relationships between an adolescent and their peers are structured. In schools characterized as being more cohesive and large, peer influences were more likely to be stronger in friendships that were closer, trusted, and reciprocated (Tucker,

Haye, Kennedy et al. 2014). In schools that are small and not cohesive, drug use appears to not be motivated by these same relationships as marijuana use. Instead, it is simply motivated by popularity and not the closeness or structure of the relationship (Tucker, Haye, Kennedy et al. 2014).

In a study titled, “Peer Influence on Marijuana Use in Different Types of Friendships,” Joan S. Tucker, Kayla de la Haye, and other researchers sought to investigate whether the structural attributes of a friendship can control the likelihood of adolescent inclination to use marijuana. For this research, Tucker and his team examined longitudinal data from the National Longitudinal Study of Adolescent Health for one year. They looked at reports from 10th and 11th graders detailing whether or not their friendships with adolescent marijuana users were reciprocated, the initial social status of the friend presented, and the differences in popularity between the adolescent and the presented friend. Data was then collected and tracked into the participants’ junior and senior years of high school. In one school, the influence on an adolescent’s marijuana use was more likely to occur when friendships were reciprocated.

However, in another school where data was collected it was found that adolescents' relative popularity to their friend and the greater popularity status of their friend had the most significant influence. Thus, the researchers concluded from this study that the impact that an adolescent’s friend’s will have on their marijuana use will often vary in strength depending on the context of the social environment. The study reports that variations in characteristics of friendships such as the level of “closeness and trust” and drug use as a means “to attain social status” were very influential factors in determining how the structure of a friendship influenced adolescent marijuana use (Tucker, Haye, Kennedy et al. 2014). The authors of this study suggest that more research is necessary to pinpoint the more distinct structural characteristics of

friendships that influence an adolescent's likelihood to engage in marijuana use. Research such as this is vital as it helps give greater insight into peer associations and how the way in which these associations are structured can influence adolescent drug behaviors and attitudes.

Further studies conducted also analyze the concept of peer pressure and its influence on initiating teens into the use of illegal substances such as marijuana. The data for this research was conducted through a series of interviews. A total of 92 at-risk adolescents were interviewed who had admitted to coming into contact with illegal drugs through peer associations. The researchers learned that peer pressure, as a motivator of substance use, declined heavily as one got older. In addition, researchers found that the older one got the use of illegal substances became more of a personal choice rather than one influenced by peer pressure. It was also found that as participants aged the perceptions of marijuana use became less of a risk-taking activity and more of an enjoyable activity amongst peers. This is because the older participants got the less they viewed marijuana use as something in which they were forced into. Furthermore, many adolescents reported that their initiation to marijuana was as a result of curiosity as well as boredom rather than something they actively sought out. This clearly makes it evident that finding alternative ways to keep adolescents time occupied can be an influential factor in reducing the use of the substance which in return will affect one's perceptions of it. In the end, the use of drugs amongst adolescents is a matter of meeting individual needs rather than the expectations of the peers around them as they age.

However, conflicting literature exist which says peer relationships are not significant factors in adolescent marijuana use. A study found an individual's personal demographic characteristics such as age, gender, and school type has shown in some studies to have a greater influence on adolescent marijuana use than friend or parental relationships (Piko 2009). Low

level of fatherly support was a factor which acted as a strong predictor for substance use of all types amongst adolescents (Piko 2009).

A study titled "Parenting Practices as Moderators of the Relationship Between Peers and Adolescent Marijuana Use" by Cassandra J. Dorius, Stephen J. Bahr, John P. Hoffmann, and Elizabeth Lovelady Harmon from Brigham Young University assess to what extent, "closeness to mother, closeness to father, parental support, and parental monitoring buffer the relationship between peer drug use and adolescent marijuana use," (Dorius et al., 2004). To examine this relationship the researchers utilized a sample of 4,987 adolescents from grades 7-12 who were surveyed on their attachments to their mother and father, the parental support received from their parents, their parents' awareness of their peer associations and activities, and their personal drug use. From these surveys, researchers found that there was, in fact, a strong correlation between peer use and adolescent marijuana use. Factors pertaining to parenting only influenced the relationship between peers and adolescent marijuana use to a small degree. These two factors significantly decrease an adolescent's likelihood of using marijuana. Research such as this study is important in better understanding the protective and risk factors for adolescent marijuana use.

