

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF SOCIOLOGY AND CRIMINOLOGY

MARIJUANA AND ITS RELATIONSHIP TO EDUCATIONAL EXPECTATIONS IN
ADOLESCENCE

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Fall 2015

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree
in Criminology
with honors in Criminology

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ABSTRACT

Do students who smoke marijuana in adolescence have lower educational expectations than their non-smoking peers do? Research suggests that those who smoke marijuana at younger ages are less likely to complete higher levels of postsecondary education, but it has yet to be determined as to “why” this association exists. One possibility is that marijuana use reduces educational expectations. I use survey data from the 2013 Monitoring the Future study to test this hypothesis. I find that it is less likely for a student to expect to attend or graduate from higher levels of education (a four year college or graduate school) if they have smoked marijuana frequently in their youths. Youth who have previously used alcohol also have lower educational expectations compared to youth who have not used alcohol in the past, but this relationship was found to be weaker compared to marijuana use. My findings suggest that there may be other factors, such as a labeling effect, that accounts for the association between adolescent marijuana use and low expectations to graduate from a college program.

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ACKNOWLEDGEMENTS

First and foremost, I would like to thank Dr. Jeremy Staff, Dr. Stacy Silver, and the rest of the Pennsylvania State University community for their invaluable help and direction during the entire thesis process. Every member of the Penn State sociology and criminology department has been immensely helpful throughout my time here, but the help of these two especially were paramount to the completion of what was without a doubt the most daunting challenge of my academic career. Secondly, I would be mistaken not to thank my family and girlfriend, who have been constant pillars of support, for which I will be forever grateful. I would also like to thank Tom for fixing the heading and page numbering of this paper – I will never understand how you did that. Lastly, I would like to thank God for making me a New England Patriots fan.

Chapter 1

Information

Prior research shows that marijuana use in adolescence is associated with low grade point averages, poor school performance, and leaving school early (Lynsky and Hall, 2000). In fact, much research has been done on the relationship between marijuana use and educational attainment, particularly within the past 15 years. Marijuana usage at a young age is associated with a reduction of the number of years of schooling completed (Chatterji, 2006), poorer educational outcomes (Fergusson and Boden, 2008), and increased risk of failure to enter into a university (Fergusson, Horwood and Beatrais, 2003). While numerous scholars have shown that a negative relationship exists between marijuana use and educational attainment, what lacks consensus in the literature is a clear understanding of the underlying factors of this relationship. For a while, it was believed that smoking copious amounts of marijuana lead to the development of the “amotivational syndrome” among frequent users (Mellinger, Somers and Davidson, 1976), but this notion has since received little empirical support (Fisher and Roget, 2009). Furthermore, studies even suggest that while marijuana does indeed lead to increased odds of dropping out of high school, it was unlikely that adverse effects of marijuana on cognitive behaviors (McCaffrey, Pacula and Han, 2009) caused the relationship. It appears that the link between marijuana usage and educational attainment and realizations are influenced by other underlying factors.

One possible explanation of why marijuana has an adverse effect on educational attainment is that smoking marijuana has a detrimental effect on adolescents’ educational expectations for the future. Numerous studies have found that educational expectation have

profound ramifications for actualizations. Students with higher educational expectations exhibit higher educational growth rates; conversely, students with lower educational expectations have lower academic achievement (Liu, Cheng and Chen, 2009). Moreover, expectations remain a strong predictor of educational attainment above and beyond other standard determinants of schooling (Jacob and Wilder, 2010), and it has been found that future oriented cognitions predict adult educational attainment (Beal and Crockett, 2010). Could there be a relationship between marijuana usage and educational expectation that influences the likelihood that a student is able to attain a level of higher education?

To answer this question, I will derive testable hypotheses from sociologist Edwin Lemert's "labeling theory." In the 1950's, Lemert developed his theory on the basis that there is a distinction between "primary deviance" and "secondary deviance." Lemert was not necessarily interested in attempting to find the causes of primary deviance, since everyone will take part in primary deviance at some point in their life. However, the relationship between the primary deviance and the succeeding acts of deviance, the secondary deviance, was something that he felt was deserved to be studied. His theory stated that in some cases, after an act of primary deviance is committed, a label gets attached to an individual that is so strong it influences their later attitudes and behavior, and becomes responsible for the person committed another act of defiance.

