

# **An assessment of traffic safety culture related to driving after cannabis use**

Task 3 Report: Survey Implementation and Analysis

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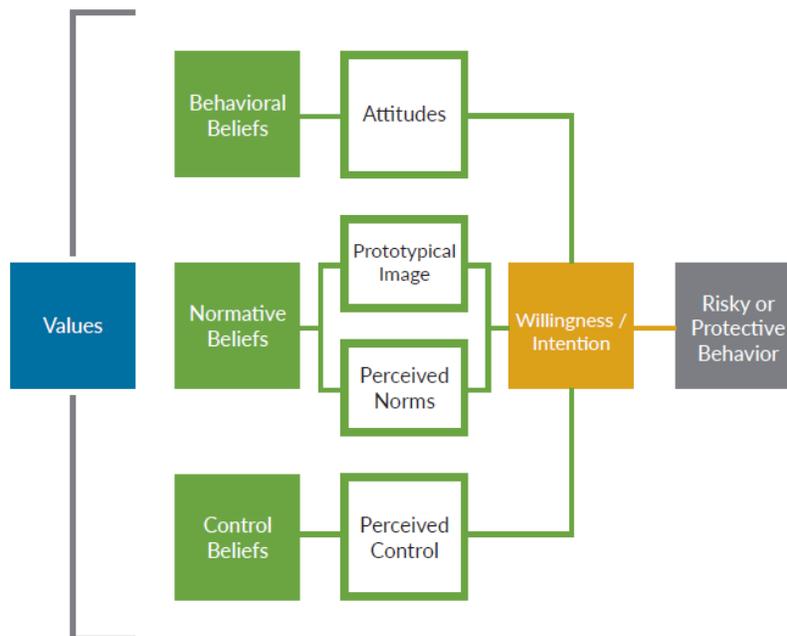
# 1 INTRODUCTION

This task report summarizes the implementation and initial results from several surveys conducted to understand values, beliefs, attitudes and behaviors regarding driving under the influence of cannabis (DUIC). The purpose of the surveys was to answer three critical questions:

- How does culture compare between users and non-users of cannabis?
- How does culture affect the decision to drive under the influence of cannabis?
- How does culture compare between states with and without legalized recreational use laws?

Culture refers to the shared values, shared beliefs, and shared attitudes that predict behavior. Understanding these cultural factors provides the opportunities to influence driving after using cannabis.

The surveys were developed based on an integrated behavior model (see Figure 1). One or more questions were created to measure each component of the model. The results shared in this document are organized by the various components of the behavioral model. Table 1 provides a brief summary of each component of the model.



**Figure 1. Integrated Behavioral Model**

**Table 1. Summary of Components of Integrated Behavioral Model**

Attitudes	Subjective evaluation of an object or behavior in terms of emotional reaction (e.g., “Speeding is exciting”) and perceived utility (e.g., “Seat belts are useless”).
Behavioral Beliefs	Expectations about the physical and social consequences of a behavior (e.g., “If I speed, I will likely get an expensive fine,” “If I drink and drive, my friends will exclude me”).
Control Beliefs	Beliefs about individual ability to engage or not engage in the behavior based on factors that are either internal or external to the individual (e.g., “Crashes are determined by fate,” “I am comfortable not speeding even if everyone around me is”).
Intention	The deliberate decision to commit a behavior in an anticipated situation (e.g., “I intend to wear my seat belt every time I am in a vehicle”).
Normative Beliefs	Beliefs about (1) what behaviors are most common in a group (e.g., “All my friends speed”); (2) what important people in that group expect (e.g., “My parents expect me to wear a seat belt”); and (3) the shared characteristics of people perceived to typically engage (or abstain) in those behaviors.
Perceived Control	Perception of one’s ability to determine their own behaviors (e.g., “I can choose my own speed in traffic”).
Perceived Norms	The behavior believed to be common and expected in a given context (e.g., wearing a seat belt when driving with parents).
Prototypical Image	The stereotype of people perceived to typically engage in the behavior (e.g., “People who speed are cool”).
Values	Ideals to which individuals aspire that define the goals for their behavioral choices and direct the formation of their belief systems (e.g., “I must protect my family,” “I desire a life without stress”).
Willingness	The predisposition to commit a behavior if an unexpected situation arises (e.g., “I am more willing to speed if everyone else around me is speeding”).

## 2 METHODS

### 2.1 Survey Distribution

The Driving Under the Influence of Cannabis Survey was administered by two means: a mailed paper version and an online version. The same survey instrument was used for each means of distribution.

#### 2.1.1 Online Survey

Qualtrics was the online survey platform utilized. Two panels were purchased from Qualtrics. The first was for individuals age 18 to 30 residing in Colorado or Oregon who reported using cannabis in the past 30 days. This panel was completed between February 16 and March 15, 2016 with a total of 526 completions.

The second panel purchased was for individuals age 18 to 30 in all states excluding Alaska, Colorado, the District of Columbia, and Washington and was completed between February 15 and February 23, 2016 with a total of 735 completions.

All these individuals received a nominal incentive to complete the survey provided by Qualtrics.

#### 2.1.2 Mailed Paper Survey

The CHSC contracted with a mailing provider for production and distribution of the paper survey. A four-point contact process was used to distribute the surveys using the US Postal Service. The mailings included (1) a pre-survey letter from the Center for Health and Safety Culture; (2) a survey packet with a cover letter, survey, \$2 cash incentive, and return envelope; (3) a reminder / thank you postcard; and (4) a second survey packet with a cover letter, survey, and return envelope. All postage was hand-affixed.

A mailing list of a random sample of households from across the United States was purchased. This list of randomly selected households included 800 from Washington, 800 from Colorado, and 1,600 from all other states (excluding WA, CO, OR, AK, and the District of Columbia). To allow tracking of returned surveys by zip code, a unique tracking code was printed on each hand-stamped, self-addressed survey return envelope. The tracking code of each returned survey was recorded in a database. The zip code of the respondent was included with the survey information.

The following summarizes the mailing process:

- 1) A Pre-survey letter was sent in a hand-affixed stamped envelope to all households approximately 2-3 days prior to the survey packet. The letter introduced the study, alerted recipients to watch for the survey arrival, and invited survey participation.
- 2) Survey packet #1 included a hand-stamped, 9 x 12-inch envelope enclosed with the survey; an informational letter; a hand-stamped, self-addressed, 6 x9 inch return envelope; and a \$2 cash incentive.
- 3) A Postcard with hand affixed postage was sent out approximately two weeks following the initial survey packet to all households as a reminder to respond to the survey, as a thank you to those who already responded, and included information to request another survey in case of lost or misplaced surveys.

- 4) Survey packet #2 was sent out approximately one week after the postcard to all households who had not returned the first survey attempt and included a hand-stamped, 9 x 12-inch envelope enclosed with the survey; an informational letter; a hand-stamped, self-addressed 6 x9 inch return envelope.

All surveys returned, including those returned as undeliverable addresses and those surveys returned completed, were mailed to CHSC. CHSC office staff received the surveys and recorded the tracking code of each envelope returned. The zip code, corresponding to the tracking code on each returned survey envelope, was coded with each survey.

All paper surveys were hand coded by trained CHSC staff. Coded surveys were compiled into an SPSS database. The online database and the paper survey database were merged into one database to allow for analysis of all data collected.

A total of 418 surveys were returned as undeliverable. A total of 879 surveys were returned resulting in an overall response rate of 31.6 percent.

Table 1 summarizes the three surveys included in this report. The “Code” is used to identify on which survey the responses are based.

**Table 2. Summary of Surveys**

<b>Code</b>	<b>Demographic / Method</b>	<b>Geography</b>	<b>Qualification</b>	<b>Recruitment</b>
Survey #1 M (age 21+, all states)	Adults age 18 and older Mail	states with legalized recreational marijuana use (Colorado, Washington)		Random sample of households, \$2 cash incentive (400 responses)
	Adults age 18 and older Mail	matched states without legalized recreational marijuana use (all states EXCEPT: AK, CO, WA, OR, Washington DC).		Random sample of households, \$2 cash incentive (400 responses)
Survey #2 I (18-30, no CO WA)	Adults age 18-30 Internet	matched states without legalized recreational marijuana use (all states EXCEPT: AK, CO, WA, OR, Washington DC).		Purchased panel (350 responses)
Survey #3 I (18-30, CO WA, user)	Adults age 18-30 Internet	states with legalized recreational marijuana use (Colorado, Washington)	30-day use of cannabis	Purchased panel (350 responses)

## 2.2 Cleaning

Some mailed surveys were returned with few or none of the questions answered. After review, 49 records were removed for inadequate response to questions leaving 830 records. After all the surveys were loaded into a database (SPSS), they were tested for internal consistency. For example, if an individual indicated they had never driven a vehicle in the past 12 months and then indicated they had driven under the influence of cannabis in the past 12 months, the survey was flagged as inconsistent. In the mailed survey, 10 records (1.2 percent) were removed as inconsistent. In the internet survey of states excluding Alaska, Colorado, the District of Columbia, and Washington, 19 of 735 records (2.6 percent) were removed. In the internet survey of Colorado and Washington, 9 of 526 records (1.7 percent) were removed.

## 2.3 Demographics of Survey Respondents

The distribution of respondents by gender and ages was compared to the general population using US Census projections for 2015. More females responded to the mailed survey than males, and respondents tended to be older than the general population. Only six individuals age 18 to 20 responded to the mailed survey.

Weights were developed to align distributions of gender and age with general population estimates. Because of the limited number of responses by those age 18 to 20, the mailed survey only represents individuals age 21 and older. Table 3 shows the distribution of respondents by age and gender for the mailed survey before and after weighting.

**Table 3. Distribution of Ages of Survey #1 (Mailed)**

Age	Unweighted			Weighted		
	Male	Female	Total	Male	Female	Total
21 to 24 years	0.6%	1.2%	1.8%	4.1%	3.9%	8.0%
25 to 34 years	3.4%	6.1%	9.5%	9.4%	9.3%	18.7%
35 to 44 years	6.7%	7.2%	14.0%	8.7%	8.8%	17.5%
45 to 54 years	7.5%	10.7%	18.2%	9.3%	9.5%	18.8%
55 to 64 years	11.2%	13.6%	24.8%	8.3%	8.9%	17.2%
65 to 74 years	7.3%	11.1%	18.4%	5.3%	6.0%	11.3%
75 or older	5.3%	8.0%	13.3%	3.5%	5.1%	8.6%
Total	42.0%	58.0%	100.0%	48.6%	51.4%	100.0%

For the internet surveys, the distributions were much closer to the general population. However, weights were still created to align the distributions with general population estimates based on gender and age. Weights for Survey #3 were based on the demographics of Colorado and Washington. Table 4 and Table 5 show the distributions of respondents by age and gender for the internet surveys (Survey #2 and Survey #3).

**Table 4. Distribution of Ages of Survey #2 (Internet)**

Age	Unweighted			Weighted		
	Male	Female	Total	Male	Female	Total
18	2.5%	1.5%	4.1%	3.8%	3.5%	7.3%
19	2.7%	1.8%	4.5%	3.8%	3.7%	7.4%
20	1.7%	2.4%	4.1%	3.9%	3.8%	7.7%
21 to 24 years	11.7%	14.2%	26.0%	16.4%	15.6%	32.0%
25 to 30 years	30.9%	30.6%	61.5%	23.0%	22.5%	45.5%
Total	49.4%	50.6%	100.0%	51.0%	49.0%	100.0%

**Table 5. Distribution of Ages of Survey #3 (Internet, CO and WA)**

Age	Unweighted			Weighted		
	Male	Female	Total	Male	Female	Total
18	2.3%	1.4%	3.7%	3.5%	3.3%	6.8%
19	1.9%	1.7%	3.7%	3.7%	3.3%	7.0%
20	1.7%	1.9%	3.7%	3.7%	3.3%	7.0%
21 to 24 years	15.7%	20.1%	35.8%	16.5%	14.9%	31.4%
25 to 30 years	27.9%	25.3%	53.2%	24.8%	23.1%	47.9%
Total	49.5%	50.5%	100.0%	52.1%	47.9%	100.0%

All results included in this report are based on weighted results. Responses to the five demographic questions are shown below.

D1 What best describes where you live?			
	Urban	Suburban	Rural
M (age 21+, all states)	28.9%	49.5%	21.7%
I (18-30, no CO WA)	29.1%	50.9%	20.0%
I (18-30, CO WA, user)	19.0%	32.5%	48.5%

D2 What is the highest level of education that you completed?						
	High school or less	Technical or vocational school	Some college	College graduate	Post graduate work or advanced degree	Refused
M (age 21+, all states)	12.6%	7.3%	22.4%	34.6%	22.6%	.5%
I (18-30, no CO WA)	19.0%	2.5%	36.2%	31.9%	10.4%	
I (18-30, CO WA, user)	21.7%	5.4%	41.2%	28.0%	3.5%	.2%

D3 What is your gender / sex?		
	Male	Female
M (age 21+, all states)	48.6%	51.4%
I (18-30, no CO WA)	51.0%	49.0%
I (18-30, CO WA, user)	52.0%	48.0%

D4 How old are you?										
	18	19	20	21 to 24 years	25 to 34 years	35 to 44 years	45 to 54 years	55 to 64 years	65 to 74 years	75 or older
M (age 21+, all states)				8.0%	18.7%	17.5%	18.7%	17.2%	11.3%	8.6%
I (18-30, no CO WA)	7.3%	7.4%	7.7%	32.0%	45.5%					
I (18-30, CO WA, user)	6.8%	7.0%	7.0%	31.4%	47.9%					

D5 During the past 30 days, have you had at least one drink of any alcoholic beverage such as beer, wine, a malt beverage, or liquor?			
	yes	no	I don't know
M (age 21+, all states)	68.5%	30.2%	1.3%
I (18-30, no CO WA)	60.5%	38.9%	.6%
I (18-30, CO WA, user)	78.1%	21.7%	.2%

## 2.4 Scales

The survey was developed based on an integrated behavior model (Figure 1). When possible, multiple questions were used to measure each component of the model. A scale was created based on the responses to the questions for each component. Table 2 summarizes the formulae that were used to build each scale and the internal reliability of the questions used to compose the scale for each survey. Overall, the scales show very strong internal reliability.

**Table 6. Summary of Scales and Internal Reliability**

Component / Scale	Formula	Internal Reliability (Cronbach's Alpha)		
		M (age 21+, all states)	I (18-30, no CO WA)	I (18-30, CO WA, user)
Willingness	$=(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6$	0.935	0.939	0.872
Attitudes	$=(Q23A\_rev+Q23B+Q23C+Q23D\_rev+Q23E\_rev)/5$	0.905	0.930	0.932
Perceived Attitudes	$=(Q24A\_rev+Q24B+Q24C+Q24D\_rev+Q24E\_rev)/5$	0.935	0.920	0.896
Prototypical Image (always)	$=(Q31A\_rev+Q31B\_rev+Q31C+Q31D+Q31E\_rev+Q31F+Q31G\_rev+Q31H+Q31I\_rev+Q31J+Q31K+Q31L\_rev)/12$	0.878	0.908	0.909
Prototypical Image (never)	$=(Q32A\_rev+Q32B\_rev+Q32C+Q32D+Q32E\_rev+Q32F+Q32G\_rev+Q32H+Q32I\_rev+Q32J+Q32K+Q32L\_rev)/12$	0.941	0.932	0.932
Perceived Norms—injunctive	$=(Q38+Q40\_rev)/2$	0.468	0.657	0.812
Perceived Norms – descriptive	$=(Q14+Q15)/2$	0.784	0.880	0.936
Control	$=(Q44A+Q44B+Q44C)/3$	0.931	0.946	0.833

Note: Items noted with \_rev are reverse coded.

## 3 RESULTS

### 3.1 Overview

First, the relative frequency distributions for each question on all three surveys are provided below. This provides a general overview about shared values, beliefs, attitudes and behaviors regarding driving under the influence of cannabis. The reader is reminded that respondents to Survey #3 (noted as “I (18-30, CO WA, user)”) are all users of cannabis living in Colorado or Washington.

Next, the responses are analyzed to answer the three questions posed for this project. The following summarizes the analyses performed for each question.

- How does culture compare between users and non-users of cannabis?
  - Respondents for Survey #1 were divided into two groups: those that reported not using cannabis in the last 12 months (“non-users”) and those that reported using cannabis in the past 12 months (“users”). The mean responses (i.e., averages) for each group were compared using T-tests to see if they were statistically significantly different. This process was repeated for all questions on the survey. These comparisons are provided in the Appendices. To summarize the differences in the two groups, the means of the scales were compared and summarized in a single table.
  - The same process was used to compare the respondents to Survey #2 and Survey #3. Because these two surveys used a similar methodology (i.e., internet), responses to both surveys are combined for this analysis.
- How does culture affect the decision to drive under the influence of cannabis?
  - Because one cannot drive under the influence of cannabis if one does not use cannabis, the analyses for this question were restricted to only examining individuals who reported using cannabis (“users”).
  - “Users” for Survey #1 were divided into two groups: those that reported not driving within four hours of using cannabis in the past 12 months (“non-DUIC”) and those that reported driving within four hours of using cannabis in the past 12 months (“DUIC”). The mean responses (i.e., averages) for each group were compared using T-tests to see if they were statistically significantly different. This process was repeated for all questions on the survey. These comparisons are provided in the Appendices. To summarize the differences in the two groups, the means of the scales were compared and summarized in a single table.
  - The same process was used to compare the respondents to Survey #2 and Survey #3. Because these two surveys used a similar methodology (i.e., internet), responses to both surveys are combined for this analysis.
  - Regression models based on the behavioral model were developed. These models sought to predict DUIC behavior and predict intention / willingness. A separate model was developed for each survey. The standardized coefficients are presented. In addition, the correlation between behavioral beliefs and attitude and normative beliefs and perceived norms (specifically, injunctive norms) were examined.