Neutralization Theory & Rational Choice Theory

From these peer associations, attitudes and rationalizations favorable to crime can be formed and hinder an adolescent's ability to deviate away from crime (Cullen 2018). Theories have been proposed for how peer associations influence the manifestation of attitudes/neutralizations favorable to crime. For instance, theories of neutralization outlined by Sykes and Matza, particularly the idea that offenders are fully aware of their deviance and must use accounts and neutralizations to relieve themselves of any guilt they may feel for their

offenses. Neutralization Theory or “Drift theory” proposed by David Matza and Gresham Sykes in 1959 found that rationalizations for delinquency foster themselves in the same way that conventional behaviors are normalized within the conventional society (Sykes and Matza 1957).

Matza and Sykes discovered five different ways in which behavior could be neutralized: denial of responsibility, denial of injury, denial of victim, condemnation of the condemners, and the appeal to higher loyalties (Sykes and Matza 1957). Neutralization theory emphasizes how similar delinquent actors and law abiding citizens truly are to one another. The major difference is that some delinquents, even when adhering mainly to conventional norms, may sometimes suspend these norms temporarily in order to rationalize deviant behavior. This suspension of conventional norms can occur by temporarily framing conventional norms and values as insignificant or irrelevant. The delinquent often remains sensitive to law-abiding values but is able to defuse them by neutralizing them. This protects delinquents from experiencing feelings of guilt or blame following a deviant act. This was a claim argued by Sykes and Matza.

Moreover, three different methods of neutralizing substance use specifically for marijuana use exist amongst juveniles: scapegoating, self-confidence, and comparison between risks (Peretti-Watel 2003). Marijuana users may use hard drugs as scapegoats for reasons for participating in recreational cannabis use. Adolescents also use their own confidence in their abilities to handle certain drugs as a neutralization for its use. Additionally, adolescents neutralize marijuana use by comparing it to other substances such as alcohol (Peretti-Watel 2003). Updated theories surrounding Matza and Sykes' notion of neutralization include risk denial theory (Peretti-Watel 2003). Risk denial theory postulates that individuals can use neutralization techniques to rationalize risky behaviors, such as marijuana use. A quantitative study from the 1999 European School Survey on Alcohol and Other Drugs (ESPAD), it was

found that, “ in order to deny the ‘risky’ label, cannabis users scapegoat ‘hard drugs’ users, they emphasize their own ability to control their consumption personally, or they compare cannabis and alcohol risks” (Patrick Peretti-Watel). Collectively, all these methods could be viewed as justifications for delinquent behavior by juveniles, opposing not only societal norms but also the legal system.

Contemporary criminology also explores rational choice theory. People make a cost/benefit analysis and will act, commit a crime, if they view that the benefits of the act outweighs the cost. People make economically rational decisions daily as some crimes can be labeled an economically rational choice. If an individual's perceived chance or cost of punishment is small, but the immediate gains are big then crime is likely to occur. Causes of delinquency are internal to youth, and are randomly distributed across the population, and can only be prevented by addressing the internal choices they make and their actions when it comes to their use of illegal substances. The more peers an adolescent has who use marijuana the greater chance they will be to form positive attitudes/ neutralization for marijuana use.

Hypotheses

Four research questions will be explored to identify these individual factors and the impact they have on adolescent marijuana use.

1. The more peers an adolescent has who use marijuana the greater chance they will use marijuana use.
2. The more positive attitudes/neutralizations for marijuana use an adolescent has, the more frequently they will participate in its use.

3. Adolescents who frequently use marijuana are less likely to be involved in extracurricular activities.
4. Adolescents who use marijuana more frequently will score lower in school.