Applied to the case of marijuana use and educational expectations amongst teenagers, this theory fits extremely well. The primary deviance in this instance is the act of smoking marijuana, and, just as importantly, smoking marijuana at a young age. Many high schools and communities across the country employ some sort of anti-drug class or program into their curriculum, whether it be DARE, NOPE, or another such program. DARE, short for Drug

Abuse Resistance Education, is a national program which, according to its mission statement, attempts to “teach students good decision-making skills to help them lead safe and healthy lives,” particularly in terms of substance use. However, recent criticisms have come about regarding the effectiveness of DARE- like programs. It has been found that DARE’s short term effectiveness for reducing or preventing drug use behavior is small (Ennett, et al, 1994), as well as its ability to limit drug usage in adolescents over the long term (Clayton, Cattarell, and Johnstone, 1996). In some cases, programs such as these resort to fear-inducing tactics, which have been shown by research to rarely be successful (Wallack, 1999).

Additionally, students’ parents may forewarn them of the dangers of taking part of illicit substance use, in an attempt to shape their attitudes towards these types of behaviors. These students are exposed to these classes and ideology of anti-drug convictions around the same time many of them commence their usage of marijuana. Some of the messages portrayed to adolescents at this time include those that state that doing drugs will inhibit the likelihood that one will attend a university or related level of higher learning, that taking part in drug usage will result in a criminal career, and in some cases that using drugs will lead to injury or premature death because of substance use. If a student has previously used marijuana, here the act of primary deviance, they may believe they have been labeled as someone who will not attend college, or worse, become a career criminal. In some cases, this leads to the student committing an act of secondary deviance, which here would be the deviant act of not expecting to attend an institution of higher education. Expectation to attend a college has increased to extremely high levels (Reynolds, Stewart and Sisco, 2006), making this a normative behavior, thereby rendering the expectation to not enter a postsecondary institution a deviant one.

Present Study

In this study, the relationship between marijuana usage and postsecondary educational expectation will be examined to determine whether a labeling effect occurs for those who smoke marijuana in adolescence. I hypothesize that the primary deviance of smoking marijuana in adolescence will lead to a label, which will result in the committing of a secondary deviance, in this case not expecting to attend or graduation from a level of postsecondary education. First, seniors' responses from the 2013 Monitoring the Future (MTF) report will be examined to attempt to distinguish the association between lifetime marijuana usage and educational expectations. Next, the associations between the same variables will be observed for the 8th and 10th grade respondents of the Monitoring the Future survey, as a way of determining whether or not there is a difference in postsecondary expectations depending on the students age. The study will then examine the expectancy levels of students in relation to the amount of times they have drank alcohol in their lifetime. Alcohol is a good comparison to marijuana as an illicit substance that is used prominently by the general high school population as a recreational drug; however, the label a student may receive from drinking alcohol whilst underage may differentiate from that which they receive from smoking marijuana. This may be because while adolescents are very likely to be influenced by their parents in regards to refrain from drinking alcohol (Ary, et al, 2009), the messages adolescents receive from their parents may be along the lines of "wait until you're twenty-one," "not until you're older" – a message focused on waiting rather than abstaining. This may indicate to adolescents that at some point in their lifetime, alcohol will be acceptable to use. This relationship will again be observed amongst both the 8th/10th grade survey as well as the 10th grade survey.

The Monitoring the Future dataset is used here because of its focus on experiences as well as changing attitudes in the nation's youth. Having been administered to high school students since 1976, the Monitoring the Future study is a reliable source for information regarding the attitudes and behaviors of high school students across the continental United States. Significantly, MTF asks students about their past marijuana and alcohol usage, as well as their future expectations regarding schooling, so it is possible to assess temporal ordering between these variables even when using cross sectional data.

My hypothesis is that students who have smoked marijuana on more occasions in their lifetime will be less likely to expect to receive a postsecondary education, and that this association will be the case irrelevant of age. Additionally, I hypothesize that the amount of times a student has drunk alcohol in their lifetime will not have the same labeling effect that Lemert describes in his theory as the amount of occasions a student has smoked marijuana will – that is, students who have drunk alcohol on many occasions in their lifetime will not have as large a stigmatizing label attached to them as marijuana smokers, and will have a higher expectancy to attend a postsecondary institution.

Chapter 2

Data and Methods

In order to examine the effects of marijuana use on an adolescent's educational expectations, quantitative data from a cross sectional study will be analyzed to find possible associations. Importantly, this study was conducted with the approval of the Pennsylvania State University's Office of Research Protection. As mentioned previously, the data used in this research is found in the "Monitoring the Future" (MTF) dataset, which is an annually conducted study which measures, among other things, the rates of various drug use, behaviors, attitudes, and outlooks among 8th, 10th, and 12th graders. The respondents in this study are from all over the continental United States; additionally, the 8th and 10th grade population is split up in a different study from the 12th graders so that a clearer picture of age differences can be observed. In the 12th grade population, 13,180 students took part in the survey, while 28,495 8th and 10th grade students took the survey; within this population, 15,233 (53.5%) were eighth graders, while 13,262 (46.5%) were 10th graders. In the case of the 8th and 10th grade population, 47.8% of the respondents were male, while 48.6% of the respondents were female. 3.6% of the surveys had missing information for this variable. In the 12th grade population, 46.3% of the respondents were male, and 46.7% of the respondents were female, with 7% of the surveys returned having missing data for this variable. While MTF did contain variables that were coded for race, age, and zip code, these were all omitted from the published study to ensure the participants confidentiality. Because MTF is conducted annually, it provides a clear picture of high school student's attitudes and behaviors in the current day; the most recently released publication was the 2013 version, which was used for this study.