- How does culture compare between states with and without legalized recreational use laws?
  - Respondents for Survey #1 were divided into two groups: those that lived in Colorado or Washington (recreational use “legal”) and those that lived in all other states (recreational use “illegal”). The mean responses (i.e., averages) for each group were compared using T-tests to see if they were statistically significantly different. This process was repeated for all questions on the survey. These comparisons are provided in the Appendices. To summarize the differences in the two groups, the means of the scales were compared and summarized in a single table.
  - The same process was used to compare the respondents to Survey #2 and Survey #3 (only among cannabis “users” for Survey #2). Because these two surveys used a similar methodology (i.e., internet), responses to both surveys are combined for this analysis.
- BONUS ANALYSIS: How does culture compare between states with and without legalized medical use laws?
  - Respondents for Survey #1 were divided into two groups: those that lived in states with legalized medical use of cannabis (medical use “legal”) and those that lived in all other states (medical use “illegal”). Individuals living in Colorado and Washington were removed from this analysis. The means of each scale for each group were compared using T-tests to see if they were statistically significantly different.
  - The same process was used to compare the respondents to Survey #2.

### 3.2 Statistical Report

The frequency responses to all questions asked on the three surveys are reported below.

#### 3.2.1 Behaviors: Cannabis Use and Driving Under the Influence Behaviors

Q7 Thinking back over the past 12 months, how often did you drive a vehicle?							
	Never	Once or twice	3 to 6 times	7 to 11 times	Monthly	Weekly	Daily
M (age 21+, all states)	6.8%	.6%	1.2%	.5%	1.7%	11.3%	77.9%
I (18-30, no CO WA)		3.0%	3.9%	3.8%	3.8%	17.2%	68.4%
I (18-30, CO WA, user)		4.3%	5.6%	2.5%	4.1%	21.7%	61.8%

Q8 Thinking back over the past 12 months, how often did you use marijuana?							
	Never	Once or twice	3 to 6 times	7 to 11 times	Monthly	Weekly	Daily
M (age 21+, all states)	77.6%	4.5%	4.2%	2.0%	3.1%	3.6%	5.0%
I (18-30, no CO WA)	68.0%	8.7%	3.9%	2.8%	3.9%	5.5%	7.2%
I (18-30, CO WA, user)		8.1%	14.1%	7.4%	15.7%	24.6%	30.2%

Q11 How do you view your marijuana use?				
	Recreational	Medical	Both	I don't use marijuana
M (age 21+, all states)	12.2%	3.6%	9.3%	74.9%
I (18-30, no CO WA)	14.3%	5.3%	17.4%	62.9%
I (18-30, CO WA, user)	45.6%	7.2%	47.2%	

Q12 Thinking back over the past 12 months, when was the last time you drove a vehicle within four hours of using marijuana?								
	Never	More than 1 Year Ago	6 months Ago to 1 Year Ago	3 to 6 Months Ago	1 to 2 Months Ago	This Month	This Week	Today / Yesterday
M (age 21+, all states)	88.2%	2.2%	1.4%	.9%	.6%	1.2%	2.5%	3.1%
I (18-30, no CO WA)	81.7%	1.5%	2.5%	2.8%	3.2%	2.4%	3.2%	2.5%
I (18-30, CO WA, user)	44.7%	6.4%	7.7%	4.1%	7.4%	13.5%	8.7%	7.5%

Q13 Thinking back over the past 12 months, how often did you drive within four hours of using marijuana?							
	Never	Once or twice	3 to 6 times	7 to 11 times	Monthly	Weekly	Daily
M (age 21+, all states)	90.5%	1.7%	1.1%	1.2%	.2%	2.2%	3.0%
I (18-30, no CO WA)	84.6%	3.5%	2.0%	1.8%	1.8%	3.8%	2.5%
I (18-30, CO WA, user)	46.6%	17.6%	6.0%	4.6%	8.9%	8.7%	7.5%

### 3.2.2 Intention and Willingness

#### Intention

Q9 Thinking of the next 12 months, how often do you intend to use marijuana?							
	Never	Once or twice	3 to 6 times	7 to 11 times	Monthly	Weekly	Daily
M (age 21+, all states)	77.3%	5.6%	3.4%	2.3%	2.0%	5.0%	4.3%
I (18-30, no CO WA)	69.0%	9.8%	3.2%	2.1%	3.8%	6.5%	5.6%
I (18-30, CO WA, user)	1.7%	10.4%	10.6%	7.0%	15.9%	27.1%	27.3%

Q10 Suppose recreational marijuana use became legal in your state (that is, an individual could use marijuana without violating the law). Would your use of marijuana increase, decrease or stay the same?								
	I would not use marijuana	Significantly Decrease	Decrease	Somewhat Decrease	Stay the Same	Somewhat Increase	Increase	Significantly Increase
M (age 21+, all states)	64.5%			.5%	25.8%	6.5%	2.1%	.6%
I (18-30, no CO WA)	47.8%	.6%	.8%	.6%	23.9%	16.5%	5.1%	4.8%
I (18-30, CO WA, user)	3.7%	5.2%	12.8%	76.6%	1.2%		.2%	.4%

Q16 Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana?							
	Never	Once or twice	3 to 6 times	7 to 11 times	Monthly	Weekly	Daily
M (age 21+, all states)	90.1%	1.9%	.7%	1.1%	.2%	3.2%	2.7%
I (18-30, no CO WA)	84.1%	4.1%	1.7%	.8%	3.4%	3.1%	2.8%
I (18-30, CO WA, user)	57.4%	12.2%	4.3%	2.7%	7.9%	7.9%	7.5%

Q17 Just for this question, suppose recreational marijuana use became legal in your state (that is, an individual could use marijuana without violating the law). However, driving under the influence of marijuana was illegal. In this case, would you be more or less likely to drive within four hours of using marijuana in the next 12 months?								
	I would not use marijuana	Much Less Likely	Less Likely	Somewhat Less Likely	No Change	Somewhat More Likely	More Likely	Much More Likely
M (age 21+, all states)	69.9%	6.6%	4.1%		17.4%	1.0%	.1%	.9%
I (18-30, no CO WA)	54.9%	13.3%	3.7%	3.4%	20.1%	2.8%	1.1%	.7%
I (18-30, CO WA, user)	1.9%	.6%	2.5%	51.9%	4.7%	7.9%	26.7%	3.7%

Willingness

Q18. Suppose you are in a situation where you have used marijuana within the past 4 hours. How willing would you be to drive in the following situations?

A. Drive in an emergency	I would never use marijuana	Not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Extremely willing (7)
M (age 21+, all states)	43.8%	10.0%	5.3%	4.3%	4.7%	5.2%	8.9%	17.8%
I (18-30, no CO WA)	40.4%	5.6%	4.2%	3.8%	4.8%	10.4%	10.5%	20.2%
I (18-30, CO WA, user)	.4%	8.1%	6.0%	6.2%	8.1%	13.7%	13.7%	43.8%

B. Drive home on side streets	I would never use marijuana	Not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Extremely willing (7)
M (age 21+, all states)	45.3%	21.0%	8.0%	5.6%	4.6%	4.4%	4.3%	6.8%
I (18-30, no CO WA)	41.2%	15.3%	8.7%	7.0%	8.0%	6.2%	5.2%	8.4%
I (18-30, CO WA, user)	.8%	26.4%	12.4%	9.1%	9.5%	13.0%	9.9%	19.0%

C. Drive home on the highway	I would never use marijuana	Not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Extremely willing (7)
M (age 21+, all states)	46.5%	28.5%	9.2%	2.0%	3.2%	2.0%	3.0%	5.7%
I (18-30, no CO WA)	41.7%	26.8%	7.6%	7.3%	4.5%	3.5%	2.7%	6.0%
I (18-30, CO WA, user)	1.0%	42.0%	14.1%	6.8%	10.1%	6.6%	7.7%	11.8%

D. Drive if you don't feel high	I would never use marijuana	Not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Extremely willing (7)
M (age 21+, all states)	46.3%	16.0%	5.7%	3.8%	6.4%	4.6%	7.2%	10.0%
I (18-30, no CO WA)	41.0%	11.1%	8.6%	6.5%	7.0%	8.6%	6.3%	11.0%
I (18-30, CO WA, user)	.8%	15.1%	10.3%	8.9%	9.1%	11.0%	16.2%	28.6%

E. Drive even though you still feel high	I would never use marijuana	Not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Extremely willing (7)
M (age 21+, all states)	46.8%	31.8%	6.7%	3.7%	3.1%	2.2%	1.5%	4.1%
I (18-30, no CO WA)	42.1%	28.2%	9.6%	5.6%	4.6%	2.8%	2.4%	4.6%
I (18-30, CO WA, user)	1.2%	44.9%	14.7%	11.0%	6.6%	4.6%	7.7%	9.3%

F. Drive when you had also been drinking	I would never use marijuana	Not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Extremely willing (7)
M (age 21+, all states)	45.4%	46.4%	4.7%	1.0%	1.0%	.4%	.9%	.2%
I (18-30, no CO WA)	44.2%	45.6%	3.1%	1.8%	1.7%	1.1%	1.4%	1.1%
I (18-30, CO WA, user)	7.8%	80.8%	4.1%	3.3%	2.1%	1.0%	0.4%	0.6%

Perceived Willingness

Q19. In your opinion, how willing would most people age 21 and older in your state be to drive in the following situations after having used marijuana within in the past 4 hours?

A. Drive in an emergency	Most would be not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Most would be extremely willing (7)
M (age 21+, all states)	5.8%	6.1%	3.5%	11.4%	11.9%	16.2%	45.0%
I (18-30, no CO WA)	6.2%	4.1%	4.9%	10.0%	16.4%	18.0%	40.4%
I (18-30, CO WA, user)	2.5%	2.7%	2.9%	5.8%	13.5%	21.2%	51.4%

B. Drive home on side streets	Most would be not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Most would be extremely willing (7)
M (age 21+, all states)	7.2%	5.9%	7.2%	17.3%	17.1%	21.3%	24.0%
I (18-30, no CO WA)	7.6%	3.9%	9.7%	17.1%	18.4%	24.3%	19.1%
I (18-30, CO WA, user)	3.5%	4.1%	8.3%	10.3%	19.1%	28.0%	26.7%

C. Drive home on the highway	Most would be not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Most would be extremely willing (7)
M (age 21+, all states)	9.5%	12.5%	10.7%	18.1%	18.8%	14.0%	16.5%
I (18-30, no CO WA)	9.6%	11.2%	16.3%	20.4%	18.8%	10.7%	13.1%
I (18-30, CO WA, user)	6.6%	9.7%	15.4%	18.0%	18.3%	15.6%	16.4%

D. Drive if they don't feel high	Most would be not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Most would be extremely willing (7)
M (age 21+, all states)	6.3%	4.5%	5.2%	8.7%	13.7%	21.8%	39.8%
I (18-30, no CO WA)	6.8%	3.2%	6.9%	12.7%	16.3%	22.6%	31.5%
I (18-30, CO WA, user)	2.9%	3.1%	4.1%	8.7%	12.6%	22.3%	46.3%

E. Drive even though they still feel high	Most would be not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Most would be extremely willing (7)
M (age 21+, all states)	9.2%	13.3%	13.1%	21.7%	17.0%	10.6%	15.1%
I (18-30, no CO WA)	10.1%	11.4%	15.7%	20.2%	17.6%	12.9%	12.1%
I (18-30, CO WA, user)	6.2%	8.9%	15.5%	17.4%	23.6%	13.2%	15.3%

F. Drive when they had also been drinking	Most would be not at all willing (1)	(2)	(3)	(4)	(5)	(6)	Most would be extremely willing (7)
M (age 21+, all states)	14.1%	21.0%	16.9%	17.5%	10.3%	9.1%	11.1%
I (18-30, no CO WA)	17.1%	15.0%	20.4%	21.1%	12.1%	6.7%	7.6%
I (18-30, CO WA, user)	14.9%	22.8%	25.9%	14.1%	11.6%	5.4%	5.2%

### 3.2.3 Attitudes and Behavioral Beliefs

#### Actual Attitudes

23A. Please select one box on each row that best shows how you feel about driving after using marijuana.

A.	Cool	2	3	4	5	6	Uncool
M (age 21+, all states)	.8%	.5%	1.4%	16.0%	4.5%	6.4%	70.4%
I (18-30, no CO WA)	3.9%	2.2%	3.4%	13.2%	7.4%	12.8%	57.0%
I (18-30, CO WA, user)	3.9%	5.0%	3.7%	24.1%	11.4%	16.2%	35.7%

B.	Dangerous	2	3	4	5	6	Safe
M (age 21+, all states)	63.6%	9.8%	8.0%	9.1%	3.5%	2.3%	3.8%
I (18-30, no CO WA)	51.7%	13.2%	11.1%	10.1%	6.2%	3.7%	4.1%
I (18-30, CO WA, user)	31.3%	13.9%	17.6%	15.7%	7.5%	9.3%	4.6%

C.	Stupid	2	3	4	5	6	Sensible
M (age 21+, all states)	65.7%	8.8%	7.9%	11.9%	1.6%	2.0%	2.0%
I (18-30, no CO WA)	54.0%	13.4%	10.7%	11.8%	4.2%	3.7%	2.3%
I (18-30, CO WA, user)	35.0%	10.8%	15.1%	22.1%	8.5%	4.4%	4.1%

D.	Pleasant	2	3	4	5	6	Unpleasant
M (age 21+, all states)	2.8%	3.4%	4.4%	18.3%	3.4%	9.5%	58.2%
I (18-30, no CO WA)	4.5%	5.5%	7.7%	16.2%	7.9%	13.8%	44.4%
I (18-30, CO WA, user)	8.9%	9.1%	9.3%	18.0%	13.2%	14.1%	27.3%

E.	Acceptable	2	3	4	5	6	Unacceptable
M (age 21+, all states)	1.4%	3.5%	3.6%	12.0%	5.5%	7.6%	66.4%
I (18-30, no CO WA)	4.6%	3.2%	5.5%	13.5%	10.4%	11.8%	50.9%
I (18-30, CO WA, user)	7.0%	5.0%	10.1%	20.5%	12.8%	13.5%	31.1%

Perceived Attitude

Q24. In your opinion, how would most people age 21 and older in your state feel about driving after using marijuana?

A.							
	Cool	2	3	4	5	6	Uncool
M (age 21+, all states)	11.0%	11.1%	11.1%	32.6%	10.1%	9.3%	14.8%
I (18-30, no CO WA)	15.3%	9.7%	20.3%	22.9%	10.0%	9.1%	12.7%
I (18-30, CO WA, user)	12.2%	12.8%	15.1%	31.4%	11.2%	7.8%	9.5%

B.							
	Dangerous	2	3	4	5	6	Safe
M (age 21+, all states)	14.8%	11.5%	13.4%	26.1%	14.3%	12.5%	7.3%
I (18-30, no CO WA)	13.2%	12.9%	14.5%	26.1%	15.9%	10.1%	7.3%
I (18-30, CO WA, user)	10.3%	9.3%	18.0%	25.0%	18.2%	12.2%	7.0%

C.							
	Stupid	2	3	4	5	6	Sensible
M (age 21+, all states)	16.2%	9.6%	13.2%	35.2%	11.7%	7.8%	6.3%
I (18-30, no CO WA)	13.2%	11.1%	17.1%	26.1%	18.1%	7.9%	6.5%
I (18-30, CO WA, user)	10.1%	11.4%	19.8%	28.7%	16.5%	7.6%	6.0%

D.							
	Pleasant	2	3	4	5	6	Unpleasant
M (age 21+, all states)	9.3%	10.1%	11.1%	37.4%	11.1%	8.6%	12.5%
I (18-30, no CO WA)	10.4%	13.1%	20.4%	28.4%	8.4%	8.6%	10.8%
I (18-30, CO WA, user)	11.6%	15.6%	18.5%	24.9%	12.1%	10.0%	7.3%

E.							
	Acceptable	2	3	4	5	6	Unacceptable
M (age 21+, all states)	10.9%	14.4%	15.3%	24.8%	10.7%	10.7%	13.2%
I (18-30, no CO WA)	11.5%	13.0%	21.2%	22.3%	12.8%	8.1%	11.1%
I (18-30, CO WA, user)	12.2%	15.3%	19.5%	25.7%	9.3%	10.6%	7.4%

**Behavioral Beliefs**

Q25A "If I drive after using marijuana, I will feel calmer."-You							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	42.6%	16.7%	5.6%	15.8%	10.9%	5.3%	3.1%
I (18-30, no CO WA)	41.5%	14.2%	7.5%	15.2%	10.0%	6.0%	5.6%
I (18-30, CO WA, user)	23.0%	18.2%	12.6%	14.9%	14.9%	8.3%	8.1%

Q25B "If I drive after using marijuana, I will feel calmer."-Most people age 21 and older in your state							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	8.7%	9.1%	11.5%	19.9%	29.7%	15.4%	5.8%
I (18-30, no CO WA)	5.9%	5.6%	12.6%	20.2%	27.1%	17.7%	10.8%
I (18-30, CO WA, user)	3.3%	8.7%	11.4%	22.2%	28.6%	17.2%	8.5%

Q26A "If I drive after using marijuana, I will be more alert."-You							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	52.8%	17.9%	9.1%	12.5%	4.6%	1.6%	1.5%
I (18-30, no CO WA)	49.6%	14.8%	8.2%	13.1%	5.9%	4.1%	4.4%
I (18-30, CO WA, user)	27.6%	19.9%	14.7%	14.9%	9.5%	7.1%	6.4%

Q26B "If I drive after using marijuana, I will be more alert."-Most people age 21 and older in your state							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	13.8%	16.3%	18.8%	22.1%	17.9%	7.8%	3.2%
I (18-30, no CO WA)	11.9%	12.2%	17.7%	25.0%	16.7%	10.4%	6.2%
I (18-30, CO WA, user)	8.1%	14.0%	19.2%	24.8%	17.6%	12.4%	3.9%

Q27A "If I drive after using marijuana, I will be more cautious. -You							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	41.7%	14.4%	4.2%	12.2%	13.2%	7.3%	7.1%
I (18-30, no CO WA)	38.7%	13.5%	7.2%	13.1%	10.3%	6.9%	10.4%
I (18-30, CO WA, user)	16.8%	10.4%	8.9%	12.3%	18.5%	14.3%	18.9%