Data and Methods

Sample

The data set I will be using for this study will be from the Monitoring the Future study which was accessed through the Inter-university Consortium for Political and Social Research (ICPSR) located at the University of Michigan in Ann Arbor, Michigan USA. The Monitoring the Future study data set focuses on drug use amongst teenagers as they claim that drug experimentation starts in adolescents, and adolescents are the most vulnerable to drug use. This drug use could later have detrimental effects on one's health through health issues such as addiction (drugabuse.gov). This study consists of survey data that measures attitudes about drug and alcohol use nationwide amongst adolescents. This data is cross-sectional and consists of numerous cohorts dating as far back as 1975. In efforts to collect this data, participants are asked in the form of a survey to report their drug use within the past month, past year, and throughout their lifetime.

The sample that I utilized for this research question included a nationally-representative sample of 10th-grade students in 2019. Of the 14,595 10th graders under investigation, 4,046 or 27.7 % of them reported using at least some marijuana in the last 12 months. When calculating demographic statistics, approximately 48% of the students in this sample were male, 11% of the students were Black, 47.7 % were White, 17% percent were Hispanic, and 25% of the students' races and ethnicities were either unreported or unknown. Overall, this data set will provide valuable information in order to answer the hypothesis described later in the study.

Dependent Variables

The dependent variable that I am interested in is marijuana use within the last twelve months. For this question, 10th grade students were asked “On how many occasions (if any) have you used marijuana (weed, pot) or hashish (hash, hash oil) . . . during the last 12 months?”.

Independent Variables

Several independent variables were tested in an effort to identify the protective and risk factors that may influence adolescent marijuana use. The independent variables are as follows:

1. How many of your friends would you estimate . . . use marijuana or hashish?
2. If one of your best friends were to offer you some marijuana, would you use it
3. How important is each of the following as a reason for YOU not using marijuana?
(Concerned about getting arrested)
4. Actively participate in sports, athletics or exercising
5. On the average over the school year, how many hours per week do you work in a paid job?
6. To what extent have you participated in the following school activities during this school year? (Athletic teams)
7. Which one of the following best describes your average grade in this school year?

Measures

After getting permission to use the *Monitoring the Future: A Continuing Study of American Youth (8th- and 10th-Grade Surveys)*, access to the codebook, the data set, and other materials were granted. However, only the codebook and the raw data set were analyzed. The

raw data were computed into observable statistics utilizing R studio. However, a few steps had to be taken in order to clean the data before it could be properly used to generate statistics and begin drawing conclusions. The first step of the data cleaning process was to create a subset of the data set which only retained responses from 10th graders and omitted all respondents from 8th grade respondents. This was done using the subset function on both the variables “ARCHIVE ID - 8TH” (AI_08) and “Grade” (V501) in R Studio. Next, the dependent variable “On how many occasions (if any) have you used marijuana (weed, pot) or hashish (hash, hash oil) . . . during the last 12 months?”, coded as V7113, which had response options as follows: 1="0 Occasions" 2="1-2 Occasions" 3="3-5 Occasions" 4="6-9 Occasions" 5="10-19 Occasions" 6="20-39 Occasions" 7="40 or More". Responses for this dependent variable was recoded and separated into two different groups: 0= never smoked, 1= if the student smoked marijuana at least once in the last 12 months.

This dependent variable (V7113) was estimated against several independent variables. The first independent variable was “If one of your best friends were to offer you some marijuana, would you use it?” (V7668). Students were allowed to respond to this question with the following: “1="Definitely yes" 2="Probably yes" 3="Probably not" 4="Definitely not". The second variable was “How important is each of the following as a reason for YOU not using marijuana? Concerned about getting arrested” (V7461). Students were allowed to respond to this question with the following: 1="Not At All" 2="Somewhat" 3="Very Important".

The third independent variable was “How often do you do each of the following? Actively participate in sports, athletics or exercising” (V7313). Students were allowed to respond to this question with the following: 6="Every day" 5="Almost every day" 4="At least once a week" 3="Once or twice a month" 2="A few times a year" 1="Never". The fourth independent

variable was “To what extent have you participated in the following school activities during this school year? Athletic teams” (V7518). Students were allowed to respond to this question with the following: “1=“Not At All” 2=“Slight” 3=“Moderate” 4=“Considerable” 5=“Great.”