Measures

The variables that were used for this study involved the students' lifetime marijuana use, as well as their expectancy that they believed they would attend several levels of higher education after high school. For the 8th and 10th grade population, educational aspirations were measured by examining their expectancy to: graduate high school, attend a vocational school, attend a two year college, or attend a four year college. For the 12th grade population, the same variable was measured by examining students' expectancy to: attend a vocational school, attend a two year college, attend a four year college, and attend a graduate school. Finally, for a comparison, lifetime alcohol usage was examined to assess whether there were any substantial differences among different substances that were found to be used prevalently by high schoolers.

Lifetime Marijuana Usage

Respondents' lifetime marijuana usage was measured in both the 8th and 10th grade survey as well as the 12th grade survey. These questions were listed as variables V7112 and V2115, respectively, in the 8th /10th and 12th grade surveys, and the question asked "on how many occasions (if any) had [the respondent] used marijuana (grass, pot) or hashish (hash, hash oil)...in your [the respondents'] lifetime." These questions were coded accordingly (in both surveys): 1 = 0 occasions, 2 = 1-2 times, 3 = 3-5 times, 4 = 6-9 times, 5 = 10-19 times, 6 = 20-39 times, and 7 = 40+ times. 3.2% of the surveys had missing data for this question in the 8th and 10th grade survey, and 4.3% of surveys had missing data for this question in the 12th grade survey.

Lifetime Alcohol Usage

Respondents' lifetime alcohol usage was also measured in both the 8th / 10th and 12th grade surveys. These were straight forward indications of students' alcohol usage. These questions were listed as variables V7105 in the 8th / 10th grade survey, and V2104 in the 12th grade survey. The question asked "on how many occasions (if any) had [the respondent] had alcoholic beverages to drink – more than just a few sips... in your [the respondents'] lifetime." The responses to these questions were coded accordingly (in both surveys): 1 = 0 occasions, 2 = 1-2 times, 3 = 3-5 times, 4 = 6-9 times, 5 = 10-19 times, 6 = 20-39 times, and 7 = 40+ times. 5.9% of the surveys had missing data for this question In the 8th and 10th grade survey, and 5.8% of the surveys had missing data for this question in the 12th grade survey.

Educational Expectations

Educational expectations was measured in a number of different ways. Each survey had four questions which indicated the likelihood that each respondent would attend a particular level of school. These varied in intensity, from graduating high school (lowest indication of educational expectation) to attending graduate school (the highest indication of educational expectation). It should be noted that some of these questions asked the likelihood that each respondent would graduate the specified level of education, while others simply asked the likelihood that each respondent would attend the specified level of education, which also demonstrates differing levels of expectation. In the 8th / 10th grade survey, the variables in question were listed as V7223: How likely is it that [the respondent] will do each of the following things... graduate from high school, V7224: How likely is it that [the respondent] will

do each of the following things... Go to a technical or vocational school after high school, V7225: How likely is it that [the respondent] will do each of the following things... Go to college, and V7226: How likely is it that [the respondent] will do each of the following things... Graduate from college (four year program). These questions were answered with one of four variables: 1 = definitely won't, 2 = probably won't, 3 = probably will, and 4 = definitely will. 2.7% of the surveys had missing data for variable V7223, 7.1% of the surveys had missing data for V7224, 3.3% of the surveys had missing data for V7225, and 3.1% of the surveys had missing data for V7226.

In the 12th grade survey, the variables that concerned educational aspirations included V2180: How likely is it that [the respondent] will do each of the following things after high school... Attend a technical or vocational school, V2182: How likely is it that [the respondent] will do each of the following things after high school... Graduate from a two-year program, V2183: How likely is it that [the respondent will do each of the following things after high school... Graduate from college (four-year program), and V2184: How likely is it that [the respondent] will do each of the following things after high school... Attend graduate or professional school after college. The responses for these variables were similar to those in the 8th / 10th grade survey, with 1 = definitely won't, 2 = probably won't, 3 = probably will, and 4 = definitely will. 9.6% of the surveys had missing data for V2180, 9.7% of the surveys had missing data for V2182, 7.7% of the surveys had missing data for V2183, and 9.3% of the surveys had missing data for V2184.