Q27B "If I drive after using marijuana, I will be more cautious. -Most people age 21 and older in your state							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	10.9%	13.9%	12.8%	16.7%	26.4%	14.6%	4.7%
I (18-30, no CO WA)	9.6%	8.1%	14.0%	22.6%	23.0%	14.5%	8.1%
I (18-30, CO WA, user)	3.9%	6.2%	11.2%	19.0%	25.7%	23.0%	11.0%

Q28A "If I drive after using marijuana, I will be more likely to get arrested."-You							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	6.6%	4.8%	4.6%	15.5%	11.5%	23.2%	33.7%
I (18-30, no CO WA)	4.2%	1.8%	4.1%	13.5%	7.4%	25.3%	43.7%
I (18-30, CO WA, user)	4.4%	3.9%	6.2%	16.6%	16.8%	24.2%	27.9%

Q28B "If I drive after using marijuana, I will be more likely to get arrested."-Most people age 21 and older in your state							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	6.3%	10.9%	12.2%	23.4%	20.1%	15.0%	12.0%
I (18-30, no CO WA)	3.7%	5.3%	11.5%	20.8%	21.9%	19.8%	16.9%
I (18-30, CO WA, user)	2.1%	7.5%	9.3%	23.4%	25.0%	19.0%	13.7%

Q29A "If I drive after using marijuana, my reaction time will be slower."-You							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	3.6%	2.6%	2.1%	11.9%	9.2%	24.6%	46.0%
I (18-30, no CO WA)	5.5%	2.8%	3.5%	10.8%	13.5%	19.9%	44.0%
I (18-30, CO WA, user)	5.2%	6.4%	6.2%	13.3%	18.2%	24.2%	26.5%

Q29B "If I drive after using marijuana, my reaction time will be slower."-Most people age 21 and older in your state							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	3.3%	9.9%	13.3%	20.8%	21.9%	17.0%	13.7%
I (18-30, no CO WA)	5.1%	5.9%	12.7%	26.4%	24.2%	15.0%	10.7%
I (18-30, CO WA, user)	3.3%	7.4%	13.8%	21.7%	28.9%	16.1%	8.9%

Q30A "If I drive after using marijuana, I am more likely to be in an accident."-You							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	4.7%	5.6%	6.2%	15.4%	11.1%	23.0%	34.1%
I (18-30, no CO WA)	7.0%	3.2%	4.1%	13.3%	12.6%	20.6%	39.0%
I (18-30, CO WA, user)	9.3%	7.7%	9.7%	22.2%	15.3%	17.0%	18.8%

Q30B "If I drive after using marijuana, I am more likely to be in an accident."-Most people age 21 and older in your state							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	5.9%	13.3%	14.8%	26.6%	18.1%	12.2%	9.1%
I (18-30, no CO WA)	6.5%	7.9%	15.7%	27.0%	19.7%	13.9%	9.4%
I (18-30, CO WA, user)	5.8%	10.7%	17.8%	30.2%	19.2%	9.7%	6.6%

### 3.2.4 Prototypical Image, Perceived Norms, and Normative Beliefs

#### Prototypical Image

Q31. Each row shows a range of feelings about the "typical" person who drives after using marijuana. Please select one box on each row that best shows how you feel. The "typical" person who drives after using marijuana is...

A.	Relaxed	2	3	4	5	6	Anxious
M (age 21+, all states)	13.0%	17.3%	20.4%	20.9%	10.7%	6.9%	10.7%
I (18-30, no CO WA)	12.9%	14.5%	21.1%	19.0%	11.2%	7.2%	14.2%
I (18-30, CO WA, user)	12.5%	15.1%	21.2%	16.2%	15.6%	9.7%	9.7%

B.	Calm	2	3	4	5	6	Manic
M (age 21+, all states)	11.9%	18.6%	23.8%	25.1%	8.1%	3.5%	8.9%
I (18-30, no CO WA)	11.9%	17.0%	24.4%	19.4%	11.1%	6.0%	10.2%
I (18-30, CO WA, user)	12.5%	17.8%	30.3%	19.5%	9.5%	4.1%	6.4%

C.	Distracted	2	3	4	5	6	Focused
M (age 21+, all states)	26.5%	21.5%	14.3%	22.1%	8.1%	5.2%	2.4%
I (18-30, no CO WA)	22.3%	16.3%	19.4%	22.9%	10.2%	5.2%	3.8%
I (18-30, CO WA, user)	11.0%	14.5%	22.2%	18.3%	15.3%	11.8%	6.9%

D.	Self-involved	2	3	4	5	6	Concerned about others
M (age 21+, all states)	28.0%	19.5%	15.5%	24.3%	7.5%	3.5%	1.6%
I (18-30, no CO WA)	23.8%	17.6%	17.0%	23.3%	9.8%	4.5%	3.9%
I (18-30, CO WA, user)	9.7%	13.5%	20.1%	29.7%	12.2%	8.5%	6.4%

E.	Cautious	2	3	4	5	6	Reckless
M (age 21+, all states)	4.3%	9.4%	12.2%	21.7%	17.5%	14.0%	20.9%
I (18-30, no CO WA)	7.2%	7.2%	12.9%	18.8%	17.7%	16.4%	19.8%
I (18-30, CO WA, user)	10.8%	17.2%	22.2%	18.6%	15.1%	9.5%	6.6%

F.	Stupid	2	3	4	5	6	Smart
M (age 21+, all states)	37.9%	15.7%	13.1%	22.9%	6.5%	1.8%	2.1%
I (18-30, no CO WA)	31.8%	16.9%	17.3%	20.5%	6.9%	4.1%	2.5%
I (18-30, CO WA, user)	14.9%	13.0%	21.1%	33.7%	8.5%	5.0%	3.9%

Prototypical Image (continued)

Q31. "typical" person who drives after using marijuana is...

G.	Safe	2	3	4	5	6	Unsafe
M (age 21+, all states)	2.3%	3.3%	7.2%	19.4%	14.2%	17.2%	36.4%
I (18-30, no CO WA)	4.2%	3.7%	7.3%	18.7%	16.9%	20.2%	29.1%
I (18-30, CO WA, user)	5.2%	7.1%	9.3%	24.7%	21.8%	18.1%	13.7%

H.	Paranoid	2	3	4	5	6	Confident
M (age 21+, all states)	19.2%	15.9%	15.4%	31.3%	9.3%	5.6%	3.3%
I (18-30, no CO WA)	18.8%	13.2%	17.2%	26.3%	12.9%	7.7%	3.8%
I (18-30, CO WA, user)	15.1%	16.2%	22.2%	22.0%	14.1%	5.8%	4.6%

I.	Cool	2	3	4	5	6	Uncool
M (age 21+, all states)	3.4%	6.0%	6.0%	33.2%	6.3%	11.4%	33.7%
I (18-30, no CO WA)	3.9%	5.9%	9.4%	24.1%	14.1%	13.9%	28.7%
I (18-30, CO WA, user)	3.9%	6.9%	10.4%	33.8%	14.3%	15.3%	15.4%

J.	Risk-taker	2	3	4	5	6	Cautious
M (age 21+, all states)	30.9%	16.8%	14.0%	21.9%	8.4%	5.0%	2.9%
I (18-30, no CO WA)	28.2%	15.9%	20.4%	18.0%	8.4%	5.5%	3.7%
I (18-30, CO WA, user)	13.6%	10.7%	23.6%	17.6%	14.9%	12.0%	7.6%

K.	Irresponsible	2	3	4	5	6	Responsible
M (age 21+, all states)	40.9%	16.0%	13.5%	20.2%	5.3%	2.5%	1.6%
I (18-30, no CO WA)	37.0%	14.6%	15.3%	18.8%	7.0%	4.2%	3.1%
I (18-30, CO WA, user)	18.9%	13.7%	24.9%	21.6%	9.1%	7.7%	4.1%

L.	Lawful	2	3	4	5	6	Unlawful
M (age 21+, all states)	2.1%	3.9%	3.9%	16.9%	9.1%	15.5%	48.7%
I (18-30, no CO WA)	3.9%	2.3%	3.5%	16.0%	11.3%	19.7%	43.3%
I (18-30, CO WA, user)	2.9%	4.2%	8.1%	16.8%	17.8%	20.8%	29.3%

Q32. The “typical” person who NEVER drives after using marijuana is...

A.							
	Relaxed	2	3	4	5	6	Anxious
M (age 21+, all states)	26.7%	15.9%	10.0%	32.1%	6.2%	4.4%	4.6%
I (18-30, no CO WA)	31.2%	17.6%	12.1%	20.1%	8.0%	5.2%	5.9%
I (18-30, CO WA, user)	25.7%	15.7%	14.7%	20.1%	9.3%	6.2%	8.3%

B.							
	Calm	2	3	4	5	6	Manic
M (age 21+, all states)	26.6%	18.5%	12.4%	32.2%	4.6%	2.2%	3.4%
I (18-30, no CO WA)	32.3%	19.0%	14.2%	21.3%	6.7%	2.5%	3.9%
I (18-30, CO WA, user)	26.2%	16.7%	16.5%	21.1%	10.1%	4.3%	5.2%

C.							
	Distracted	2	3	4	5	6	Focused
M (age 21+, all states)	10.3%	8.0%	12.3%	28.1%	8.1%	12.8%	20.2%
I (18-30, no CO WA)	6.3%	5.2%	11.4%	19.8%	14.3%	17.0%	25.9%
I (18-30, CO WA, user)	6.9%	5.8%	13.7%	23.0%	13.9%	15.4%	21.2%

D.							
	Self-involved	2	3	4	5	6	Concerned about others
M (age 21+, all states)	9.9%	5.1%	9.7%	29.2%	10.1%	13.2%	22.8%
I (18-30, no CO WA)	6.5%	5.3%	9.3%	25.8%	13.7%	15.6%	23.8%
I (18-30, CO WA, user)	8.5%	8.1%	11.6%	27.3%	12.4%	13.6%	18.4%

E.							
	Cautious	2	3	4	5	6	Reckless
M (age 21+, all states)	25.5%	19.6%	13.4%	25.9%	6.4%	3.2%	6.1%
I (18-30, no CO WA)	29.7%	19.4%	17.6%	18.6%	8.9%	2.7%	3.2%
I (18-30, CO WA, user)	23.6%	17.8%	15.5%	22.5%	9.3%	7.0%	4.3%

F.							
	Stupid	2	3	4	5	6	Smart
M (age 21+, all states)	8.1%	5.7%	2.5%	28.3%	9.5%	16.3%	29.5%
I (18-30, no CO WA)	5.2%	3.8%	5.8%	23.0%	15.3%	16.9%	30.1%
I (18-30, CO WA, user)	6.2%	4.3%	6.0%	26.9%	14.1%	17.4%	25.0%

G.							
	Safe	2	3	4	5	6	Unsafe
M (age 21+, all states)	29.7%	19.1%	11.5%	22.2%	4.9%	5.6%	7.0%
I (18-30, no CO WA)	32.9%	17.1%	16.7%	20.2%	5.2%	3.7%	4.2%
I (18-30, CO WA, user)	29.0%	19.7%	16.2%	22.6%	5.0%	2.9%	4.6%

Prototypical Image (continued)

Q32. The “typical” person who NEVER drives after using marijuana is...

H.	Paranoid	2	3	4	5	6	Confident
M (age 21+, all states)	6.6%	5.2%	4.7%	34.0%	11.5%	16.3%	21.6%
I (18-30, no CO WA)	7.4%	4.4%	8.0%	24.7%	17.0%	16.0%	22.5%
I (18-30, CO WA, user)	7.4%	5.4%	7.7%	26.7%	13.9%	17.8%	21.1%

I.	Cool	2	3	4	5	6	Uncool
M (age 21+, all states)	21.8%	10.7%	8.5%	46.7%	2.4%	1.4%	8.4%
I (18-30, no CO WA)	24.1%	12.1%	12.9%	35.9%	6.0%	3.8%	5.2%
I (18-30, CO WA, user)	20.5%	11.6%	13.9%	40.6%	3.7%	4.4%	5.2%

J.	Risk-taker	2	3	4	5	6	Cautious
M (age 21+, all states)	6.3%	5.7%	4.8%	24.2%	14.2%	19.0%	25.7%
I (18-30, no CO WA)	4.9%	2.7%	6.0%	22.2%	17.0%	19.4%	27.8%
I (18-30, CO WA, user)	5.2%	3.7%	6.0%	25.5%	17.4%	19.5%	22.6%

K.	Irresponsible	2	3	4	5	6	Responsible
M (age 21+, all states)	6.7%	4.4%	4.1%	20.1%	11.8%	18.9%	34.1%
I (18-30, no CO WA)	6.0%	3.2%	7.0%	17.6%	16.9%	16.7%	32.5%
I (18-30, CO WA, user)	5.6%	2.3%	6.0%	19.5%	17.4%	19.7%	29.4%

L.	Lawful	2	3	4	5	6	Unlawful
M (age 21+, all states)	39.5%	16.9%	8.0%	20.5%	3.7%	4.0%	7.4%
I (18-30, no CO WA)	38.1%	15.2%	13.2%	18.4%	5.1%	3.9%	6.0%
I (18-30, CO WA, user)	40.8%	16.4%	10.3%	18.4%	5.6%	3.5%	5.0%

## Perceived Norms

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Q38 "Most people who are important to me think it is OK to drive after using marijuana."							
M (age 21+, all states)	52.8%	18.8%	6.7%	10.2%	5.7%	3.8%	2.0%
I (18-30, no CO WA)	42.6%	20.9%	8.4%	11.7%	7.0%	5.1%	4.4%
I (18-30, CO WA, user)	19.4%	17.6%	11.4%	15.3%	17.8%	11.2%	7.2%

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Q40 "Most people who are important to me expect me not to drive after using marijuana."							
M (age 21+, all states)	5.1%	3.0%	2.6%	8.6%	7.7%	23.3%	49.8%
I (18-30, no CO WA)	3.2%	4.5%	4.8%	12.9%	6.9%	21.2%	46.5%
I (18-30, CO WA, user)	3.7%	7.7%	10.6%	18.1%	11.0%	24.7%	24.1%

	Never	Once or twice	3 to 6 times	7 to 11 times	Monthly	Weekly	Daily
Q14 In your opinion, how often did most people like you in your state drive within four hours of using marijuana?							
M (age 21+, all states)	36.1%	19.2%	10.5%	5.6%	5.2%	7.9%	15.4%
I (18-30, no CO WA)	29.3%	15.1%	12.5%	6.0%	8.8%	12.8%	15.4%
I (18-30, CO WA, user)	6.2%	11.6%	12.0%	6.4%	14.1%	17.0%	32.7%

	Never	Once or twice	3 to 6 times	7 to 11 times	Monthly	Weekly	Daily
Q15 In your opinion, how often did most people age 21 and older in your state drive within four hours of using marijuana?							
M (age 21+, all states)	11.2%	18.5%	15.2%	10.0%	9.9%	16.0%	19.2%
I (18-30, no CO WA)	15.7%	14.6%	15.2%	9.0%	11.0%	14.3%	20.2%
I (18-30, CO WA, user)	4.8%	10.8%	9.8%	7.3%	14.5%	20.8%	31.9%

## Normative Beliefs

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Q33 "My friends would think it was OK if I drove after using marijuana."							
M (age 21+, all states)	38.8%	19.4%	5.0%	10.7%	14.2%	7.1%	4.8%
I (18-30, no CO WA)	31.1%	16.2%	8.6%	12.2%	14.2%	9.3%	8.4%
I (18-30, CO WA, user)	9.3%	11.0%	5.8%	9.7%	22.2%	21.8%	20.3%

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Q34 "My family would think it was OK if I drove after using marijuana."							
M (age 21+, all states)	56.0%	20.0%	8.8%	6.1%	4.9%	2.3%	1.8%
I (18-30, no CO WA)	61.5%	12.0%	7.5%	7.0%	4.5%	4.1%	3.5%
I (18-30, CO WA, user)	37.7%	20.1%	11.0%	8.9%	8.7%	6.2%	7.4%

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree	I don't have an employer
Q35 "My employer would think it was OK if I drove after using marijuana."								
M (age 21+, all states)	69.8%	15.9%	1.8%	8.5%	.9%	1.5%	1.6%	
I (18-30, no CO WA)	45.4%	9.8%	4.2%	6.8%	2.1%	2.4%	1.8%	27.4%
I (18-30, CO WA, user)	52.8%	16.4%	7.5%	13.7%	3.4%	3.6%	2.7%	

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Q36 "Law enforcement in my community would think it was OK if people drove after using marijuana."							
M (age 21+, all states)	74.9%	16.0%	3.1%	4.1%	.5%	.2%	1.2%
I (18-30, no CO WA)	65.0%	19.2%	3.1%	8.1%	1.4%	2.2%	.8%
I (18-30, CO WA, user)	60.5%	22.6%	6.0%	7.7%	1.5%	1.0%	.6%

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Q37 "Most people in my community think it is OK to drive after using marijuana."							
M (age 21+, all states)	30.3%	24.8%	12.0%	17.3%	8.0%	4.9%	2.7%
I (18-30, no CO WA)	26.7%	22.8%	13.5%	16.0%	10.4%	6.6%	3.9%
I (18-30, CO WA, user)	14.9%	16.1%	11.8%	23.0%	17.2%	12.0%	5.0%

	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
Q39 "Most people in my community expect people not to drive after using marijuana."							
M (age 21+, all states)	5.4%	4.0%	5.8%	13.0%	14.7%	28.1%	29.1%
I (18-30, no CO WA)	3.7%	5.5%	6.0%	14.2%	14.0%	27.4%	29.2%
I (18-30, CO WA, user)	3.7%	7.5%	10.0%	17.4%	18.7%	25.7%	17.0%

### 3.2.5 Perceived Control, Control Beliefs, and Knowledge of State Laws

#### Perceived Control

Q41 "It's up to me whether I drive after using marijuana."							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	14.7%	6.1%	3.0%	9.4%	7.5%	18.7%	40.6%
I (18-30, no CO WA)	7.6%	6.0%	3.7%	13.6%	12.5%	18.8%	37.7%
I (18-30, CO WA, user)	1.0%	2.5%	2.3%	5.6%	9.9%	25.1%	53.6%