The fifth independent variable was “On the average over the school year, how many hours per week do you work in a paid job?” (V7235). Students were allowed to respond to this question with the following: 1=“None” 2=“5 or less hours per week” 3=“6 to 10 hours per week” 4=“11 to 15 hours per week” 5=“16 to 20 hours per week” 6=“21 to 25 hours per week” 7=“26 to 30 hours per week” 8= “More than 30 hours per week”. Lastly, the final independent variable was “ The next questions are about your experiences in school. Which one of the following best describes your average grade in this school year?” (V7221). Students were allowed to respond to this question with the following: 9=“A (93-100)” 8=“A- (90-92)” 7=“B+ (87-89)” 6=“B (83-86)” 5=“B- (80-82)” 4=“C+ (77-79)” 3=“C (73-76)” 2=“C- (70-72)” 1=“D (69 or below)”.

The code book allowed for each independent variable to be identified and tested against the dependent variable. The results of these tests are represented in the form of contingency tables. Not all students responded to every question, thus resulting in a sizable amount of data missing across each test. A column for “Percentage of Marijuana Users” is the focus of our results as this study is primarily concerned with the adolescent group that does use marijuana.

Results

In Table 1, I estimated a crosstab of the proportion of youth who had used marijuana in the past year based on peer influence. In particular, when asked on the survey “If one of your best friends were to offer you some marijuana, would you use it?”, eighty three point five percent of those who answered “definitely will” were students who smoked at least once in the last 12 months. Sixty point five percent of those who answered probably were students who smoked at least once in the last 12 months. Twenty point seven percent of those who answered probably won’t were students who smoked at least once in the last 12 months. Lastly, three point nine percent of those who answered definitely won’t were students who smoked at least once in the last 12 months. As the response options decreased in the degree of likelihood to try marijuana if a friend offered it to them, the percentages of those belonging to the students who used marijuana at least once decreased drastically with it.

Table 1

If one of your best friends were to offer you some marijuana, would you use it?	Do Not Use Marijuana	Use Marijuana	Total	Percentage of Marijuana Users
Definitely Will	47	238	285	83.5%
Probably Will	155	237	392	60.5 %
Probably Won’t	365	95	460	20.7 %
Definitely Won’t	988	40	1028	3.9 %
Total	1555	610	2165	

When asked on the survey “How important is each of the following as a reason for YOU

not using marijuana? (Concerned about getting arrested)”, fourteen point four percent of those who answered not at all were students who smoked at least once in the last 12 months. Fourteen point two percent of those who answered “somewhat” were students who smoked at least once in the last 12 months. Six point six percent of those who answered “very important” were students who smoked at least once in the last 12 months. The results found between the “Not At all” and “Somewhat” group differed slightly. However, a drastically lower percentage of marijuana users fell into “very important group” suggesting a negative relationship between marijuana use and concerns about getting arrested. These results are shown in Table 2.

Table 2

How important is each of the following as a reason for YOU not using marijuana? (Concerned about getting arrested)	Do Not Use Marijuana	Use Marijuana	Total	Percentage of Marijuana Users
Not At All	546	92	638	14.4 %
Somewhat	472	78	550	14.2 %
Very Important	1668	117	1785	6.6 %
Total	2686	287	2973	

When asked on the survey “How often do you do each of the following? (Actively participate in sports, athletics or exercising)”, amongst students who smoked at least once in the last 12 months 29.2 % responded “Never”, 30.5% responded “A Few Times a Year”, 27.6% responded “1-2x Month”, 29.6% responded “At Least Once a Week”, 28.6% responded “Almost

Daily”, and lastly 28.2 % responded “Every Day”. The results of this test shown in Table 3 neither a positive or negative relationship between active participation in sports, athletics or exercising and marijuana use.