Chapter 3

Results

First, I will examine the relationship between marijuana smoked in the lifetime and the educational expectations among 12th graders in the survey. To simplify each table, and to provide clearer differences between higher educational expectation and diminished educational expectation, the categories “definitely won’t” and “probably won’t” attend the specific school in question have been combined, just as “probably will” and “definitely will” attend the specific school in question have been combined. This has been done for all the tables represented, including both the 12th grade sample as well as the 8th / 10th grade sample.

Table 1 represents the expectancy of 12th graders to attend vocational or technical school in their future. Typically, vocational schools or technical schools are considered on the lower end of the higher educational scale. Irrespective of the number of times a student has smoked marijuana in their lifetime, there is not a substantial difference between the likelihood that they do or do not expect to attend vocational school. Overall, 9,177 of the 11,661 students who filled in information for these two variables said that they it was unlikely that they were attending a vocational school.

Table 1. Lifetime Marijuana Use and Expectancy to Attend Vocational School among 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column Percent		
-Weighted N		
Never	55.6	52.0
	5,103.0	1,291.4
1-2 Times	9.5	8.7
	872.4	216.1
3-5 Times	6.2	5.7
	569.5	142.3
6-9 Times	3.9	4.0
	353.9	100.3
10-19 Times	5.2	6.2
	478.1	153.8
20-39 Times	4.5	4.0
	410.9	99.7
40 or More Times	15.1	19.3
	1,389.4	480.3
COL TOTAL	100.0	19.3
	9,177.1	480.3

Table 2 represents the expectancy of 12th graders to attend a 2-year college. Here, the same pattern is observed. At the extreme ends of “times smoked marijuana in their lifetime,” (0 times / forty or more times), there is a more pronounced difference than in the middle variables, where there is no statistical significance in expectation, or lack-thereof, to attend a 2-year college. There is a 7.7% difference among those who have never smoked marijuana and their expectations of graduating a 2-year college, and a 6.4% difference at the “forty or more occasions” students. There was a more even split amongst students who filled in information for these two variables regarding the expectancy that they would graduate a 2 year school than there was in the previous table, with 6,332 students out of 11,640 not expecting to graduate from a 2-year college. For both Tables 1 and 2, more students who had never smoked said that it was unlikely they would attend vocational/technical school or a 2-year college, respectively, while it was more likely that students who smoked forty or more times expected to attend a school of these types.

Table 2. Lifetime Marijuana Use and Expectancy to Graduate from a 2 Year College among 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	58.3	50.6
	3,693.4	2,688.3
1-2 Times	9.0	9.9
	568.8	523.7
3-5 Times	6.2	6.1
	393.3	321.8
6-9 Times	3.8	4.0
	243.2	212.3
10-19 Times	5.3	5.5
	334.1	293.3
20-39 Times	4.3	4.4
	270.1	235.4
40 or More Times	13.1	19.5
	829.2	1,033.1
COL TOTAL	100.0	100.0
	6,332.1	5,308.0

Tables 3 and 4 have more pronounced differences than Tables 1 and 2. There is also a flip in tendencies from Tables 1 and 2, as students who smoke marijuana more frequently do not expect to make it to these levels of education, while students who do not smoke marijuana expect to graduate or attend a four-year college or graduate school, respectively. Similar to the results in Tables 1 and 2, the most extreme differences occur at the tails of the distribution (i.e., smoked marijuana on zero occasions, and smoked marijuana on forty or more occasions). Overall, 9,721 of 11878 of the students who filled in information about these 2 variables expect to graduate from a 4-year college. The largest disparity between the “won’t” and “will” columns occurs for those who have never smoked marijuana in their expectancy to graduate a 4-year college, with only 46.4% of the students who did not expect to attend a 4-year college having never smoked marijuana in their lifetime, while 56.6% of the students who expected to go to college had never smoked marijuana.