Q42 "If I really wanted to, I could choose to never drive after using marijuana."							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	3.4%	.7%	1.6%	5.0%	2.6%	20.5%	66.2%
I (18-30, no CO WA)	2.2%	2.4%	2.2%	6.9%	7.3%	16.8%	62.1%
I (18-30, CO WA, user)	.8%	1.7%	1.9%	4.8%	4.8%	23.2%	62.7%

Q43 "Situations come up that are out of my control that require me to drive after using marijuana."							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	41.7%	16.1%	3.6%	17.9%	9.7%	6.9%	4.1%
I (18-30, no CO WA)	27.4%	15.8%	9.1%	20.3%	12.8%	8.9%	5.8%
I (18-30, CO WA, user)	10.1%	17.4%	7.4%	19.6%	19.6%	14.9%	11.0%

Control Beliefs

Q44A How likely are you to find yourself in the following situations within four hours of using marijuana:  
Needing to drive to work or school

	I don't use marijuana	Extremely Unlikely	Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Likely	Extremely Likely
M (age 21+, all states)	72.7%	17.1%	3.3%	1.0%	2.6%	.7%	1.6%	1.0%
I (18-30, no CO WA)	61.2%	20.1%	5.3%	2.7%	3.1%	3.1%	3.1%	1.4%
I (18-30, CO WA, user)	2.7%	52.3%	14.9%	6.9%	6.8%	6.6%	5.4%	4.4%

Q44B How likely are you to find yourself in the following situations within four hours of using marijuana:  
Needing to drive to run errands

	I don't use marijuana	Extremely Unlikely	Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Likely	Extremely Likely
M (age 21+, all states)	72.5%	10.8%	4.7%	1.1%	3.4%	3.3%	3.3%	1.0%
I (18-30, no CO WA)	60.8%	16.7%	4.4%	4.1%	4.2%	3.9%	3.1%	2.8%
I (18-30, CO WA, user)	1.0%	35.8%	18.4%	7.9%	8.7%	13.9%	8.9%	5.4%

Q44C How likely are you to find yourself in the following situations within four hours of using marijuana:  
Needing to drive home (after using marijuana when out or at a party)

	I don't use marijuana	Extremely Unlikely	Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Likely	Extremely Likely
M (age 21+, all states)	72.0%	8.8%	4.0%	2.0%	4.9%	4.3%	2.9%	1.0%
I (18-30, no CO WA)	60.7%	12.4%	4.6%	5.9%	4.6%	5.1%	3.2%	3.5%
I (18-30, CO WA, user)	1.0%	31.1%	16.8%	7.2%	9.7%	17.4%	9.3%	7.5%

Q47 Before deciding to use marijuana, how likely are you to think about whether you will need to drive?

	I don't use marijuana	Extremely Unlikely	Unlikely	Somewhat Unlikely	Neutral	Somewhat Likely	Likely	Extremely Likely
M (age 21+, all states)	68.0%	2.2%	2.6%	1.5%	1.5%	2.3%	8.6%	13.4%
I (18-30, no CO WA)	56.1%	5.3%	2.9%	3.6%	5.9%	6.2%	8.3%	11.6%
I (18-30, CO WA, user)		8.7%	7.7%	7.9%	13.3%	8.3%	22.6%	31.3%

## Knowledge of State Laws

Q20 Is recreational use of marijuana by adults age 21 and older legal or illegal in your state?

	Legal	Illegal	I don't know
M (age 21+, all states)	55.1%	40.3%	4.7%
I (18-30, no CO WA)	4.5%	85.8%	9.7%
I (18-30, CO WA, user)	98.8%	1.2%	

Q21 Is medicinal use of marijuana by adults age 21 and older legal or illegal in your state?

	Legal	Illegal	I don't know
M (age 21+, all states)	67.7%	20.2%	12.0%
I (18-30, no CO WA)	28.8%	41.1%	30.1%
I (18-30, CO WA, user)	98.5%	.2%	1.4%

Q22 Is driving under the influence of marijuana legal or illegal in your state?

	Legal	Illegal	I don't know
M (age 21+, all states)	1.6%	81.4%	17.0%
I (18-30, no CO WA)	2.0%	83.2%	14.9%
I (18-30, CO WA, user)	1.0%	86.7%	12.4%

### 3.2.6 Values and Concern for Traffic Safety

#### Values

Q1a Please review the following list of values and identify the ONE that is MOST IMPORTANT to you.

	Broad-mindedness	Helpfulness	Conformity	Tradition	Security	Power	Achievement	Enjoyment in life	Stimulation	Self-Direction
M (age 21+, all states)	26.6%	30.1%	5.1%	5.9%	8.5%	.1%	2.5%	3.2%	1.2%	16.7%
I (18-30, no CO WA)	16.9%	28.7%	2.9%	7.0%	5.3%	2.8%	6.3%	15.3%	1.7%	13.1%
I (18-30, CO WA, user)	18.5%	20.1%	1.9%	2.3%	2.5%	1.7%	6.0%	21.6%	3.5%	21.8%

Q2a Please review the following list of values and identify the ONE that is LEAST IMPORTANT to you.

	Broad-mindedness	Helpfulness	Conformity	Tradition	Security	Power	Achievement	Enjoyment in life	Stimulation	Self-Direction
M (age 21+, all states)	6.5%	.1%	9.5%	8.7%	.6%	50.1%	1.9%	7.2%	14.1%	1.2%
I (18-30, no CO WA)	6.3%	1.5%	17.7%	12.9%	2.7%	43.3%	1.1%	1.7%	10.7%	2.1%
I (18-30, CO WA, user)	4.1%	.8%	26.4%	15.1%	3.3%	42.4%	1.4%	1.4%	4.5%	.8%

Q3. Please rate how important each of the follow is to you.

Q3A Broad-mindedness									
	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	.6%	3.4%	4.4%	4.5%	9.0%	13.8%	17.2%	19.3%	27.8%
I (18-30, no CO WA)	.8%	3.4%	4.2%	3.8%	9.8%	15.8%	21.6%	17.1%	23.4%
I (18-30, CO WA, user)	.4%	1.5%	3.1%	5.4%	7.7%	11.8%	18.1%	23.1%	28.9%

Q3B Helpfulness									
	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	.2%	.2%	.6%	1.0%	2.4%	7.0%	12.7%	27.6%	48.2%
I (18-30, no CO WA)		2.0%	1.1%	1.5%	5.3%	6.0%	18.0%	26.4%	39.6%
I (18-30, CO WA, user)	.2%	.2%	.6%	3.3%	6.4%	6.9%	14.5%	27.0%	40.9%

Q3C Conformity									
	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	2.1%	3.0%	7.7%	7.8%	10.7%	12.2%	15.0%	19.4%	22.1%
I (18-30, no CO WA)	4.4%	7.9%	8.0%	9.1%	12.2%	14.6%	15.7%	16.6%	11.5%
I (18-30, CO WA, user)	8.7%	11.2%	9.7%	10.3%	14.5%	13.7%	11.0%	10.8%	10.1%

Q3D Tradition									
	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	1.8%	3.4%	9.3%	9.4%	14.3%	15.7%	16.0%	14.1%	15.9%
I (18-30, no CO WA)	3.2%	6.6%	7.4%	9.7%	14.0%	15.3%	17.7%	15.3%	10.7%
I (18-30, CO WA, user)	4.1%	10.1%	11.4%	12.2%	13.2%	16.6%	13.0%	9.9%	9.7%

Q3E Security									
	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	.4%	1.1%	3.4%	6.1%	11.1%	14.4%	18.1%	20.9%	24.4%
I (18-30, no CO WA)	.1%	2.2%	3.8%	7.4%	11.9%	18.0%	22.9%	17.7%	15.9%
I (18-30, CO WA, user)	1.2%	3.7%	5.6%	11.6%	17.8%	14.7%	18.5%	17.8%	9.3%

Q3. Please rate how important each of the follow is to you. (continued)

Q3F Power	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	6.3%	25.0%	20.1%	12.7%	14.5%	9.3%	6.5%	3.4%	2.2%
I (18-30, no CO WA)	6.5%	18.4%	13.4%	13.6%	13.8%	9.7%	9.4%	9.4%	5.8%
I (18-30, CO WA, user)	11.2%	18.2%	14.5%	12.2%	13.7%	11.4%	9.3%	5.6%	3.9%

Q3G Achievement	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	.6%	4.6%	7.1%	9.8%	16.9%	17.3%	19.1%	13.7%	10.9%
I (18-30, no CO WA)	.1%	2.4%	5.1%	6.3%	11.7%	15.4%	20.2%	20.6%	18.1%
I (18-30, CO WA, user)	1.0%	2.3%	4.2%	6.8%	11.8%	15.4%	22.4%	18.3%	17.8%

Q3H Enjoyment in life	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	2.3%	6.6%	6.9%	8.8%	13.6%	16.2%	18.7%	15.0%	11.8%
I (18-30, no CO WA)	.6%	1.8%	3.1%	2.2%	6.9%	12.1%	18.0%	22.9%	32.5%
I (18-30, CO WA, user)	.4%	1.4%	1.4%	2.1%	5.8%	7.2%	15.9%	26.7%	39.1%

Q3I Stimulation	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	1.6%	9.7%	9.3%	11.8%	14.4%	17.6%	18.1%	10.0%	7.5%
I (18-30, no CO WA)	2.0%	4.2%	5.3%	7.3%	13.2%	15.9%	24.9%	16.7%	10.5%
I (18-30, CO WA, user)	.8%	2.5%	3.1%	6.2%	9.3%	16.6%	25.5%	22.2%	13.9%

Q3J Self-direction	Opposed to my principles	Not Important (1)	(2)	(3)	(4)	(5)	(6)	(7)	Of supreme Importance (8)
M (age 21+, all states)	.5%	1.1%	1.9%	3.2%	8.2%	10.0%	20.5%	24.6%	30.1%
I (18-30, no CO WA)	.3%	1.5%	1.5%	4.6%	9.4%	13.1%	20.5%	24.4%	24.6%
I (18-30, CO WA, user)		1.0%	1.4%	3.5%	5.0%	15.3%	16.6%	22.4%	34.8%

Concern for Traffic Safety

Q4 How concerned are you about safety on roads and highways?							
	Not at all Concerned (1)	(2)	(3)	(4)	(5)	(6)	Extremely Concerned (7)
M (age 21+, all states)	.1%	1.5%	2.8%	6.7%	16.2%	24.3%	48.4%
I (18-30, no CO WA)	.8%	2.2%	5.3%	10.7%	25.1%	24.0%	31.7%
I (18-30, CO WA, user)	1.4%	3.5%	6.0%	9.9%	26.3%	25.1%	27.9%

Q5 "I believe the only acceptable number of deaths and serious injuries on our roadways is zero."							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	6.3%	7.9%	6.9%	12.2%	13.3%	26.0%	27.6%
I (18-30, no CO WA)	3.2%	4.9%	10.3%	9.7%	14.9%	24.6%	32.4%
I (18-30, CO WA, user)	3.3%	6.8%	9.3%	11.6%	14.1%	26.7%	28.1%

Q6 "I believe the only acceptable number of deaths and serious injuries among my family and friends on our roadways is zero."							
	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree
M (age 21+, all states)	4.5%	5.8%	4.1%	9.3%	6.5%	24.6%	45.2%
I (18-30, no CO WA)	1.1%	2.8%	3.1%	8.7%	6.6%	20.1%	57.5%
I (18-30, CO WA, user)	1.5%	2.9%	4.3%	7.4%	9.1%	20.5%	54.4%

### **3.3 Comparing the Culture of Non-Users and Users of Cannabis**

Respondents were divided into two groups: those that reported not using cannabis in the last 12 months (“non-users”) and those that reported using cannabis in the past 12 months (“users”). The mean responses (i.e., averages) for each group were compared using T-tests to see if they were statistically significantly different. This process was repeated for all questions on the survey. These comparisons are provided in the Appendix A (Survey #1) and Appendix B (Surveys #2 and #3).

To summarize the differences in the two groups, the means of the scales were compared and summarized in single tables.

#### **3.3.1 Survey #1**

The results in this section are for Survey #1 – the mailed survey of all states, respondents age 21 and older. As shown in Table 7, the scales are significantly different between non-users and users of cannabis. Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These results are confirmed by the detailed question-by-question comparisons provided in Appendix A. These results show that users of cannabis, in general, have very different beliefs and attitudes than non-users of cannabis about DUIC.

**Table 7. Comparison of Means Between Non-Users and Users of Cannabis (Survey #1)**

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
<b>DUIC Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	1.00	2.67	***
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	1.05	2.63	***
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	2.05	4.38	***
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	1.58	3.29	***
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	3.82	4.04	NS
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	2.84	3.92	***
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	5.05	4.38	***
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	1.91	3.14	***
<b>Descriptive Norm</b> =(Q14+Q15)/2	3.34	4.62	***
<b>Control</b> =(Q44A+Q44B+Q44C)/3	1.25	3.45	***

a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 3.3.2 Survey #2 and Survey #3

The results in this section are for Survey #2 – the internet survey of all states excluding Colorado and Washington, respondents age 18 to 30 as well as respondents to Survey #3 – the internet survey of Colorado and Washington, respondents age 18 to 30 who are users of cannabis. As shown in Table 8, the scales are significantly different between non-users and users of cannabis. Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These results are confirmed by the detailed question-by-question comparisons provided in Appendix B. These results show that users of cannabis, in general, have very different beliefs and attitudes than non-users of cannabis about DUIC.

**Table 8. Comparison of Means Between Non-Users and Users of Cannabis (Surveys #2 and #3)**

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
<b>DUIC Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	1.00	2.68	***
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	1.07	2.50	***
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	2.15	4.41	***
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	1.82	3.14	***
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	3.80	4.23	***
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+ Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	2.82	3.77	***
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+ Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	5.20	4.84	***
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	1.99	3.33	***
<b>Descriptive Norm</b> =(Q14+Q15)/2	3.25	4.98	***
<b>Control</b> =(Q44A+Q44B+Q44C)/3	1.33	3.79	***

a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### **3.4 Exploring How Culture Impacts Driving Under the Influence of Cannabis**

Because one cannot drive under the influence of cannabis if one does not use cannabis, the respondents for these analyses were restricted to only examining individuals who reported using cannabis (“users”).

“Users” were divided into two groups: those that reported not driving within four hours of using cannabis in the past 12 months (“non-DUIC”) and those that reported driving within four hours of using cannabis in the past 12 months (“DUIC”). The mean responses (i.e., averages) for each group were compared using T-tests to see if they were statistically significantly different. This process was repeated for all questions on the survey. These comparisons are provided in Appendix C (Survey #1) and Appendix D (Survey #2 and Survey #3).

To summarize the differences in the two groups, the means of the scales were compared and summarized in a single table.

#### **3.4.1 Survey #1**

The results in this section are for Survey #1 – the mailed survey of all states, respondents age 21 and older who indicated they have used cannabis in the past 12 months. As shown in Table 9, the scales are significantly different between non-DUIC and DUIC among users of cannabis. Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These results are confirmed by the detailed question-by-question comparisons provided in Appendix C. These results show that individuals who engage in DUIC, in general, have very different beliefs and attitudes than those who do not – even among users of cannabis.

**Table 9. Comparison of Means Between No DUIC and DUIC Among Users of Cannabis (Survey #1)**

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
<b>DUIC Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	1.00	4.94	***
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	1.04	4.79	***
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	3.26	5.92	***
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	2.49	4.35	***
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	3.71	4.48	**
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	3.56	4.39	***
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	4.69	3.97	**
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	2.35	4.21	***
<b>Descriptive Norm</b> =(Q14+Q15)/2	3.79	5.74	***
<b>Control</b> =(Q44A+Q44B+Q44C)/3	2.55	4.69	***

a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 3.4.2 Survey #2 and Survey #3

The results in this section are for Survey #2 – the internet survey of all states excluding Colorado and Washington, respondents age 18 to 30 who reported using cannabis in the past 12 months as well as respondents to Survey #3 – the internet survey of Colorado and Washington, respondents age 18 to 30 who are users of cannabis. As shown in Table 10, the scales are significantly different between non-DUIC and DUIC among users of cannabis. Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These results are confirmed by the detailed question-by-question comparisons provided in Appendix D. These results show that individuals who engage in DUIC, in general, have very different beliefs and attitudes than those who do not – even among users of cannabis.

**Table 10. Comparison of Means Between No DUIC and DUIC Among Users of Cannabis (Surveys #2 and #3)**

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
<b>DUIC Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	1.00	4.25	***
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	1.21	3.71	***
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	3.32	5.42	***
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	2.30	3.93	***
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	3.98	4.47	***
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	3.35	4.16	***
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	5.13	4.56	***
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	2.62	3.98	***
<b>Descriptive Norm</b> =(Q14+Q15)/2	4.31	5.61	***
<b>Control</b> =(Q44A+Q44B+Q44C)/3	2.79	4.73	***

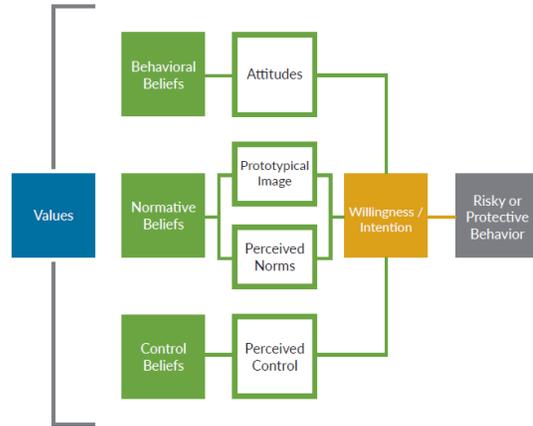
a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 3.4.3 Behavior Models

To develop a better understanding of which components of the behavioral model predict other components, regression analyses were performed.