Table 3

How often do you do each of the following?	Do Not Use Marijuana	Use Marijuana	Total	Percentage of Marijuana Users
Actively participate in sports, athletics or exercising				
Never	1189	491	1680	29.2 %
Few Times Year	950	418	1368	30.5 %
1-2x Month	776	296	1072	27.6 %
Once A Week +	1458	615	2073	29.6 %
Almost Daily	2217	891	3108	28.6 %
Every Day	3348	1317	4665	28.2 %
Total	9938	4028	13966	

When asked on the survey “To what extent have you participated in the following school activities during this school year? (Athletic teams)”, amongst students who smoked at least once in the last 12 months 26.5 % responded “Not At All”, 31% responded “Slight”, 34.2 % responded “Moderate”, 26.3% responded “Considerable”, 27.4 % responded “Great Extent”. Moderate participation in school activities during this school year such as athletic teams seemed

to be the most popular response. Thirty nine point eight percent of those in the “smoked at least once in the last 12 months” belonged to the “not all” group, the highest percentage recorded for this group. However, the second largest percentage for this group was “great extent, with thirty five point three percent of adolescent marijuana users belonging to this group. The lowest percentage group was “slight” with seven point five percent of marijuana users being identified in this group.

Table 4

To what extent have you participated in the following school activities during this school year?	Do Not Use Marijuana	Use Marijuana	Total	Percentage of Marijuana Users
Athletic teams				
Not At All	1889	682	2571	26.5 %
Slight	287	129	416	31 %
Moderate	302	157	459	34.2 %
Considerable	389	139	528	26.3 %
Great Extent	1605	606	2211	27.4 %
Total	4472	1713	6185	

When asked on the survey “On the average over the school year, how many hours per week do you work in a paid job?”, amongst students who smoked at least once in the last 12 months 26.5 % responded “None”, 24.2% responded “Five or Less”, 34.9 % responded “6-10 Hours”, 42.1% responded “11-15 hours”, 41.2 % responded “16-20 hours”, 46.5 % responded

“21-25 hours”, 51.7 % responded “26-30 Hours”, 45.6 % responded “30 + Hours.” Marijuana use and hours worked seemed to illustrate a positive association.

Table 5

On the average over the school year, how many hours per week do you work in a paid job?	Do Not Use Marijuana	Use Marijuana	Total	Percentage of Marijuana Users
None	7530	2715	10245	26.5 %
Five or Less	854	273	1127	24.2 %
6-10 Hours	553	296	849	34.9 %
11-15 Hours	296	216	512	42.1 %
16-20 Hours	271	190	461	41.2 %
21-25 Hours	153	133	286	46.5 %
26-30 Hours	84	90	174	51.7 %
30 + Hours	94	79	173	45.6 %
Total	9835	3992	13827	

Finally, when asked on the survey “ Which one of the following best describes your average grade in this school year?”, amongst students who smoked at least once in the last 12 months 16.5 % responded “A”, 22 % responded “A-”, 27.6 % responded “B+”, 31.3% responded “B”, 34.9 % responded “B -”, 37.5 % responded “C +”, 43% responded “C”, 44 % responded “C-”, and lastly 50 % responded “D”. Based on the results from Table 6, a negative association appears to exist between marijuana use and grade point average.

Table 6

Which one of the following best describes your average grade in this school year?	Do Not Use Marijuana	Use Marijuana	Total	Percentage of Marijuana Users
A	2150	424	2574	16.5 %
A-	1993	561	2554	22 %
B+	1611	614	2225	27.6 %
B	1456	663	2119	31.3%
B-	919	493	1412	34.9 %
C+	740	445	1185	37.5 %
C	393	296	689	43%
C-	279	219	498	44%
D	217	217	434	50 %
Total	9758	3932	13690	

Discussion, Limitations and Conclusion

Discussion

As expected from the literature, some of the hypotheses are confirmed by the previous literature. The first major finding was that individuals who smoked marijuana at least once in the last 12 months were reported to be more likely to use marijuana if they were offered it by their friends. This could suggest that peers such as those whom they consider being best friends can strongly influence the likelihood of marijuana use. The results of this test would support Travis Hirschi's idea of social bonds and Edwin Sutherland's theory of Differential Association in relation to the presence of deviant peers.

However, the use of another variable which explores other relationships such as parents and peers deemed to be outside an adolescents social circle would have been useful in further exploring this association. Nevertheless, the literature supports the idea that the closeness of a relationship, such as between adolescents and their peers considered to be best friends, shows support for the data generated from statistical tests on this relationship.