Table 3. Lifetime Marijuana Use and Expectancy to Graduate from a 4-Year College Among 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	46.4	56.6
	1,001.2	5,506.9
1-2 Times	10.7	8.9
	231.7	868.8
3-5 Times	6.1	6.2
	132.0	602.8
6-9 Times	3.2	4.1
	69.3	400.6
10-19 Times	5.6	5.5
	120.0	530.9
20-39 Times	4.3	4.4
	92.4	426.0
40 or More Times	23.6	14.3
	509.8	1,385.9
COL TOTAL	100.0	100.0
	2,156.5	9,721.9

Table 4. Lifetime Marijuana Use and Expectancy to Attend Graduate or Professional School among 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	50.8	58.4
	2,730.9	3,687.6
1-2 Times	9.6	9.1
	513.6	572.7
3-5 Times	6.0	6.2
	320.8	393.3
6-9 Times	3.8	4.0
	204.0	255.4
10-19 Times	5.4	5.5
	288.8	345.9
20-39 Times	4.4	4.3
	238.9	271.4
40 or More Times	20.1	12.5
	1,078.2	791.8
COL TOTAL	100.0	100.0
	5,375.2	6,318.1

The following are the results of the 8th / 10th grade survey, which also assesses the educational expectations of students in relation to the amount of marijuana they smoked in their lifetime. As before, “definitely won’t” and “probably won’t” have been combined, as have “probably will” and “definitely will.”

Table 5 examines the relationship between the amount of times marijuana has been smoked and the expectancy that each student has in graduating high school, which is more relevant to this population sample than the 12th grade sample examined earlier, as these students in this sample are either not in high school yet, or half way through high school – a significant difference from being months away from high school graduation. Here, we see an even more extreme differentiation than what was observed in the 12th grade sample. Of the students who did not expect to graduate high school, 22.1% said they smoked marijuana on forty or more occasions. The other extreme was found at the “never smoked marijuana” subset, where nearly $\frac{3}{4}$ of the students who expected to graduate high school had never smoked. This makes sense in that this sample is younger than the previous one. The fact that nearly $\frac{1}{4}$ of all the students surveyed who did not expect to graduate high school had smoked marijuana on forty or more occasions is particularly telling, and something that will be delved into deeper in the discussion.

Table 5. Lifetime Marijuana Use and Expectancy to Graduate from High School among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	52.9	74.7
	150.0	19,977.1
1-2 Times	8.2	7.1
	23.3	1,885.4
3-5 Times	4.5	3.8
	12.8	1,004.4
6-9 Times	4.7	2.5
	13.2	669.7
10-19 Times	3.5	2.9
	9.8	764.5
20-39 Times	4.1	2.5
	11.7	673.1
40 or More Times	22.1	6.6
	62.8	1,759.2
COL TOTAL	100.0	100.0
	283.7	26,733.5

Table 6 has the least deviation of any of the tables examined. The amount of instances when a student had smoked marijuana did not seem to have a relationship with whether or not the student expected that they would attend a vocational or technical school.

Table 6. Lifetime Marijuana Use and Expectancy to Attend a Technical or Vocational School among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	74.0	74.2
	12,852.5	6,222.9
1-2 Times	7.0	7.6
	1,213.1	638.2
3-5 Times	3.9	3.5
	682.4	296.8
6-9 Times	2.6	2.5
	451.6	207.9
10-19 Times	3.1	2.5
	543.2	206.2
20-39 Times	2.6	2.5
	454.0	210.5
40 or More Times	6.8	7.2
	1,176.0	605.8
COL TOTAL	100.0	100.0
	17,372.7	8,388.4

Table 7 again has some significant differences between those expecting to attend college and those who do not expect to attend college. While the difference in the middle values (1-2 times smoking marijuana through 20-39 times smoking marijuana) is not as drastically different as the extremes, there are some subtle differences, which is more than can be said for the 12th grade sample. Additionally, nearly 1/5 of all the students who do not expect to attend a college have smoked marijuana on forty or more occasions, and only 6% of students who expect to go to college have smoked marijuana on that many occasions. Finally, those who have never smoked marijuana are far more likely to expect to go to college than not expect to go to college, with over $\frac{3}{4}$ of the students who have never smoked marijuana expecting to attend college. This is compared to the fact that only half of the students who do not expect to go to college have never smoked marijuana. Table 8 is very similar to Table 7 across the board; a high amount of students who do not expect to graduate college have smoked marijuana on forty or more occasions, while a majority of students who have never smoked marijuana do expect to go to college.

Table 7. Lifetime Marijuana Use and Expectancy to Attend a College among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	53.4	75.8
	828.1	19,174.5
1-2 Times	8.0	7.0
	124.0	1,768.7
3-5 Times	5.6	3.7
	87.0	925.8
6-9 Times	4.4	2.4
	68.6	613.3
10-19 Times	5.2	2.7
	80.9	687.2
20-39 Times	4.1	2.4
	64.1	617.4
40 or More Times	19.3	6.0
	299.0	1,507.1
COL TOTAL	100.0	100.0
	1,551.8	25,294.1