Initial work showed that both intention and willingness predicted behavior. Therefore, a scale combining the two was created ( $\text{Intention\_Willingness} = (\text{Intention} + \text{Willingness}) / 2$ ). A separate model for each survey was created. The models were only based on respondents who indicated they had used cannabis in the past 12 months.



#### 3.4.3.1 Predicting DUIC (Q13) Among Users of Cannabis

In addition to intention and willingness to drive under the influence of cannabis, factors such as how often an individual drives and how often an individual uses cannabis were included in the analysis. Clearly, if one rarely drives, then one rarely drives under the influence of cannabis.

In addition, control beliefs can often directly influence engagement in behavior. Therefore, control was included in the analysis as well. Table 11 shows the standardized regression coefficients for the three models.

In general, the models performed well predicting 89 percent, 76 percent, and 78 percent of the variation, respectively in each survey. In each model, intention and willingness was the strongest predictor of behavior. These results confirm the value of the behavioral model in predicting DUIC.

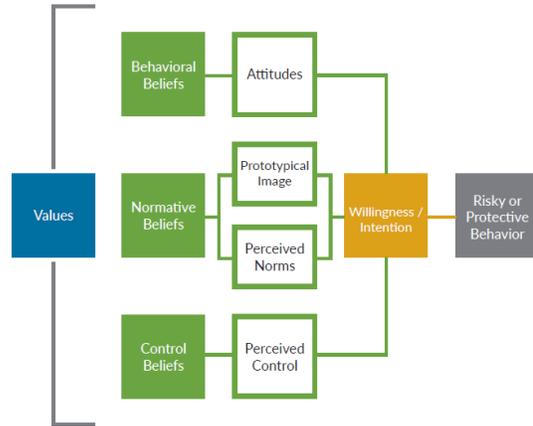
**Table 11. Standardized Coefficients Predicting DUIC Among Users of Cannabis**

	Standardized Coefficients (Significance, p)		
	Survey #1 (n=182, R <sup>2</sup> =0.89)	Survey #2 (n=227, R <sup>2</sup> =0.76)	Survey #3 (n=517, R <sup>2</sup> =0.78)
Q7. How often do you drive	0.072 (0.007)	---	0.104 (0.0001)
Q8. How often do you use	0.102 (0.005)	0.250 (0.0001)	0.119 (0.0001)
Intention/Willingness	0.773 (0.0001)	0.702 (0.0001)	0.733 (0.0001)
Control	0.106 (.012)	---	0.110 (0.0001)

### 3.4.3.2 Predicting Intention/Willingness Among Users of Cannabis

Models predicting Intention/Willingness were created following the behavioral model. Prototypical Image did not contribute to the predictive ability of the model and was removed. Table 12 shows the standardized regression coefficients for the three models.

In general, the models performed well predicting 76 percent, 61 percent, and 58 percent of the variation, respectively in each survey. In each model, attitude, perceived norms (both injunctive and descriptive) and control predicted intention/willingness. These results indicate that multiple beliefs are involved (in similar proportion) to predicting intention/willingness.



**Table 12. Standardized Coefficients Predicting Intention/Willingness Among Users of Cannabis**

	Standardized Coefficients (Significance, p)		
	Survey #1 (n=182, R <sup>2</sup> =0.76)	Survey #2 (n=227, R <sup>2</sup> =0.61)	Survey #3 (n=517, R <sup>2</sup> =0.58)
Attitude	0.299 (0.0001)	0.340 (0.0001)	0.344 (0.0001)
Injunctive Norm	0.232 (0.0001)	0.115 (0.042)	0.151 (0.0001)
Descriptive Norm	--	0.183 (0.0001)	0.169 (0.0001)
Control	0.489 (0.0001)	0.363 (0.0001)	0.305 (0.0001)

### 3.4.3.3 Correlations Between Behavioral Beliefs and Attitude Among Users of Cannabis

As was shown in the previous models, attitudes about DUIC predict intention / willingness to a significant degree. Knowing this, the correlation between various behavioral beliefs about driving under the influence of cannabis and attitude can be examined. This provides a greater understanding of beliefs that inform attitudes.

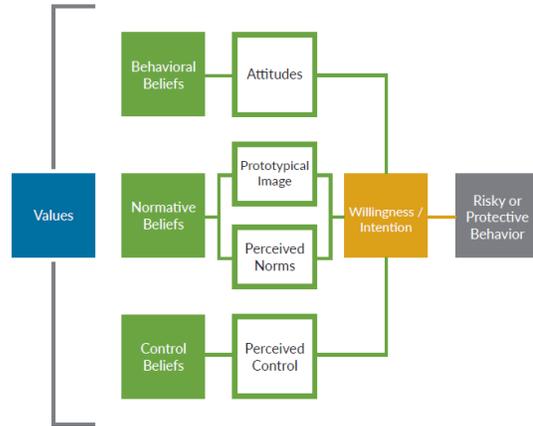


Table 13 shows the correlation coefficients between six behavioral beliefs (three beliefs with positive expectancies and three beliefs with negative expectancies) and attitude for each of the three surveys (among users of cannabis). All correlations were statistically significant at very high levels ( $p < 0.000001$ ).

As expected, the beliefs with positive expectancies are positively correlated with attitude, and those with negative expectancies are negatively correlated with attitude. The magnitude of the correlation coefficients is similar for all beliefs.

**Table 13. Pearson Correlation Coefficients Between Behavioral Beliefs and Attitude Among Users of Cannabis**

Behavioral Beliefs	Pearson Correlation Coefficient with Attitude ( $p < 0.000001$ )		
	Survey #1 (n=182)	Survey #2 (n=227)	Survey #3 (n=517)
Q25A. "If I drive after using marijuana, I will feel calmer."-You	.664	.656	.678
Q26A. "If I drive after using marijuana, I will be more alert."-You	.719	.596	.589
Q27A. "If I drive after using marijuana, I will be more cautious." -You	.475	.536	.507
Q28A. "If I drive after using marijuana, I will be more likely to get arrested."-You	-.400	-.535	-.425
Q29A. "If I drive after using marijuana, my reaction time will be slower."-You	-.640	-.538	-.591
Q30A. "If I drive after using marijuana, I am more likely to be in an accident."-You	-.638	-.559	-.617

### 3.4.3.4 Correlations Between Normative Beliefs and the Injunctive Norm Among Users of Cannabis

As was shown in the previous models, the injunctive norm about DUI predicted intention / willingness to a significant degree. Knowing this, the correlation between various normative beliefs about driving under the influence of cannabis and the injunctive norm can be examined. This provides a greater understanding of beliefs that inform the injunctive norm.

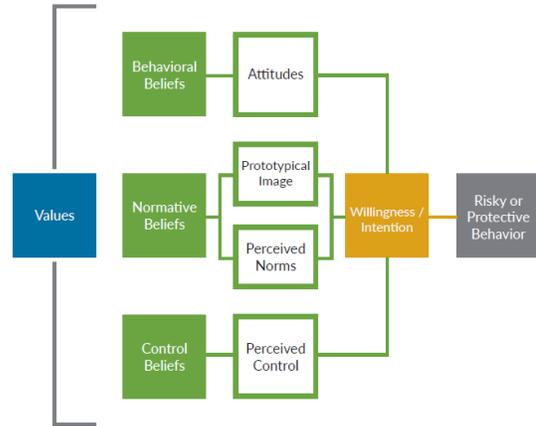


Table 14 shows the correlation coefficients between five normative beliefs (each with different referent groups) and the injunctive norm for each of the three surveys (among users of cannabis). All correlations were statistically significant at very high levels ( $p < 0.000002$ ).

The normative beliefs of those with closer social proximity to an individual (i.e., a person is typically more socially connected to their friends or family than law enforcement or their employer) had a stronger correlation with the injunctive norm.

**Table 14. Pearson Correlation Coefficients Between Normative Beliefs and Injunctive Norm Among Users of Cannabis**

Normative Beliefs	Pearson Correlation Coefficient with Injunctive Norm ( $p < 0.000002$ )		
	Survey #1 (n=182)	Survey #2 (n=227)	Survey #3 (n=517)
Q33. " <u>My friends</u> would think it was OK if I drove after using marijuana."	.721	.636	.665
Q34. " <u>My family</u> would think it was OK if I drove after using marijuana."	.562	.676	.721
Q35. " <u>My employer</u> would think it was OK if I drove after using marijuana."	.539	---	.531
Q36. " <u>Law enforcement</u> in my community would think it was OK if people drove after using marijuana."	.350	.356	.409
Q37. " <u>Most people</u> in my community think it is OK to drive after using marijuana."	.668	.581	.615

### **3.5 Comparing the Culture Between States With and Without Legal Recreational Cannabis Use**

Respondents were divided into two groups: those that lived in Colorado or Washington (states where recreational use is “legal”) and those that lived in all other states (states where recreational use is “illegal”). The mean responses (i.e., averages) for each group were compared using T-tests to see if they were statistically significantly different. This process was repeated for all questions on the survey. These comparisons are provided in Appendix E (Survey #1) and Appendix F (Surveys #2 and #3).

To summarize the differences in the two groups, the means of the scales were compared and summarized in a single table.

#### **3.5.1 Survey #1 (age 25 and older)**

The results in this section are for Survey #1 – the mailed survey of all states, respondents age 25 and older. The number of respondents on Survey #1 age 21 to 24 in states where recreational cannabis use is illegal was very small. Therefore, the age was restricted to those age 25 and older. This age restriction is important to note as use of cannabis (and therefore DUIC) varies with age.

As shown in Table 15, the scales are not significantly different between states with legalized recreational use laws and states without recreational use laws among those age 25 and older. Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These results are confirmed by the detailed question-by-question comparisons provided in Appendix E. These preliminary results show that for individuals age 25 and older, the difference in the recreational use law does not correspond to a difference in beliefs and attitudes about DUIC. However, conducting additional analyses to better account for potential confounding factors is recommended.

**Table 15. Comparison of Means Between States With Legalized Recreational Use and States Without Legalized Recreational Use (Survey #1, Age 25 and Older)**

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
<b>DUI Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	1.28	1.38	NS
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	1.28	1.45	NS
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	2.52	2.49	NS
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	1.88	1.95	NS
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	4.00	3.79	NS
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+ Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	3.01	3.13	NS
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+ Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	5.00	4.93	NS
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	2.16	2.19	NS
<b>Descriptive Norm</b> =(Q14+Q15)/2	3.72	3.55	NS
<b>Control</b> =(Q44A+Q44B+Q44C)/3	1.64	1.63	NS

a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 3.5.2 Survey #2 and Survey #3 Among Cannabis Users

The results in this section are for Survey #2 – the internet survey of all states excluding Colorado and Washington, respondents age 18 to 30 who reported using cannabis in the past 12 months as well as respondents to Survey #3 – the internet survey of Colorado and Washington, respondents age 18 to 30 who are users of cannabis.

As shown in Table 15, most of the scales are not significantly different between states with legalized recreational use laws and states without recreational use laws among those age 18 to 30 who use cannabis. Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These results are confirmed by the detailed question-by-question comparisons provided in Appendix F. These results show that for individuals age 18 to 30 who use cannabis, the difference in the recreational use law does not correspond to a difference in beliefs and attitudes about DUIC. However, conducting additional analyses to better account for potential confounding factors is recommended.

**Table 16. Comparison of Means Between States With Legalized Recreational Use and States Without Legalized Recreational Use Among Users of Cannabis (Surveys #2 and #3)**

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
<b>DUIC Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	2.68	2.69	NS
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	2.46	2.61	NS
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	4.39	4.45	NS
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	3.00	3.46	*
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	4.12	4.50	*
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	3.68	3.96	*
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	4.89	4.72	NS
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	3.30	3.38	NS
<b>Descriptive Norm</b> =(Q14+Q15)/2	5.00	4.96	NS
<b>Control</b> =(Q44A+Q44B+Q44C)/3	3.79	3.79	NS

a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### **3.6 Comparing the Culture Between States With and Without Legal Medical Cannabis Use**

Respondents were divided into two groups: those that lived in states with legalized medical use of cannabis (medical use “legal”) and those that lived in all other states (medical use “illegal”). Individuals living in Colorado and Washington were removed from this analysis. The means of each scale for each group were compared using T-tests to see if they were statistically significantly different.

The same process was used to compare the respondents to Survey #2.

#### **3.6.1 Survey #1**

The results in this section are for Survey #1 – the mailed survey of all states, respondents age 25 and older. The number of respondents on Survey #1 age 21 to 24 in states where medical cannabis use is legal was very small. Therefore, the age was restricted to those age 25 and older. This age restriction is important to note as use of cannabis (and therefore DUIC) varies with age.

As shown in Table 17, the scales are not significantly different between states with legalized medical use laws and states without medical use laws among those age 25 and older (excluding Colorado and Washington). Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These preliminary results show that for individuals age 25 and older, the difference in the medical use law does not correspond to a difference in beliefs and attitudes about DUIC. However, conducting additional analyses to better account for potential confounding factors is recommended.

**Table 17. Comparison of Means Between States With Legalized Medical Use and States Without Legalized Medical Use (Survey #1, Age 25 and Older, Excluding CO and WA)**

	Means <sup>a</sup>		Significance
	Legal (n=146)	Illegal (n=209)	
<b>DUI Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	1.42	1.36	NS
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	1.62	1.35	NS
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	2.43	2.51	NS
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	1.87	2.01	NS
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	3.84	3.74	NS
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+ Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	3.08	3.20	NS
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+ Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	4.96	4.88	NS
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	2.29	2.14	NS
<b>Descriptive Norm</b> =(Q14+Q15)/2	3.55	3.52	NS
<b>Control</b> =(Q44A+Q44B+Q44C)/3	1.65	1.62	NS

a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 3.6.2 Survey #2

The results in this section are for Survey #2 – the internet survey of all states excluding Colorado and Washington, respondents age 18 to 30.

As shown in Table 18, the scales are not significantly different between states with legalized medical use laws and states without medical use laws among those age 18 to 30 (excluding Colorado and Washington). Larger values of the scale indicate a higher risk for DUIC behavior (with the exception of Prototypical Image (never) for which a lower value is associated with greater risk). These results show that for individuals age 18 to 30, the difference in the medical use law does not correspond to a difference in beliefs and attitudes about DUIC. However, conducting additional analyses to better account for potential confounding factors is recommended.

**Table 18. Comparison of Means Between States With Legalized Medical Use and States Without Legalized Medical Use (Survey #2, Excluding CO and WA)**

	Means <sup>a</sup>		Significance
	Legal (n=263)	Illegal (n=449)	
<b>DUIC Behavior</b> Q13. Thinking back over the past 12 months, how often did you drive within four hours of using marijuana? (1= never; 7= daily)	1.61	1.50	NS
<b>Intention</b> Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana? (1= never; 7= daily)	1.68	1.49	NS
<b>Willingness</b> =(Q18A+Q18B+Q18C+Q18D+Q18E+Q18F)/6	3.00	2.81	NS
<b>Attitude</b> =(Q23A_rev+Q23B+Q23C+Q23D_rev+Q23E_rev)/5	2.36	2.33	NS
<b>Perceived Attitude</b> =(Q24A_rev+Q24B+Q24C+Q24D_rev+Q24E_rev)/5	4.05	4.01	NS
<b>Prototypical Image (always)</b> =(Q31A_rev+Q31B_rev+Q31C+Q31D+ Q31E_rev +Q31F +Q31G_rev+Q31H+Q31I_rev+Q31J+Q31K+Q31L_rev)/12	3.20	3.18	NS
<b>Prototypical Image (never)</b> =(Q32A_rev+Q32B_rev+Q32C+Q32D+Q32E_rev +Q32F+Q32G_rev+Q32H+Q32I_rev+Q32J+Q32K+Q32L_rev)/12	5.00	5.08	NS
<b>Injunctive Norm</b> =(Q38+Q40_rev)/2	2.54	2.37	NS
<b>Descriptive Norm</b> =(Q14+Q15)/2	3.83	3.77	NS
<b>Control</b> =(Q44A+Q44B+Q44C)/3	2.23	2.04	NS

a. Scales range from 1 to 7 (higher number is greater risk)

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 4 CONCLUSIONS

Three surveys were successfully implemented that provide additional understanding into the culture around driving under the influence of cannabis (DUIC). The relative frequency analysis provided an initial understanding into the range of values, beliefs, and attitudes about DUIC.

Additional analyses were able to answer four questions about DUIC:

- How does culture compare between users and non-users of cannabis?
  - All three surveys showed significant differences in beliefs and attitudes about DUIC between users and non-users of cannabis.
- How does culture affect the decision to drive under the influence of cannabis?
  - All three surveys showed significant differences in beliefs and attitudes about DUIC between those who engage in DUIC and those who do not among users of cannabis.
  - Regression models showed that the behavioral model was effective at predicting DUIC, that intention/willingness are strong predictors of DUIC behavior, and that attitude, perceived norms and control are all predictors of intention/willingness. Furthermore, all six behavioral beliefs were strongly correlated with attitude, and several normative beliefs were correlated with the injunctive norm.
- How does culture compare between states with and without legalized recreational use laws?
  - Preliminary analyses did not reveal significant differences in values, beliefs, or attitudes between states with and without legalized recreational use of cannabis. However, additional analyses will be performed to account for potential confounding factors.
- How does culture compare between states with and without legalized medical use laws?
  - Preliminary analyses did not reveal significant differences in values, beliefs, or attitudes between states with and without legalized medical use of cannabis. However, additional analyses will be performed to account for potential confounding factors.

These initial results provide a strong foundation to better understand DUIC and provide recommendations to prevent this potentially risky behavior.