The second hypothesis that analyzed the relationship between neutralizations for marijuana use, which was concern about getting arrested, on marijuana use in the last twelve months. The results were consistent with the literature as neutralizations for those who used marijuana at least once in the last twelve months seemed to not be affected by concerns of arrest in comparison to the non-smoker group. The nonsmoker adolescent group dominated the "very important" concern delineation. This seems to adhere to Matza and Sykes' ideas of neutralization and the literature supporting how this behavior can be neutralized by cannabis users. From these results, however, there is no way to know whether this behavior was neutralized using

scapegoating, self-confidence, and comparison between risks. However, it appears neutralizations were made amongst the smoker group, explaining the decreased numbers of adolescents from this group assigned to the very important group.

While most of the hypothesis did hold true, the results from the third hypothesis did not hold. In terms of extracurricular involvement both in time spent involved in the extracurricular and the extent of the extracurricular itself it does not seem to show an association in one way or another. This conflicts with the literature which identifies extracurricular involvement as a protective factor for adolescent marijuana use. It is unclear how extracurricular involvements affect individuals individually especially those who compete in mentally demanding sports and activities such as football and tennis or those who work jobs that can bring about increased amount of stress. As a coping mechanism for the psychological impact of these activities, some adolescents may use marijuana as a way to relieve feelings of anxiety that stem from these forms of involvement.

Lastly, when analyzing the relationship between school performance in terms of GPA and adolescent marijuana use in the last twelve months, it was found that marijuana use was associated with lower grade point average. The literature presented earlier only supports higher grades for an adolescent involved in extracurricular activities. A linear regression model would have to be estimated in order to demonstrate the relationship between these three variables. However, given this relationship, an inverse relationship may exist between these variables where lower grades lead to more frequent marijuana use. This opens the door to explore further research that would require survey data tracking both GPA history and frequency of marijuana use together. By tracking downward trends of GPA and correlating them with incidences of

marijuana use, this should help refute the potential inverse relationship shown to be produced from this data set.

The coronavirus pandemic has certainly put a global emphasis on mental health. With limitations for social interaction, ideas of self-care may expand to substances such as marijuana use given its primary effects. With the given trajectory of legalization, marijuana use is likely to become much more common. With that, there will likely be much more regulation and paradigm shifts to complement that, such as greater acceptance of marijuana use for mental health, physical health, and more widely acknowledged recreational acceptance.

Limitations

After analyzing the variables from the code book in relationship to the research question there does appear to be a few limitations. First, 10th grade students who dropped out of high school would not be included in the data generated from the survey. High school dropouts not being included in the survey results in an underrepresentation of the most disadvantaged populations that are presumed to be at the highest risk. This would be important data to include since this could greatly impact the results generated from these questions. For example, by not having data from 10th grade dropouts for variables such as “Which one of the following best describes your average grade in this school year?”, those who may have been amongst the students who smoked at least once in the last 12 months could have made up a higher percentage of those in the D category, which would have not produced an even split for this grade denomination. This could have potentially yielded stronger evidence to support that those who have smoked marijuana at least once in the last 12 months are more likely to have a lower grade point average than those that have not smoked in the last 12 months. Additionally, another

limitation could have been that some students may have either misreported their marijuana use out of fear of repercussions, by lying, or may have forgotten the frequency of their use in the last 12 months.

Conclusion

Further research on adolescents and marijuana use could help spark new policy changes while also answering many of the questions that still exist about the relationship between adolescents and marijuana use. Thus, the study concludes that negative effects do exist when it comes to marijuana use and adolescent success. Research such as this only operates as a further building block for solving this dilemma.

Bibliography

Dorius, Cassandra J., Stephen J. Bahr, John P. Hoffmann, Elizabeth Lovelady Harmon.

2004. "Parenting Practices as Moderators of the Relationship Between Peers and Adolescent Marijuana Use." *The Journal of Marriage and Family* 66 (1). Retrieved December 6, 2020.