Table 8. Lifetime Marijuana Use and Expectancy to Graduate from a 4 Year College among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	54.3	76.3
	1,171.7	18,873.9
1-2 Times	8.6	6.9
	186.5	1,715.4
3-5 Times	5.7	3.6
	122.1	889.0
6-9 Times	4.4	2.4
	94.6	584.2
10-19 Times	4.5	2.7
	96.2	674.1
20-39 Times	4.2	2.4
	91.6	594.1
40 or More Times	18.3	5.7
	394.3	1,420.3
COL TOTAL	100.0	100.0
	2,157.0	24,751.0

As a comparison, I now turn to the relationship between educational expectations and alcohol use. The following tables are the results of 12th graders expectancy to attend or graduate certain levels of higher education crossed with the amount of times they have drank alcohol in their lifetime. As in the marijuana tables, “definitely won’t” and “probably won’t” have been combined to give a clearer picture of who does not expect to attend or graduate from a level of higher education, and “probably will” and “definitely will” have been combined to give a clearer account of who does expect to attend or graduate from a level of higher education. These tables have been included as a comparison of sorts to their “marijuana” counterparts; that is, the expectancy of students going to vocational and the amount of times they have smoked marijuana in their lifetime will be compared to the expectancy of students to go to vocational school and the amount of times they have drank alcohol in their lifetime.

The first difference we see in the tables that examine the relationship with marijuana and the tables that examine the relationship with alcohol is that there is fewer students who have never drank alcohol on any occasion. While there were about 6,500 students who claimed they had never smoked marijuana in their lifetime (a little over half of the nearly 12,000 students surveyed), only 3,600 students claimed in their survey to have never drank alcohol.

Table 9 is similar to its counterpart, Table 1, in a number of aspects. There is no major difference in the expectancy of students to attend vocational or technical school, regardless of how many times they have drank alcohol in the past. As stated previously, nearly $\frac{3}{4}$ of the students surveyed said they did not expect to attend a technical or vocational school regardless of the amount alcohol they drank, so the reason these students did not expect to go to vocational school probably had something to do with other than the substances they used.

Table 9. Lifetime Alcohol Use and Expectancy to Attend a Vocational or Technical School among 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	32.0	29.5
	2,886.6	717.4
1-2 Times	9.5	9.7
	854.5	235.1
3-5 Times	11.6	10.5
	1,046.2	254.7
6-9 Times	9.4	9.1
	849.7	220.5
10-19 Times	11.6	11.4
	1,052.0	276.8
20-39 Times	9.6	8.7
	870.4	210.4
40 or More Times	16.3	21.1
	1,472.0	512.8
COL TOTAL	100.0	100.0
	9,031.4	2,427.7

Table 10 shows that again, although there are substantially more students who have drunk in their lifetime, there is little difference in whether or not the student expects to graduate from a two-year college and the amount of times they have drunk in their lifetime. The difference between those who never drank and do not expect to graduate a 2-year college and those who never drank and do expect to graduate a 2-year college is only 2.3%; at the other end of the extremes, the difference between students who have drunk on forty or more occasions and expect to graduate from a 2-year college and those who have drunk on forty or more occasions and do not expect to graduate from this type of schooling is 2.1%. Also, as seen in many of the tables that examined the relationship between marijuana and expectancy, the “middle values” on the tables (1-2 times drunk through 20-39 times drunk) are almost identical to one another in terms of expecting to or not expecting to attend 2-year college.

Table 10. Lifetime Alcohol Use and Expectancy to Graduate from a 2 Year College among 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	32.6	30.3
	2,024.9	1,581.4
1-2 Times	8.9	10.2
	552.1	532.8
3-5 Times	11.4	11.2
	711.6	587.0
6-9 Times	9.2	9.5
	572.2	495.4
10-19 Times	11.7	11.6
	728.1	607.5
20-39 Times	9.9	9.0
	616.9	468.2
40 or More Times	16.3	18.2
	1,014.1	950.3
COL TOTAL	100.0	100.0
	6,219.8	5,222.8

Again in Table 11 we see similar relationships to what was seen in its corresponding table, Table 3. While the amounts of students overall who have drunk is generally a larger amount across the board, the differences between those who do and do not expect to graduate from a 4-year college and the amount of times they have drunk in their life is nearly identical to the differences between the students and their expectancy to graduate from a 4-year college and the amount of times they have smoked marijuana in their lifetime. Again, the extremes see the biggest difference, while the middle values have almost no change. A higher percentage of students who expected to graduate from a 4-year college had never drunk than the percentage of students who did not expect to graduate from a 4-year college and had never drunk.