## 5 APPENDIX A

### 5.1 Comparing Means among Non-Users and Users of Cannabis for Survey #1

#### 5.1.1 Intention and Willingness

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana?	1.05	2.63	***

a. 1= Never; 7= Daily

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q18. Suppose you are in a situation where you have used marijuana within the past 4 hours. How willing would you be to:			
Drive in an emergency	2.86	5.99	***
Drive home on side streets	2.08	4.74	***
Drive home on the highway	1.82	4.14	***
Drive if you don't feel high	2.28	5.47	***
Drive even though you still feel high	1.70	3.79	***
Drive when you had also been drinking	1.58	2.18	***

a. 1= I would never use marijuana; 2= Not at all willing; 7= Extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q19. In your opinion, how willing would most people age 21 and older in your state be to:			
Drive in an emergency	5.36	5.83	**
Drive home on side streets	4.82	5.20	*
Drive home on the highway	4.29	4.40	NS
Drive if you don't feel high	5.29	5.89	**
Drive even though you still feel high	4.11	4.29	NS
Drive when you had also been drinking	3.75	3.14	**

a. 1= Most would be not at all willing; 7= Most would be extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001, NS= Not statistically significantly different

## 5.1.2 Attitudes and Behavioral Beliefs

### Attitudes

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q23. Please select one box on each row that best shows how you feel about driving after using marijuana.			
Cool:Uncool	6.56	5.21	***
Dangerous:Safe	1.63	3.32	***
Stupid:Sensible	1.54	3.10	***
Pleasant:Unpleasant	6.23	4.21	***
Acceptable:Unacceptable	6.49	4.57	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

### Perceived Attitudes

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q24. In your opinion, how would most people age 21 and older in your state feel about driving after using marijuana?			
Cool:Uncool	4.09	3.97	NS
Dangerous:Safe	3.73	4.08	NS
Stupid:Sensible	3.69	3.56	NS
Pleasant:Unpleasant	4.18	3.73	*
Acceptable:Unacceptable	4.01	3.74	NS

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Behavioral Beliefs (Actual and Perceived)

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q25A. "If I drive after using marijuana, I will feel calmer."-You	2.44	3.38	***
Q25B. "If I drive after using marijuana, I will feel calmer."-Most people age 21 and older in your state	4.21	4.26	NS
Q26A. "If I drive after using marijuana, I will be more alert."-You	1.88	2.84	***
Q26B. "If I drive after using marijuana, I will be more alert."-Most people age 21 and older in your state	3.49	3.54	NS
Q27A. "If I drive after using marijuana, I will be more cautious."-You	2.61	3.94	***
Q27B. "If I drive after using marijuana, I will be more cautious."-Most people age 21 and older in your state	3.82	4.45	**
Q28A. "If I drive after using marijuana, I will be more likely to get arrested."-You	5.46	4.53	***
Q28B. "If I drive after using marijuana, I will be more likely to get arrested."-Most people age 21 and older in your state	4.39	4.17	NS
Q29A. "If I drive after using marijuana, my reaction time will be slower."-You	6.04	4.89	***
Q29B. "If I drive after using marijuana, my reaction time will be slower."-Most people age 21 and older in your state	4.61	4.33	NS
Q30A. "If I drive after using marijuana, I am more likely to be in an accident."-You	5.66	3.96	***
Q30B. "If I drive after using marijuana, I am more likely to be in an accident."-Most people age 21 and older in your state	4.26	3.60	**

a. 1= Strongly Disagree; 7= Strongly Agree

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 5.1.3 Prototypical Image and Perceived Norms

#### Prototypical Image

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q31. Each row shows a range of feelings about the "typical" person who drives after using marijuana.			
Relaxed:Anxious	3.70	3.39	NS
Calm:Manic	3.58	2.97	**
Distracted:Focused	2.59	3.86	***
Self-involved:Concerned about others	2.50	3.85	***
Cautious:Reckless	5.07	3.23	***
Stupid:Smart	2.34	3.41	***
Safe:Unsafe	5.71	4.24	***
Paranoid:Confident	3.20	3.45	NS
Cool:Uncool	5.19	4.40	***
Risk-taker:Cautious	2.52	4.03	***
Irresponsible:Responsible	2.17	3.46	***
Lawful:Unlawful	5.97	4.69	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q32. Each row shows a range of feelings about the "typical" person who NEVER drives after using marijuana.			
Relaxed:Anxious	2.82	3.85	***
Calm:Manic	2.68	3.56	***
Distracted:Focused	4.56	3.72	***
Self-involved:Concerned about others	4.74	4.01	**
Cautious:Reckless	2.88	3.45	**
Stupid:Smart	5.13	4.27	***
Safe:Unsafe	2.83	3.44	**
Paranoid:Confident	4.84	4.44	*
Cool:Uncool	3.24	3.66	*
Risk-taker:Cautious	5.09	4.51	**
Irresponsible:Responsible	5.33	4.79	**
Lawful:Unlawful	2.62	3.09	*

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Perceived Norms

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q38. "Most people who are important to me think it is OK to drive after using marijuana." <sup>b</sup>	1.80	3.43	***
Q40. "Most people who are important to me expect me not to drive after using marijuana." <sup>b</sup>	5.99	5.17	***
Q14. In your opinion, how often did most people like you in your state drive within four hours of using marijuana? <sup>c</sup>	2.69	4.45	***
Q15. In your opinion, how often did most people age 21 and older in your state drive within four hours of using marijuana? <sup>c</sup>	3.94	4.78	**

a. Responses range from 1 to 7. b. 1= Strongly Disagree; 7= Strongly Agree. c. 1= Never; 7= Daily.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

Normative Beliefs

	Means <sup>a</sup>		Significance
	Non-Users (n=624)	Users (n=182)	
Q33. "My friends would think it was OK if I drove after using marijuana."	2.39	4.35	***
Q34. "My family would think it was OK if I drove after using marijuana."	1.73	2.85	***
Q35. "My employer would think it was OK if I drove after using marijuana."	1.44	2.42	***
Q36. "Law enforcement in my community would think it was OK if people drove after using marijuana."	1.37	1.73	**
Q37. "Most people in my community think it is OK to drive after using marijuana."	2.53	3.49	***
Q39. "Most people in my community expect people not to drive after using marijuana."	5.40	4.86	**

a. 1= Strongly Disagree; 7= Strongly Agree.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

5.1.4 Perceived Control, Control Beliefs, and Knowledge of State Laws

Perceived Control and Control Beliefs

	Means		Significance
	Non-Users (n=624)	Users (n=182)	
Q41. "It's up to me whether I drive after using marijuana." <sup>a</sup>	4.81	5.92	***
Q42. "If I really wanted to, I could choose to never drive after using marijuana." <sup>a</sup>	6.31	6.22	NS
Q43. "Situations come up that are out of my control that require me to drive after using marijuana." <sup>a</sup>	2.58	3.35	**
Q44. How likely are you to find yourself in the following situations within four hours of using marijuana? <sup>b</sup>			
Needing to drive to work or school	1.22	2.76	***
Needing to drive to run errands	1.24	3.65	***
Needing to drive home (when out or at a party)	1.28	3.94	***
Q47. Before deciding to use marijuana, how likely are you to think about whether you will need to drive? <sup>b</sup>	1.71	6.14	***

a. 1= Strongly Disagree; 7= Strongly Agree. b. 1= I don't use marijuana; 2= Extremely Unlikely; 7= Extremely Likely  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Knowledge of the Law

	Non-Users (n=624)			Users (n=182)		
	Legal	Illegal	IDK	Legal	Illegal	IDK
Q20. Is recreational use of marijuana by adults age 21 and older legal or illegal in your state?	50.7%	43.7%	5.6%	69.6%	28.7%	1.7%
Q21. Is medicinal use of marijuana by adults age 21 and older legal or illegal in your state?	63.8%	20.9%	15.3%	81.7%	17.2%	1.1%
Q22. Is driving under the influence of marijuana legal or illegal in your state?	1.6%	81.3%	17.1%	1.1%	81.7%	17.2%

IDK= I don't know

### 5.1.5 Values and Concern for Traffic Safety

#### Values

	Means		Significance
	Non-Users (n=624)	Users (n=182)	
Broad-mindedness	6.73	7.52	***
Helpfulness	8.07	7.91	NS
Conformity	6.89	5.04	***
Tradition	6.33	5.21	***
Security	7.19	6.01	***
Power	4.01	3.48	**
Achievement	5.99	5.99	NS
Enjoyment in life	5.72	6.69	***
Stimulation	5.15	6.61	***
Self-direction	7.14	7.92	***

a. 1= Opposed to my principles; 9= Of supreme importance

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

#### Concern for Traffic Safety

	Means		Significance
	Non-Users (n=624)	Users (n=182)	
Q4. How concerned are you about safety on roads and highways? <sup>a</sup>	6.17	5.59	***
Q5. "I believe the only acceptable number of deaths and serious injuries on our roadways is zero." <sup>b</sup>	5.14	4.79	NS
Q6. "I believe the only acceptable number of deaths and serious injuries among my family and friends on our roadways is zero." <sup>b</sup>	5.67	5.47	NS

a. 1= Not at all Concerned; 7= Extremely Concerned b. 1= Strongly Disagree; 7= Strongly Agree.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 6 APPENDIX B

### 6.1 Comparing Means among Non-Users and Users of Cannabis for Surveys #2 and #3.

#### 6.1.1 Intention and Willingness

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana?	1.07	2.50	***

a. 1= Never; 7= Daily

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q18. Suppose you are in a situation where you have used marijuana within the past 4 hours. How willing would you be to:			
Drive in an emergency	3.07	6.22	***
Drive home on side streets	2.24	4.77	***
Drive home on the highway	1.87	3.98	***
Drive if you don't feel high	2.36	5.48	***
Drive even though you still feel high	1.77	3.74	***
Drive when you had also been drinking	1.58	2.26	***

a. 1= I would never use marijuana; 2= Not at all willing; 7= Extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q19. In your opinion, how willing would most people age 21 and older in your state be to:			
Drive in an emergency	5.32	5.85	***
Drive home on side streets	4.62	5.29	***
Drive home on the highway	3.84	4.53	***
Drive if you don't feel high	5.05	5.71	***
Drive even though you still feel high	3.84	4.51	***
Drive when you had also been drinking	3.41	3.34	NS

a. 1= Most would be not at all willing; 7= Most would be extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 6.1.2 Attitudes and Behavioral Beliefs

### Attitudes

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q23. Please select one box on each row that best shows how you feel about driving after using marijuana.			
Cool:Uncool	6.32	5.13	***
Dangerous:Safe	1.86	3.11	***
Stupid:Sensible	1.70	2.99	***
Pleasant:Unpleasant	5.97	4.49	***
Acceptable:Unacceptable	6.16	4.77	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

### Perceived Attitudes

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q24. In your opinion, how would most people age 21 and older in your state feel about driving after using marijuana?			
Cool:Uncool	4.05	3.63	**
Dangerous:Safe	3.61	4.02	**
Stupid:Sensible	3.52	3.90	**
Pleasant:Unpleasant	4.04	3.57	**
Acceptable:Unacceptable	4.05	3.55	**

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Behavioral Beliefs (Actual and Perceived)

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q25A. "If I drive after using marijuana, I will feel calmer."-You	2.21	3.58	***
Q25B. "If I drive after using marijuana, I will feel calmer."-Most people age 21 and older in your state	4.30	4.66	**
Q26A. "If I drive after using marijuana, I will be more alert."-You	1.83	3.24	***
Q26B. "If I drive after using marijuana, I will be more alert."-Most people age 21 and older in your state	3.52	3.98	***
Q27A. "If I drive after using marijuana, I will be more cautious."-You	2.31	4.36	***
Q27B. "If I drive after using marijuana, I will be more cautious."-Most people age 21 and older in your state	3.85	4.75	***
Q28A. "If I drive after using marijuana, I will be more likely to get arrested."-You	5.88	5.24	***
Q28B. "If I drive after using marijuana, I will be more likely to get arrested."-Most people age 21 and older in your state	4.78	4.76	NS
Q29A. "If I drive after using marijuana, my reaction time will be slower."-You	5.96	5.03	***
Q29B. "If I drive after using marijuana, my reaction time will be slower."-Most people age 21 and older in your state	4.54	4.44	NS
Q30A. "If I drive after using marijuana, I am more likely to be in an accident."-You	5.85	4.50	***
Q30B. "If I drive after using marijuana, I am more likely to be in an accident."-Most people age 21 and older in your state	4.41	3.98	**

a. 1= Strongly Disagree; 7= Strongly Agree

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 6.1.3 Prototypical Image and Perceived Norms

#### Prototypical Image

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q31. Each row shows a range of feelings about the "typical" person who drives after using marijuana.			
Relaxed:Anxious	4.07	3.58	**
Calm:Manic	3.89	3.22	***
Distracted:Focused	2.71	3.83	***
Self-involved:Concerned about others	2.69	3.77	***
Cautious:Reckless	5.10	3.62	***
Stupid:Smart	2.34	3.47	***
Safe:Unsafe	5.62	4.48	***
Paranoid:Confident	3.26	3.49	NS
Cool:Uncool	5.27	4.46	***
Risk-taker:Cautious	2.60	3.73	***
Irresponsible:Responsible	2.23	3.40	***
Lawful:Unlawful	5.98	5.10	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q32. Each row shows a range of feelings about the "typical" person who NEVER drives after using marijuana.			
Relaxed:Anxious	2.75	3.28	**
Calm:Manic	2.56	3.08	***
Distracted:Focused	5.03	4.58	**
Self-involved:Concerned about others	4.98	4.38	***
Cautious:Reckless	2.65	3.12	**
Stupid:Smart	5.22	4.89	*
Safe:Unsafe	2.63	2.89	*
Paranoid:Confident	4.90	4.66	NS
Cool:Uncool	3.05	3.37	*
Risk-taker:Cautious	5.26	4.93	*
Irresponsible:Responsible	5.28	5.09	NS
Lawful:Unlawful	2.60	2.74	NS

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Perceived Norms

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q38. "Most people who are important to me think it is OK to drive after using marijuana." <sup>b</sup>	1.94	3.63	***
Q40. "Most people who are important to me expect me not to drive after using marijuana." <sup>b</sup>	5.96	4.97	***
Q14. In your opinion, how often did most people like you in your state drive within four hours of using marijuana? <sup>c</sup>	2.90	4.88	***
Q15. In your opinion, how often did most people age 21 and older in your state drive within four hours of using marijuana? <sup>c</sup>	3.60	5.08	***

a. Responses range from 1 to 7. b. 1= Strongly Disagree; 7= Strongly Agree. c. 1= Never; 7= Daily.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

Normative Beliefs

	Means <sup>a</sup>		Significance
	Non-Users (n=485)	Users (n=744)	
Q33. "My friends would think it was OK if I drove after using marijuana."	2.59	4.69	***
Q34. "My family would think it was OK if I drove after using marijuana."	1.65	2.85	***
Q35. "My employer would think it was OK if I drove after using marijuana."	3.63	2.70	***
Q36. "Law enforcement in my community would think it was OK if people drove after using marijuana."	1.50	1.87	***
Q37. "Most people in my community think it is OK to drive after using marijuana."	2.63	3.68	***
Q39. "Most people in my community expect people not to drive after using marijuana."	5.41	4.90	***

a. 1= Strongly Disagree; 7= Strongly Agree.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

6.1.4 Perceived Control, Control Beliefs, and Knowledge of State Laws

Perceived Control and Control Beliefs

	Means		Significance
	Non-Users (n=485)	Users (n=744)	
Q41. "It's up to me whether I drive after using marijuana." <sup>a</sup>	5.02	6.00	***
Q42. "If I really wanted to, I could choose to never drive after using marijuana." <sup>a</sup>	6.13	6.27	NS
Q43. "Situations come up that are out of my control that require me to drive after using marijuana." <sup>a</sup>	2.78	4.15	***
Q44. How likely are you to find yourself in the following situations within four hours of using marijuana? <sup>b</sup>			
Needing to drive to work or school	1.29	3.28	***
Needing to drive to run errands	1.32	3.89	***
Needing to drive home (when out or at a party)	1.38	4.20	***
Q47. Before deciding to use marijuana, how likely are you to think about whether you will need to drive? <sup>b</sup>	2.03	5.78	***

a. 1= Strongly Disagree; 7= Strongly Agree. b. 1= I don't use marijuana; 2= Extremely Unlikely; 7= Extremely Likely  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Knowledge of the Law

	Non-Users (n=485)			Users (n=744)		
	Legal	Illegal	IDK	Legal	Illegal	IDK
Q20. Is recreational use of marijuana by adults age 21 and older legal or illegal in your state?	2.3%	86.4%	11.3%	71.4%	26.7%	1.9%
Q21. Is medicinal use of marijuana by adults age 21 and older legal or illegal in your state?	25.1%	40.7%	34.2%	79.7%	12.8%	7.5%
Q22. Is driving under the influence of marijuana legal or illegal in your state?	.8%	82.7%	16.5%	2.0%	85.9%	12.1%

IDK= I don't know

### 6.1.5 Values and Concern for Traffic Safety

#### Values

	Means		Significance
	Non-Users (n=485)	Users (n=744)	
Broad-mindedness	6.72	7.09	*
Helpfulness	7.80	7.67	NS
Conformity	5.89	5.21	**
Tradition	5.92	5.39	**
Security	6.76	6.09	***
Power	4.47	4.40	NS
Achievement	6.57	6.68	NS
Enjoyment in life	7.19	7.61	**
Stimulation	6.09	6.60	**
Stimulation	7.03	7.42	**

a. 1= Opposed to my principles; 9= Of supreme importance

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

#### Concern for Traffic Safety

	Means		Significance
	Non-Users (n=485)	Users (n=744)	
Q4. How concerned are you about safety on roads and highways? <sup>a</sup>	5.59	5.45	NS
Q5. "I believe the only acceptable number of deaths and serious injuries on our roadways is zero." <sup>b</sup>	5.39	5.19	NS
Q6. "I believe the only acceptable number of deaths and serious injuries among my family and friends on our roadways is zero." <sup>b</sup>	6.16	5.95	NS

a. 1= Not at all Concerned; 7= Extremely Concerned b. 1= Strongly Disagree; 7= Strongly Agree.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 7 APPENDIX C