Bahr, Stephen J., Hoffmann, John P., Yang Xiaoyan. 2005. "Parental and Peer Influences on the Risk of Adolescent Drug Use." *The Journal of Primary Prevention* 26 (6). Retrieved April 2, 2021.

Finn, Kristin V. 2012. "Marijuana Use at School and Achievement-Linked Behaviors." *The High School Journal* 95 (3). Retrieved March 31.

Fredricks, Jennifer A., Eccles, Jacquelynne S. "Developmental Benefits of Extracurricular Involvement: Do Peer Characteristics Mediate the Link Between Activities and Youth Outcomes?" *Journal of Youth and Adolescence* 34 (6). Retrieved April 3, 2021.

Hasin, Deborah S. 2018. "US Epidemiology of Cannabis Use and Associated Problems." *Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology*, 43 (1). Retrieved March 1, 2021.

Jacobus, J., Bava, S., Cohen-Zion, M., Mahmood, O., Tapert, S.F., 2009. "Functional Consequences of Marijuana Use in Adolescents." *Pharmacology Biochemistry and Behavior*, 92 (4). Retrieved March 1, 2021.

Kreager, Derek A., Daniel T. Ragan, Holly Nguyen, and Jeremy Staff. 2016. "When Onset Meets Desistance: Cognitive Transformation and Adolescent Marijuana Experimentation." *Journal of Developmental and Life-Course Criminology* 2:135–161.

Lessem, Jeffery M., Hopfer, Chrisitan J., Haberstick, Brett C., Timberlake, David, Ehringer, Marissa A., Smolen, Andrew, Hewitt, John K. 2006. "Relationship between Adolescent Marijuana Use and Young Adult Illicit Drug Use." *Behavior Genetics*, 36. Retrieved March 1, 2021.

- McCaffrey, D.F., Liccardo Pacula, R., Han, B. and Ellickson, P. 2010. "Marijuana use and high school dropout: the influence of unobservables". *Health Economics* 19 (11). Retrieved April 4, 2021.
- McIntosh, J. F. MacDonald & N. McKeganey. 2006. "Why do children experiment with illegal drugs? The declining role of peer pressure with increasing age", *Addiction Research & Theory*, 14(3), 275-287, Retrieved February 9, 2022.
- Nancy Darling, Linda L. Caldwell & Robert Smith (2005) Participation in School-Based Extracurricular Activities and Adolescent Adjustment, *Journal of Leisure Research*, 37(1), 51-76. Retrieved March 29, 2022.
- Nichea S. Spillane, Melissa R. Schick, Katelyn T. Kirk-Provencher, Danielle C. Hill, Janan Wyatt & Kristina M. Jackson. 2020. "Structured and Unstructured Activities and Alcohol and Marijuana Use in Middle School: The Role of Availability and Engagement." *Substance Use and Misuse*. 55 (11).
- Peretti-Watel, Patrick. 2003. "Neutralization theory and the denial of risk: some evidence from cannabis use among French adolescents.*" *The British Journal of Sociology* 54 (1). Retrieved March 29, 2021.
- Piko, Bettina. 2000. "Perceived Social Support from Parents and Peers: Which Is the Stronger Predictor of Adolescent Substance Use?" *Substance Use and Misuse* 35 (4). Retrieved April 2, 2021.
- Professor J. McIntosh, F. MacDonald & N. McKeganey. 2006. "Why do children experiment with illegal drugs? The declining role of peer pressure with increasing age", *Addiction Research & Theory*. Retrieved March 9, 2022.

Schuler, Megan S., Joan S. Tucker, Eric R. Pedersen, Elizabeth J. D'Amico. 2019. "Relative influence of perceived peer and family substance use on adolescent alcohol, cigarette, and marijuana use across middle and high school." *Addictive Behaviors* 88. Retrieved April 2, 2021.

Sykes, Gresham M., Matza, David. 1957. "American Sociological Review." *Techniques of Neutralization: A Theory of Delinquency* 22 (6), 664-670. Retrieved March 26, 2021.