Table 11. Lifetime Alcohol Use and Expectancy to Graduate from a 4 Year College in 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	25.7	32.8
	537.7	3,137.7
1-2 Times	8.3	9.8
	173.5	938.9
3-5 Times	9.2	11.7
	193.2	1,124.9
6-9 Times	9.1	9.4
	190.4	896.8
10-19 Times	12.1	11.5
	253.4	1,104.6
20-39 Times	10.0	9.4
	208.0	897.6
40 or More Times	25.5	15.4
	533.8	1,478.1
COL TOTAL	100.0	100.0
	2,089.9	9,578.5

Table 12, while similar in frequencies to Table 4, had one particularly different feature than its corresponding table. While 12% of the students who expected to attend a graduate school had smoked marijuana forty or more times in their lifetime, 15% of students who expected to attend graduate school had drunk on forty or more occasions in their lifetime. Although the difference is small, it may show that drinking alcohol may have a different association to higher education expectations than smoking marijuana does.

Table 12. Lifetime Alcohol Use and Expectancy to Attend Graduate or Professional School among 12th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	29.0	33.6
	1,530.8	2,086.8
1-2 Times	9.2	9.8
	485.9	605.4
3-5 Times	10.8	11.8
	570.8	730.5
6-9 Times	9.0	9.5
	477.6	591.1
10-19 Times	11.8	11.5
	624.9	716.7
20-39 Times	9.7	9.2
	513.0	572.4
40 or More Times	20.5	14.5
	1,083.9	902.8
COL TOTAL	100.0	100.0
	5,286.9	6,205.7

The following are the results of the 8th and 10th grade survey, which also assesses the relationship of students' educational expectancy with the amount of times they have drank alcohol in their lifetime. As before, "definitely won't" and "probably won't" have been combined to provide a clearer picture of which students do not expect to attend or graduate from a specific level of higher education, while "probably will" and "definitely will" have been combined to provide a clearer picture of which students expect to attend or graduate from a specific level of higher education.

While a majority of 8th and 10th grade students who had never drank in their lifetime, as was the case in terms of marijuana, more students had drank at the time of the survey than had smoked marijuana. About 16,000 of the 26,000 students surveyed in 8th and 10th grade claimed to have never drank in their lifetime, compared to 20,000 students who claimed they had never smoked marijuana.

Table 13 represents the expectancies of students to graduate high school along with the amount of times they had drank alcohol in their lifetime. While nearly 99% of the students surveyed expected to graduate high school, 17% of the students who did not had drank alcohol on forty or more occasions. This is a bit of a drop from the students who had smoked marijuana a similar amount of times, as 22% of students who did not expect to graduate high school had smoked marijuana on forty or more occasions. Also of note is that 60% of students who expected to graduate high school had never drank before, compared to 75% of students who expected to graduate and had never smoked marijuana, which again illustrates that drinking at this age does not seem to have the same labeling affect that smoking marijuana has among this age group.

Table 13. Lifetime Alcohol Use and Expectancy to Graduate from High School among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	48.5	60.7
	123.1	15,793.2
1-2 Times	8.3	9.6
	21.0	2,497.3
3-5 Times	9.6	9.0
	24.3	2,336.4
6-9 Times	5.7	6.4
	14.5	1,668.9
10-19 Times	5.1	5.9
	13.0	1,537.6
20-39 Times	6.1	4.0
	15.5	1,044.5
40 or More Times	16.7	4.4
	42.3	1,139.0
COL TOTAL	100.0	100.0
	253.8	26,016.9

Table 14, as its counterpoint, Table 6, shows no discernable difference among students who do or do not expect to attend a vocational or technical school. Students who expected to

attend a technical or vocational school were just as likely to have drunk on “x” occasions as those who did not expect to attend this type of schooling. This mirrors the situation found for times having smoked marijuana.

Table 14. Lifetime Alcohol Use and Expectancy to Attend a Technical or Vocational School among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	59.2	62.0
	10,021.4	5,020.8
1-2 Times	9.8	9.5
	1,662.3	766.9
3-5 Times	9.4	8.4
	1,583.6	681.2
6-9 Times	6.7	5.9
	1,134.5	474.5
10-19 Times	6.4	5.2
	1,078.7	424.7
20-39 Times	4.3	3.6
	727.2	295.2
40 or More Times	4.3	5.3
	725.8	429.9
COL TOTAL	100.0	100.0
	16,933.6	8,093.1

Table 15 also compares relatedly to Table 7, in terms of expectancy to attend a college. While 94% of the total respondents expected to attend a college, 23% of those who did not expect to attend college had drunk on at least twenty occasions, up through forty or more occasions. This compares favorably to the ratio in Table 7, where 19% of the students who did not expect to attend college had smoked marijuana on at least twenty or more occasions, up through forty or more occasions. This similarity may suggest that a certain type of substance use may not have any stronger labeling effect on educational expectation than other similarly used substances at this age.