### 7.1 Comparing Means Between Non-DUIC and DUIC Among Cannabis Users for Survey #1

#### 7.1.1 Intention and Willingness

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana?	1.04	4.79	***

a. 1= Never; 7= Daily

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q18. Suppose you are in a situation where you have used marijuana within the past 4 hours. How willing would you be to:			
Drive in an emergency	5.01	7.31	***
Drive home on side streets	3.19	6.84	***
Drive home on the highway	2.43	6.47	***
Drive if you don't feel high	4.21	7.18	***
Drive even though you still feel high	2.53	5.54	***
Drive when you had also been drinking	2.15	2.22	NS

a. 1= I would never use marijuana; 2= Not at all willing; 7= Extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q19. In your opinion, how willing would most people age 21 and older in your state be to:			
Drive in an emergency	5.43	6.36	**
Drive home on side streets	4.59	6.00	***
Drive home on the highway	3.83	5.16	***
Drive if you don't feel high	5.57	6.32	**
Drive even though you still feel high	3.92	4.79	**
Drive when you had also been drinking	3.01	3.30	NS

a. 1= Most would be not at all willing; 7= Most would be extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 7.1.2 Attitudes and Behavioral Beliefs

### Attitudes

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q23. Please select one box on each row that best shows how you feel about driving after using marijuana.			
Cool:Uncool	5.73	4.51	***
Dangerous:Safe	2.31	4.67	***
Stupid:Sensible	2.23	4.26	***
Pleasant:Unpleasant	4.82	3.39	***
Acceptable:Unacceptable	5.53	3.28	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

### Perceived Attitudes

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q24. In your opinion, how would most people age 21 and older in your state feel about driving after using marijuana?			
Cool:Uncool	4.27	3.58	**
Dangerous:Safe	3.72	4.55	**
Stupid:Sensible	3.25	3.97	**
Pleasant:Unpleasant	4.04	3.32	**
Acceptable:Unacceptable	4.12	3.23	**

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Behavioral Beliefs (Actual and Perceived)

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q25A. "If I drive after using marijuana, I will feel calmer."-You	2.51	4.51	***
Q25B. "If I drive after using marijuana, I will feel calmer."-Most people age 21 and older in your state	3.89	4.74	**
Q26A. "If I drive after using marijuana, I will be more alert."-You	2.08	3.81	***
Q26B. "If I drive after using marijuana, I will be more alert."-Most people age 21 and older in your state	3.27	3.90	*
Q27A. "If I drive after using marijuana, I will be more cautious."-You	3.25	4.83	***
Q27B. "If I drive after using marijuana, I will be more cautious."-Most people age 21 and older in your state	4.19	4.80	*
Q28A. "If I drive after using marijuana, I will be more likely to get arrested."-You	4.95	3.97	**
Q28B. "If I drive after using marijuana, I will be more likely to get arrested."-Most people age 21 and older in your state	4.25	4.06	NS
Q29A. "If I drive after using marijuana, my reaction time will be slower."-You	5.54	4.03	***
Q29B. "If I drive after using marijuana, my reaction time will be slower."-Most people age 21 and older in your state	4.48	4.12	NS
Q30A. "If I drive after using marijuana, I am more likely to be in an accident."-You	4.67	3.02	***
Q30B. "If I drive after using marijuana, I am more likely to be in an accident."-Most people age 21 and older in your state	3.78	3.36	NS

a. 1= Strongly Disagree; 7= Strongly Agree

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 7.1.3 Prototypical Image and Perceived Norms

#### Prototypical Image

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q31. Each row shows a range of feelings about the "typical" person who drives after using marijuana.			
Relaxed:Anxious	3.62	3.10	NS
Calm:Manic	3.17	2.70	*
Distracted:Focused	3.48	4.35	**
Self-involved:Concerned about others	3.46	4.36	**
Cautious:Reckless	3.49	2.90	NS
Stupid:Smart	3.03	3.94	**
Safe:Unsafe	4.66	3.67	**
Paranoid:Confident	3.22	3.77	*
Cool:Uncool	4.67	4.03	**
Risk-taker:Cautious	3.54	4.69	**
Irresponsible:Responsible	3.06	3.99	**
Lawful:Unlawful	5.24	3.96	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q32. Each row shows a range of feelings about the "typical" person who NEVER drives after using marijuana.			
Relaxed:Anxious	3.50	4.31	**
Calm:Manic	3.14	4.13	**
Distracted:Focused	3.89	3.50	NS
Self-involved:Concerned about others	4.32	3.59	**
Cautious:Reckless	3.19	3.80	*
Stupid:Smart	4.57	3.88	*
Safe:Unsafe	3.13	3.85	*
Paranoid:Confident	4.67	4.12	NS
Cool:Uncool	3.35	4.09	**
Risk-taker:Cautious	4.74	4.21	NS
Irresponsible:Responsible	5.14	4.31	**
Lawful:Unlawful	2.78	3.51	*

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Perceived Norms

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q38. "Most people who are important to me think it is OK to drive after using marijuana." <sup>b</sup>	2.52	4.67	***
Q40. "Most people who are important to me expect me not to drive after using marijuana." <sup>b</sup>	5.85	4.24	***
Q14. In your opinion, how often did most people like you in your state drive within four hours of using marijuana? <sup>c</sup>	3.54	5.67	***
Q15. In your opinion, how often did most people age 21 and older in your state drive within four hours of using marijuana? <sup>c</sup>	4.01	5.80	***

a. Responses range from 1 to 7. b. 1= Strongly Disagree; 7= Strongly Agree. c. 1= Never; 7= Daily.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

Normative Beliefs

	Means <sup>a</sup>		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q33. "My friends would think it was OK if I drove after using marijuana."	3.54	5.45	***
Q34. "My family would think it was OK if I drove after using marijuana."	2.38	3.47	**
Q35. "My employer would think it was OK if I drove after using marijuana."	1.97	3.01	**
Q36. "Law enforcement in my community would think it was OK if people drove after using marijuana."	1.54	1.98	*
Q37. "Most people in my community think it is OK to drive after using marijuana."	3.00	4.19	**
Q39. "Most people in my community expect people not to drive after using marijuana."	5.23	4.35	**

a. 1= Strongly Disagree; 7= Strongly Agree.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

7.1.4 Perceived Control, Control Beliefs, and Knowledge of State Laws

Perceived Control and Control Beliefs

	Means		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q41. "It's up to me whether I drive after using marijuana." <sup>a</sup>	5.66	6.29	*
Q42. "If I really wanted to, I could choose to never drive after using marijuana." <sup>a</sup>	6.47	5.90	**
Q43. "Situations come up that are out of my control that require me to drive after using marijuana." <sup>a</sup>	3.25	3.46	NS
Q44. How likely are you to find yourself in the following situations within four hours of using marijuana? <sup>b</sup>			
Needing to drive to work or school	2.14	3.60	***
Needing to drive to run errands	2.51	5.22	***
Needing to drive home (when out or at a party)	3.00	5.25	***
Q47. Before deciding to use marijuana, how likely are you to think about whether you will need to drive? <sup>b</sup>	6.62	5.49	**

a. 1= Strongly Disagree; 7= Strongly Agree. b. 1= I don't use marijuana; 2= Extremely Unlikely; 7= Extremely Likely  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Knowledge of the Law

	No DUIC (n=105)			DUIC (n=77)		
	Legal	Illegal	IDK	Legal	Illegal	IDK
Q20. Is recreational use of marijuana by adults age 21 and older legal or illegal in your state?	81.6%	17.5%	1.0%	53.2%	44.2%	2.6%
Q21. Is medicinal use of marijuana by adults age 21 and older legal or illegal in your state?	86.3%	12.7%	1.0%	75.3%	23.4%	1.3%
Q22. Is driving under the influence of marijuana legal or illegal in your state?	1.0%	83.5%	15.5%	1.3%	79.2%	19.5%

IDK= I don't know

### 7.1.5 Values and Concern for Traffic Safety

#### Values

	Means		Significance
	No DUIC (n=105)	DUIC (n=77)	
Broad-mindedness	7.54	7.48	NS
Helpfulness	8.01	7.79	NS
Conformity	4.99	5.08	NS
Tradition	5.11	5.32	NS
Security	5.81	6.28	NS
Power	3.75	3.11	NS
Achievement	6.10	5.84	NS
Enjoyment in life	6.70	6.69	NS
Stimulation	6.40	6.96	NS
Self-direction	7.82	8.05	NS

a. 1= Opposed to my principles; 9= Of supreme importance

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

#### Concern for Traffic Safety

	Means		Significance
	No DUIC (n=105)	DUIC (n=77)	
Q4. How concerned are you about safety on roads and highways? <sup>a</sup>	5.54	5.66	NS
Q5. "I believe the only acceptable number of deaths and serious injuries on our roadways is zero." <sup>b</sup>	4.88	4.66	NS
Q6. "I believe the only acceptable number of deaths and serious injuries among my family and friends on our roadways is zero." <sup>b</sup>	5.77	5.07	*

a. 1= Not at all Concerned; 7= Extremely Concerned b. 1= Strongly Disagree; 7= Strongly Agree.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 8 APPENDIX D

### 8.1 Comparing Means Between Non-DUIC and DUIC Among Users of Cannabis For Surveys #2 and #3

#### 8.1.1 Intention and Willingness

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana?	1.21	3.71	***

a. 1= Never; 7= Daily

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q18. Suppose you are in a situation where you have used marijuana within the past 4 hours. How willing would you be to:			
Drive in an emergency	5.33	7.04	***
Drive home on side streets	3.29	6.15	***
Drive home on the highway	2.61	5.25	***
Drive if you don't feel high	4.11	6.75	***
Drive even though you still feel high	2.56	4.84	***
Drive when you had also been drinking	2.02	2.49	***

a. 1= I would never use marijuana; 2= Not at all willing; 7= Extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q19. In your opinion, how willing would most people age 21 and older in your state be to:			
Drive in an emergency	5.57	6.12	**
Drive home on side streets	4.67	5.87	***
Drive home on the highway	3.94	5.09	***
Drive if you don't feel high	5.31	6.08	***
Drive even though you still feel high	4.01	4.98	***
Drive when you had also been drinking	3.09	3.57	**

a. 1= Most would be not at all willing; 7= Most would be extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 8.1.2 Attitudes and Behavioral Beliefs

### Attitudes

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q23. Please select one box on each row that best shows how you feel about driving after using marijuana.			
Cool:Uncool	5.95	4.37	***
Dangerous:Safe	2.25	3.91	***
Stupid:Sensible	2.18	3.74	***
Pleasant:Unpleasant	5.39	3.66	***
Acceptable:Unacceptable	5.62	3.98	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

### Perceived Attitudes

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q24. In your opinion, how would most people age 21 and older in your state feel about driving after using marijuana?			
Cool:Uncool	3.90	3.38	**
Dangerous:Safe	3.79	4.23	**
Stupid:Sensible	3.67	4.12	**
Pleasant:Unpleasant	3.88	3.29	**
Acceptable:Unacceptable	3.79	3.32	**

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Behavioral Beliefs (Actual and Perceived)

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q25A. "If I drive after using marijuana, I will feel calmer."-You	2.69	4.40	***
Q25B. "If I drive after using marijuana, I will feel calmer."-Most people age 21 and older in your state	4.39	4.91	***
Q26A. "If I drive after using marijuana, I will be more alert."-You	2.49	3.93	***
Q26B. "If I drive after using marijuana, I will be more alert."-Most people age 21 and older in your state	3.78	4.18	**
Q27A. "If I drive after using marijuana, I will be more cautious."-You	3.54	5.12	***
Q27B. "If I drive after using marijuana, I will be more cautious."-Most people age 21 and older in your state	4.48	4.99	**
Q28A. "If I drive after using marijuana, I will be more likely to get arrested."-You	5.67	4.84	***
Q28B. "If I drive after using marijuana, I will be more likely to get arrested."-Most people age 21 and older in your state	4.85	4.68	NS
Q29A. "If I drive after using marijuana, my reaction time will be slower."-You	5.62	4.48	***
Q29B. "If I drive after using marijuana, my reaction time will be slower."-Most people age 21 and older in your state	4.63	4.27	**
Q30A. "If I drive after using marijuana, I am more likely to be in an accident."-You	5.22	3.83	***
Q30B. "If I drive after using marijuana, I am more likely to be in an accident."-Most people age 21 and older in your state	4.19	3.79	**

a. 1= Strongly Disagree; 7= Strongly Agree

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 8.1.3 Prototypical Image and Perceived Norms

#### Prototypical Image

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q31. Each row shows a range of feelings about the "typical" person who drives after using marijuana.			
Relaxed:Anxious	3.95	3.24	***
Calm:Manic	3.50	2.97	**
Distracted:Focused	3.38	4.26	***
Self-involved:Concerned about others	3.47	4.06	***
Cautious:Reckless	4.07	3.21	***
Stupid:Smart	2.98	3.92	***
Safe:Unsafe	5.04	3.96	***
Paranoid:Confident	3.24	3.72	**
Cool:Uncool	4.92	4.03	***
Risk-taker:Cautious	3.38	4.06	***
Irresponsible:Responsible	2.85	3.91	***
Lawful:Unlawful	5.59	4.64	***

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q32. Each row shows a range of feelings about the "typical" person who NEVER drives after using marijuana.			
Relaxed:Anxious	2.87	3.66	***
Calm:Manic	2.72	3.42	***
Distracted:Focused	4.94	4.24	***
Self-involved:Concerned about others	4.71	4.08	**
Cautious:Reckless	2.78	3.44	***
Stupid:Smart	5.21	4.60	***
Safe:Unsafe	2.61	3.14	**
Paranoid:Confident	4.93	4.40	**
Cool:Uncool	3.14	3.59	**
Risk-taker:Cautious	5.15	4.72	**
Irresponsible:Responsible	5.29	4.89	**
Lawful:Unlawful	2.52	2.96	**

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Perceived Norms

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q38. "Most people who are important to me think it is OK to drive after using marijuana." <sup>b</sup>	2.84	4.36	***
Q40. "Most people who are important to me expect me not to drive after using marijuana." <sup>b</sup>	5.59	4.40	***
Q14. In your opinion, how often did most people like you in your state drive within four hours of using marijuana? <sup>c</sup>	4.13	5.59	***
Q15. In your opinion, how often did most people age 21 and older in your state drive within four hours of using marijuana? <sup>c</sup>	4.49	5.64	***

a. Responses range from 1 to 7. b. 1= Strongly Disagree; 7= Strongly Agree. c. 1= Never; 7= Daily.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

Normative Beliefs

	Means <sup>a</sup>		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q33. "My friends would think it was OK if I drove after using marijuana."	3.87	5.46	***
Q34. "My family would think it was OK if I drove after using marijuana."	2.10	3.55	***
Q35. "My employer would think it was OK if I drove after using marijuana."	2.34	3.03	**
Q36. "Law enforcement in my community would think it was OK if people drove after using marijuana."	1.53	2.18	***
Q37. "Most people in my community think it is OK to drive after using marijuana."	3.07	4.25	***
Q39. "Most people in my community expect people not to drive after using marijuana."	5.23	4.59	***

a. 1= Strongly Disagree; 7= Strongly Agree.  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

### 8.1.4 Perceived Control, Control Beliefs, and Knowledge of State Laws

#### Perceived Control and Control Beliefs

	Means		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q41. "It's up to me whether I drive after using marijuana." <sup>a</sup>	5.82	6.16	**
Q42. "If I really wanted to, I could choose to never drive after using marijuana." <sup>a</sup>	6.48	6.07	**
Q43. "Situations come up that are out of my control that require me to drive after using marijuana." <sup>a</sup>	3.44	4.81	***
Q44. How likely are you to find yourself in the following situations within four hours of using marijuana? <sup>b</sup>			
Needing to drive to work or school	2.47	4.04	***
Needing to drive to run errands	2.80	4.91	***
Needing to drive home (when out or at a party)	3.09	5.23	***
Q47. Before deciding to use marijuana, how likely are you to think about whether you will need to drive? <sup>b</sup>	6.27	5.32	***

a. 1= Strongly Disagree; 7= Strongly Agree. b. 1= I don't use marijuana; 2= Extremely Unlikely; 7= Extremely Likely  
\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

#### Knowledge of the Law

	Non-Users (n=624)			Users (n=182)		
	Legal	Illegal	IDK	Legal	Illegal	IDK
Q20. Is recreational use of marijuana by adults age 21 and older legal or illegal in your state?	69.9%	27.9%	2.2%	72.7%	25.7%	1.6%
Q21. Is medicinal use of marijuana by adults age 21 and older legal or illegal in your state?	77.4%	12.3%	10.3%	81.8%	13.5%	4.7%
Q22. Is driving under the influence of marijuana legal or illegal in your state?	0.3%	88.6%	11.1%	3.6%	83.4%	13.0%

IDK= I don't know

### 8.1.5 Values and Concern for Traffic Safety

#### Values

	Means		Significance
	No DUIC (n=359)	DUIC (n=385)	
Broad-mindedness	7.02	7.15	NS
Helpfulness	7.67	7.68	NS
Conformity	5.05	5.36	NS
Tradition	5.25	5.52	NS
Security	6.06	6.11	NS
Power	4.39	4.41	NS
Achievement	6.62	6.75	NS
Enjoyment in life	7.59	7.64	NS
Stimulation	6.53	6.66	NS
Self-direction	7.29	7.53	NS

a. 1= Opposed to my principles; 9= Of supreme importance

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

#### Concern for Traffic Safety

	Means		Significance
	No DUIC (n=359)	DUIC (n=385)	
Q4. How concerned are you about safety on roads and highways? <sup>a</sup>	5.57	5.33	NS
Q5. "I believe the only acceptable number of deaths and serious injuries on our roadways is zero." <sup>b</sup>	5.30	5.08	NS
Q6. "I believe the only acceptable number of deaths and serious injuries among my family and friends on our roadways is zero." <sup>b</sup>	6.08	5.83	NS

a. 1= Not at all Concerned; 7= Extremely Concerned b. 1= Strongly Disagree; 7= Strongly Agree.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 9 APPENDIX E