Tucker, Joan S., Kayla de la Haye, David P. Kennedy, Harold D. Green Jr., and Michael S. Pollard. 2014. "Peer Influence on Marijuana Use in Different Types of Friendships." *Journal of Adolescent Health* 54 (1). Retrieved April 2, 2021.

Volkow, Nora D., Baler, Ruben D., Compton, Wilson M., Weiss, Susan R.B. 2014. "Adverse Health Effects of Marijuana Use." *New England Journal of Medicine*, 370 (23). Retrieved March 1, 2021

Blake D. Toliver

bdt5164@psu.edu

EDUCATION

The Pennsylvania State University, University Park
Schreyer Honors College, Major: English B.A & Criminology B.S / Minor: Communication Arts and Sciences Anticipated Graduation: May 2022

The Pennsylvania State University, University Park
Penn State's School of Public Policy MPP Program, Criminology B.S Anticipated Graduation: May 2023

PROFESSIONAL DEVELOPMENT

Sugar Sweetened Beverage (SSB) Research Assistantship Fall 2020

- Attended weekly research team meetings, coded transcripts of students' responses to SSB PSA's to better understand how individuals evaluate media messages and shape their opinions about these messages, recorded data using Excel

International Scholar Laureate Program Delegation on International Relations & Diplomacy May 2019

- Studied the diplomacy, the economy, and the politics of South Africa in the nation's largest city of Johannesburg

Office of Philadelphia City Council President Darrell L. Clarke - Philadelphia, PA June 2018 - August 2018
5th District City Council Intern at City Hall

- Worked directly with the Director of Constituent Services to address constituent complaints, fax documents, file parks and recreation special event forms, and review petitions.
- Conducted evaluations for new city projects for funding
- Attended City Council meetings and ribbon cuttings for playgrounds and new buildings
- Assisted in supplying over one hundred fans to the elderly in the city of Philadelphia in partnership with Walmart Inc.

Envision Intensive Law and Trial Summer Program - Stanford University July 2017

- Learned the practice of law, legal rhetoric, and ethics from esteemed Stanford Law professors
- Practiced and executed essential legal skills such as making impactful opening and closing arguments, preparing cases, and preparing witnesses for cross-examinations

LEADERSHIP EXPERIENCE AND EXTRACURRICULARS

President of the Multicultural Undergraduate Law Association April 2021- Present

- The spokesperson for the organization and oversees all statements released to the public about the Multicultural Undergraduate Law Association
- Presides over all meetings and serves as a mediator between all other positions
- The Multicultural Undergraduate Law Association strives to diversify the legal field by hosting resume and personal statement workshops, professional speakers, and law school visits

SHO TIME Leader, Schreyer Honors College, The Pennsylvania State University Summer 2021

- Responsible for organizing virtual programs and activities for incoming scholars for Schreyer student orientation

Black Caucus UPUA Chair, Penn State Black Caucus, The University Park Undergraduate Association May 2020 – May 2021

- Vote on student government bills and resolutions as a representative of The Penn State Black Caucus
- Collaborate with other members of UPUA to carry out student led initiatives
- Attend general assembly and committee meetings (Committee of Student Life and Committee of Justice and Equity)

Professional Development Chair, The Multicultural Undergraduate Law Association May 2020 - Present

- Schedule speakers to come and talk to students about their careers in the legal field and their experiences
- Lead organization activities and help students locate both job opportunities and internships within the legal field

Member, Penn State Mock Trial Fall 2018 - Spring 2020

Member, Schreyer Student Council Spring 2020 - Present

Member, Paterno Fellows Program Fall 2018 - Present

Member, Black Leadership Council Spring 2021- Present

HONORS/AWARDS

Jackson Lethbridge Tolerance Award Recipient *Spring 2022*

Criminology Student Marshall *Spring 2022*

Phi Beta Kappa Honor Society *Spring 2022*

The PRCC Humanitarian Award Recipient *April 2021*

The Denny Family Scholarship in English *Fall 2020*

Happy Valley Regional First Place Team Award *Spring 2019*

Guardian Invitational Second Place Team Award *Fall 2018*

Schreyer Honors College Academic Excellence Award *2018 - Present*

Dean's List *Fall 2018 - Present*