Table 15. Lifetime Alcohol Use and Expectancy to Attend College among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	43.0	61.6
	629.6	15,195.3
1-2 Times	8.5	9.7
	124.5	2,379.4
3-5 Times	11.1	8.9
	162.4	2,186.1
6-9 Times	9.6	6.2
	140.8	1,525.4
10-19 Times	8.7	5.7
	128.2	1,417.1
20-39 Times	7.8	3.8
	114.2	939.0
40 or More Times	11.3	4.1
	166.1	1,006.6
COL TOTAL	100.0	100.0
	1,465.8	24,648.9

Tables 16 and 8 would seem to be the tables that discredit the hypothesis of this study more than the other results had. In Table 16, 8% of the students who expect to graduate from a 4 year college have drunk alcohol on twenty or more occasions in their lifetime, which mirrors the 8% of students who expect to graduate from a 4-year college and have smoked marijuana on twenty or more occasions in their lifetime. However, data shows that among students who do not expect to graduate college, nearly 20% of them have smoked marijuana on 40 or more occasions, while only 10% of students who do not expect to graduate college have drunk alcohol on 40 or more occasions. This would suggest that there is indeed a labeling affect in play here, especially considering the fact that more students had drunk alcohol more frequently than those who had used marijuana on numerous occasions.

Table 16. Lifetime Alcohol Use and Expectancy to Graduate from a 4 Year College Among 8th and 10th Grade Students

Cells contain:	Don't Expect To	Expect To
-Column percent		
-Weighted N		
Never	43.3	62.0
	890.3	14,948.6
1-2 Times	9.4	9.6
	194.1	2,318.1
3-5 Times	10.4	8.9
	214.3	2,143.1
6-9 Times	9.8	6.1
	202.0	1,477.0
10-19 Times	8.6	5.7
	176.9	1,368.7
20-39 Times	7.5	3.8
	153.4	906.0
40 or More Times	11.0	3.9
	227.0	946.0
COL TOTAL	100.0	100.0
	2,058.1	24,107.4

These results show that among students who do not expect to attend or graduate from higher educational levels, it is likely that they have smoked marijuana on numerous occasions. This was true of both the 12th and 8th / 10th grade populations surveyed, but showed a more profound impact at a younger age. It would appear that smoking marijuana more frequently at a younger age is a good predictor of a student's expectations (or lack thereof) of either attaining a college degree, or attending a level of higher education at all.

Chapter 4

Discussion

As was found in previous research (Brook, et al, 2002), marijuana usage in adolescence was associated with lower educational expectations in students in 8th through 12th grade. This was particularly true of students who smoked marijuana on forty or more occasions in their lifetime, as nearly one quarter of seniors in 2013 who did not expect to graduate from a 4-year college had used marijuana to this extent in their lifetime. Additionally, this relationship was found to be stronger at younger ages; one fifth of 8th and 10th graders in 2013 who did not expect to attend nor graduate from a four-year college had smoked marijuana on forty or more occasions in their lifetime. These associations support Lemert's assertion that the labeling of an individual after an act of primary deviance (i.e., substance use) can lead to more serious secondary deviance later in life (i.e., not expecting to graduate high school or college).

Additionally, by comparing the rates of expectancy to attend or graduate from higher levels of education and the amount of times a student had smoked marijuana to their educational expectancy with regards to the amount of times they had drunk alcohol in their lifetime, it can be argued that alcohol does not have the same labeling effect on adolescents that smoking marijuana does. Not only had more students overall drunk alcohol in their lifetime, 15% of seniors who expected to attend a graduate school (the highest level of education inquired about in the MTF data set) had drunk alcohol forty or more times in their life. Being that the perceived impairment effects of high doses of marijuana and alcohol are identical (Heishman, Arasteh, and Stitzer, 1997), something other than cognitive abilities must be affected when

considering substance use and postsecondary educational expectations, thus strengthening the hypothesized notion that a labeling effect is in play.

The goal of this study was to determine whether there was an underlying relationship between marijuana usage and educational achievement, and by examining the effects of marijuana on educational expectations, I have found what may be a significant connection through labeling theory. Of course, the data used in this study was quantitative, which restricted me from asking subjects that would be imperative to this issue, such as “Why do you or why don’t you expect to reach this level of education?” Questions like these would have allowed me to delve deeper into the reasons why low expectations and marijuana use are related. A different direction in which to take the study would be to examine a longitudinal data set, which could explore the relationship between three variables: lifetime marijuana usage, educational expectations, and educational outcomes. This way, lifetime marijuana usage could be measured against not only expectations, but also expectations met, to further our understanding of the effects of marijuana on cognitive ability.

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