### 9.1 Comparing Means Between States With and Without Legal Recreational Cannabis Use for Survey #1 (Age 25 and older)

#### 9.1.1 Intention and Willingness

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana?	1.28	1.45	NS

a. 1= Never; 7= Daily

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q18. Suppose you are in a situation where you have used marijuana within the past 4 hours. How willing would you be to:			
Drive in an emergency	3.55	3.34	NS
Drive home on side streets	2.61	2.60	NS
Drive home on the highway	2.25	2.32	NS
Drive if you don't feel high	2.93	2.89	NS
Drive even though you still feel high	2.06	2.15	NS
Drive when you had also been drinking	1.75	1.65	NS

a. 1= I would never use marijuana; 2= Not at all willing; 7= Extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q19. In your opinion, how willing would most people age 21 and older in your state be to:			
Drive in an emergency	5.62	5.35	NS
Drive home on side streets	5.10	4.79	NS
Drive home on the highway	4.42	4.42	NS
Drive if you don't feel high	5.60	5.31	NS
Drive even though you still feel high	4.19	4.15	NS
Drive when you had also been drinking	3.68	3.63	NS

a. 1= Most would be not at all willing; 7= Most would be extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

9.1.2 Attitudes and Behavioral Beliefs

Attitudes

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q23. Please select one box on each row that best shows how you feel about driving after using marijuana.			
Cool:Uncool	6.36	6.29	NS
Dangerous:Safe	1.86	2.04	NS
Stupid:Sensible	1.77	1.99	NS
Pleasant:Unpleasant	5.82	5.85	NS
Acceptable:Unacceptable	6.14	6.12	NS

a. Responses range from 1 to 7.  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

Perceived Attitudes

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q24. In your opinion, how would most people age 21 and older in your state feel about driving after using marijuana?			
Cool:Uncool	3.93	4.16	NS
Dangerous:Safe	3.95	3.69	NS
Stupid:Sensible	3.75	3.60	NS
Pleasant:Unpleasant	3.99	4.08	NS
Acceptable:Unacceptable	3.78	4.05	NS

a. Responses range from 1 to 7.  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Behavioral Beliefs (Actual and Perceived)

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q25A. "If I drive after using marijuana, I will feel calmer."-You	2.65	2.63	NS
Q25B. "If I drive after using marijuana, I will feel calmer."-Most people age 21 and older in your state	4.32	4.14	NS
Q26A. "If I drive after using marijuana, I will be more alert."-You	2.04	2.05	NS
Q26B. "If I drive after using marijuana, I will be more alert."-Most people age 21 and older in your state	3.50	3.51	NS
Q27A. "If I drive after using marijuana, I will be more cautious."-You	3.08	2.71	NS
Q27B. "If I drive after using marijuana, I will be more cautious."-Most people age 21 and older in your state	4.10	3.81	NS
Q28A. "If I drive after using marijuana, I will be more likely to get arrested."-You	5.29	5.21	NS
Q28B. "If I drive after using marijuana, I will be more likely to get arrested."-Most people age 21 and older in your state	4.21	4.36	NS
Q29A. "If I drive after using marijuana, my reaction time will be slower."-You	5.86	5.81	NS
Q29B. "If I drive after using marijuana, my reaction time will be slower."-Most people age 21 and older in your state	4.45	4.61	NS
Q30A. "If I drive after using marijuana, I am more likely to be in an accident."-You	5.46	5.23	NS
Q30B. "If I drive after using marijuana, I am more likely to be in an accident."-Most people age 21 and older in your state	4.04	4.21	NS

a. 1= Strongly Disagree; 7= Strongly Agree

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 9.1.3 Prototypical Image and Perceived Norms

#### Prototypical Image

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q31. Each row shows a range of feelings about the "typical" person who drives after using marijuana.			
Relaxed:Anxious	3.62	3.49	NS
Calm:Manic	3.45	3.35	NS
Distracted:Focused	2.63	2.94	*
Self-involved:Concerned about others	2.61	2.84	NS
Cautious:Reckless	4.67	4.76	NS
Stupid:Smart	2.45	2.67	NS
Safe:Unsafe	5.52	5.33	NS
Paranoid:Confident	3.32	3.23	NS
Cool:Uncool	5.10	4.93	NS
Risk-taker:Cautious	2.80	2.95	NS
Irresponsible:Responsible	2.39	2.53	NS
Lawful:Unlawful	5.76	5.66	NS

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q32. Each row shows a range of feelings about the "typical" person who NEVER drives after using marijuana.			
Relaxed:Anxious	3.13	2.95	NS
Calm:Manic	2.91	2.80	NS
Distracted:Focused	4.47	4.41	NS
Self-involved:Concerned about others	4.70	4.56	NS
Cautious:Reckless	2.86	2.93	NS
Stupid:Smart	5.11	5.04	NS
Safe:Unsafe	2.88	2.83	NS
Paranoid:Confident	4.83	4.73	NS
Cool:Uncool	3.24	3.32	NS
Risk-taker:Cautious	5.06	5.05	NS
Irresponsible:Responsible	5.40	5.18	NS
Lawful:Unlawful	2.50	2.87	NS

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Perceived Norms

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q38. "Most people who are important to me think it is OK to drive after using marijuana." <sup>b</sup>	2.18	2.09	NS
Q40. "Most people who are important to me expect me not to drive after using marijuana." <sup>b</sup>	5.88	5.72	NS
Q14. In your opinion, how often did most people like you in your state drive within four hours of using marijuana? <sup>c</sup>	3.15	2.99	NS
Q15. In your opinion, how often did most people age 21 and older in your state drive within four hours of using marijuana? <sup>c</sup>	4.25	4.03	NS

a. Responses range from 1 to 7. b. 1= Strongly Disagree; 7= Strongly Agree. c. 1= Never; 7= Daily.  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

Normative Beliefs

	Means <sup>a</sup>		Significance
	Legal (n=406)	Illegal (n=359)	
Q33. "My friends would think it was OK if I drove after using marijuana."	2.75	2.86	NS
Q34. "My family would think it was OK if I drove after using marijuana."	1.94	2.01	NS
Q35. "My employer would think it was OK if I drove after using marijuana."	1.59	1.66	NS
Q36. "Law enforcement in my community would think it was OK if people drove after using marijuana."	1.37	1.52	NS
Q37. "Most people in my community think it is OK to drive after using marijuana."	2.90	2.50	*
Q39. "Most people in my community expect people not to drive after using marijuana."	5.27	5.40	NS

a. 1= Strongly Disagree; 7= Strongly Agree.  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

9.1.4 Perceived Control, Control Beliefs, and Knowledge of State Laws

Perceived Control and Control Beliefs

	Means		Significance
	Legal (n=406)	Illegal (n=359)	
Q41. "It's up to me whether I drive after using marijuana." <sup>a</sup>	4.95	5.10	NS
Q42. "If I really wanted to, I could choose to never drive after using marijuana." <sup>a</sup>	6.35	6.27	NS
Q43. "Situations come up that are out of my control that require me to drive after using marijuana." <sup>a</sup>	2.67	2.68	NS
Q44. How likely are you to find yourself in the following situations within four hours of using marijuana? <sup>b</sup>			
Needing to drive to work or school	1.46	1.49	NS
Needing to drive to run errands	1.71	1.67	NS
Needing to drive home (when out or at a party)	1.76	1.72	NS
Q47. Before deciding to use marijuana, how likely are you to think about whether you will need to drive? <sup>b</sup>	2.88	2.28	*

a. 1= Strongly Disagree; 7= Strongly Agree. b. 1= I don't use marijuana; 2= Extremely Unlikely; 7= Extremely Likely  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Knowledge of the Law

	Legal (n=406)			Illegal (n=359)		
	Legal	Illegal	IDK	Legal	Illegal	IDK
Q20. Is recreational use of marijuana by adults age 21 and older legal or illegal in your state?	95.3%	3.0%	1.7%	4.3%	87.6%	8.0%
Q21. Is medicinal use of marijuana by adults age 21 and older legal or illegal in your state?	96.5%	1.2%	2.2%	31.8%	45.4%	22.8%
Q22. Is driving under the influence of marijuana legal or illegal in your state?	2.7%	76.9%	20.3%	.6%	83.9%	15.6%

IDK= I don't know

### 9.1.5 Values and Concern for Traffic Safety

#### Values

	Means		Significance
	Legal (n=406)	Illegal (n=359)	
Broad-mindedness	6.83	6.92	NS
Helpfulness	8.05	8.03	NS
Conformity	6.28	6.94	**
Tradition	5.83	6.39	**
Security	6.80	7.08	NS
Power	3.66	4.07	*
Achievement	5.72	6.10	*
Enjoyment in life	5.83	5.86	NS
Stimulation	5.49	5.35	NS
Self-direction	7.37	7.27	NS

a. 1= Opposed to my principles; 9= Of supreme importance

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

#### Concern for Traffic Safety

	Means		Significance
	Legal (n=406)	Illegal (n=359)	
Q4. How concerned are you about safety on roads and highways? <sup>a</sup>	6.04	6.17	NS
Q5. "I believe the only acceptable number of deaths and serious injuries on our roadways is zero." <sup>b</sup>	5.05	5.17	NS
Q6. "I believe the only acceptable number of deaths and serious injuries among my family and friends on our roadways is zero." <sup>b</sup>	5.60	5.71	NS

a. 1= Not at all Concerned; 7= Extremely Concerned b. 1= Strongly Disagree; 7= Strongly Agree.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 10 APPENDIX F

### 10.1 Comparing Means Between States With and Without Legal Recreational Cannabis Use Among Cannabis Users For Surveys #2 and #3

#### 10.1.1 Intention and Willingness

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q16. Thinking of the next 12 months, how often do you intend to drive within four hours of using marijuana?	2.46	2.61	NS

a. 1= Never; 7= Daily

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q18. Suppose you are in a situation where you have used marijuana within the past 4 hours. How willing would you be to:			
Drive in an emergency	6.29	6.06	NS
Drive home on side streets	4.73	4.86	NS
Drive home on the highway	3.93	4.09	NS
Drive if you don't feel high	5.51	5.39	NS
Drive even though you still feel high	3.68	3.86	NS
Drive when you had also been drinking	2.19	2.43	NS

a. 1= I would never use marijuana; 2= Not at all willing; 7= Extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q19. In your opinion, how willing would most people age 21 and older in your state be to:			
Drive in an emergency	5.95	5.64	NS
Drive home on side streets	5.28	5.31	NS
Drive home on the highway	4.45	4.73	NS
Drive if you don't feel high	5.77	5.58	NS
Drive even though you still feel high	4.43	4.70	NS
Drive when you had also been drinking	3.23	3.59	NS

a. 1= Most would be not at all willing; 7= Most would be extremely willing

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

## 10.1.2 Attitudes and Behavioral Beliefs

### Attitudes

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q23. Please select one box on each row that best shows how you feel about driving after using marijuana.			
Cool:Uncool	5.26	4.83	*
Dangerous:Safe	3.01	3.34	NS
Stupid:Sensible	2.88	3.25	*
Pleasant:Unpleasant	4.69	4.04	**
Acceptable:Unacceptable	4.92	4.43	*

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

### Perceived Attitudes

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q24. In your opinion, how would most people age 21 and older in your state feel about driving after using marijuana?			
Cool:Uncool	3.78	3.29	**
Dangerous:Safe	3.96	4.15	NS
Stupid:Sensible	3.77	4.21	**
Pleasant:Unpleasant	3.69	3.29	*
Acceptable:Unacceptable	3.66	3.28	*

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Behavioral Beliefs (Actual and Perceived)

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q25A. "If I drive after using marijuana, I will feel calmer."-You	3.38	4.03	**
Q25B. "If I drive after using marijuana, I will feel calmer."-Most people age 21 and older in your state	4.49	5.03	**
Q26A. "If I drive after using marijuana, I will be more alert."-You	3.06	3.66	**
Q26B. "If I drive after using marijuana, I will be more alert."-Most people age 21 and older in your state	3.83	4.35	**
Q27A. "If I drive after using marijuana, I will be more cautious."-You	4.24	4.63	NS
Q27B. "If I drive after using marijuana, I will be more cautious."-Most people age 21 and older in your state	4.70	4.86	NS
Q28A. "If I drive after using marijuana, I will be more likely to get arrested."-You	5.22	5.28	NS
Q28B. "If I drive after using marijuana, I will be more likely to get arrested."-Most people age 21 and older in your state	4.73	4.82	NS
Q29A. "If I drive after using marijuana, my reaction time will be slower."-You	5.11	4.84	NS
Q29B. "If I drive after using marijuana, my reaction time will be slower."-Most people age 21 and older in your state	4.50	4.31	NS
Q30A. "If I drive after using marijuana, I am more likely to be in an accident."-You	4.53	4.43	NS
Q30B. "If I drive after using marijuana, I am more likely to be in an accident."-Most people age 21 and older in your state	4.02	3.90	NS

a. 1= Strongly Disagree; 7= Strongly Agree

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

### 10.1.3 Prototypical Image and Perceived Norms

#### Prototypical Image

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q31. Each row shows a range of feelings about the "typical" person who drives after using marijuana.			
Relaxed:Anxious	3.74	3.21	**
Calm:Manic	3.33	2.98	*
Distracted:Focused	3.75	4.02	NS
Self-involved:Concerned about others	3.72	3.90	NS
Cautious:Reckless	3.65	3.57	NS
Stupid:Smart	3.38	3.66	NS
Safe:Unsafe	4.60	4.21	*
Paranoid:Confident	3.40	3.69	NS
Cool:Uncool	4.55	4.26	NS
Risk-taker:Cautious	3.76	3.66	NS
Irresponsible:Responsible	3.28	3.68	*
Lawful:Unlawful	5.23	4.80	*

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q32. Each row shows a range of feelings about the "typical" person who NEVER drives after using marijuana.			
Relaxed:Anxious	3.23	3.38	NS
Calm:Manic	3.06	3.13	NS
Distracted:Focused	4.63	4.47	NS
Self-involved:Concerned about others	4.41	4.32	NS
Cautious:Reckless	3.14	3.07	NS
Stupid:Smart	4.91	4.85	NS
Safe:Unsafe	2.82	3.04	NS
Paranoid:Confident	4.72	4.50	NS
Cool:Uncool	3.30	3.54	NS
Risk-taker:Cautious	4.96	4.86	NS
Irresponsible:Responsible	5.17	4.89	NS
Lawful:Unlawful	2.62	3.03	*

a. Responses range from 1 to 7.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

Perceived Norms

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q38. "Most people who are important to me think it is OK to drive after using marijuana." <sup>b</sup>	3.57	3.76	NS
Q40. "Most people who are important to me expect me not to drive after using marijuana." <sup>b</sup>	4.96	5.00	NS
Q14. In your opinion, how often did most people like you in your state drive within four hours of using marijuana? <sup>c</sup>	4.93	4.77	NS
Q15. In your opinion, how often did most people age 21 and older in your state drive within four hours of using marijuana? <sup>c</sup>	5.06	5.14	NS

a. Responses range from 1 to 7. b. 1= Strongly Disagree; 7= Strongly Agree. c. 1= Never; 7= Daily.  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

Normative Beliefs

	Means <sup>a</sup>		Significance
	Legal (n=516)	Illegal (n=226)	
Q33. "My friends would think it was OK if I drove after using marijuana."	4.72	4.63	NS
Q34. "My family would think it was OK if I drove after using marijuana."	2.79	2.99	NS
Q35. "My employer would think it was OK if I drove after using marijuana."	2.19	3.62	***
Q36. "Law enforcement in my community would think it was OK if people drove after using marijuana."	1.73	2.19	**
Q37. "Most people in my community think it is OK to drive after using marijuana."	3.68	3.67	NS
Q39. "Most people in my community expect people not to drive after using marijuana."	4.85	5.01	NS

a. 1= Strongly Disagree; 7= Strongly Agree.  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001

#### 10.1.4 Perceived Control, Control Beliefs, and Knowledge of State Laws

##### Perceived Control and Control Beliefs

	Means		Significance
	Legal (n=516)	Illegal (n=226)	
Q41. "It's up to me whether I drive after using marijuana." <sup>a</sup>	6.11	5.74	*
Q42. "If I really wanted to, I could choose to never drive after using marijuana." <sup>a</sup>	6.31	6.16	NS
Q43. "Situations come up that are out of my control that require me to drive after using marijuana." <sup>a</sup>	4.10	4.25	NS
Q44. How likely are you to find yourself in the following situations within four hours of using marijuana? <sup>b</sup>			
Needing to drive to work or school	3.26	3.34	NS
Needing to drive to run errands	3.92	3.83	NS
Needing to drive home (when out or at a party)	4.20	4.19	NS
Q47. Before deciding to use marijuana, how likely are you to think about whether you will need to drive? <sup>b</sup>	5.98	5.31	**

a. 1= Strongly Disagree; 7= Strongly Agree. b. 1= I don't use marijuana; 2= Extremely Unlikely; 7= Extremely Likely  
 \*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

##### Knowledge of the Law

	Legal (n=516)			Illegal (n=226)		
	Legal	Illegal	IDK	Legal	Illegal	IDK
Q20. Is recreational use of marijuana by adults age 21 and older legal or illegal in your state?	98.8%	1.2%	0%	9.3%	84.6%	6.2%
Q21. Is medicinal use of marijuana by adults age 21 and older legal or illegal in your state?	98.5%	.2%	1.4%	36.7%	41.6%	21.7%
Q22. Is driving under the influence of marijuana legal or illegal in your state?	1.0%	86.7%	12.4%	4.0%	84.6%	11.5%

IDK= I don't know

### 10.1.5 Values and Concern for Traffic Safety

#### Values

	Means		Significance
	Legal (n=516)	Illegal (n=226)	
Broad-mindedness	7.16	6.92	NS
Helpfulness	7.75	7.49	NS
Conformity	5.11	5.45	NS
Tradition	5.29	5.61	NS
Security	6.04	6.20	NS
Power	4.22	4.83	NS
Achievement	6.61	6.86	NS
Enjoyment in life	7.65	7.53	NS
Stimulation	6.68	6.41	NS
Self-direction	7.46	7.32	NS

a. 1= Opposed to my principles; 9= Of supreme importance

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different

#### Concern for Traffic Safety

	Means		Significance
	Legal (n=516)	Illegal (n=226)	
Q4. How concerned are you about safety on roads and highways? <sup>a</sup>	5.43	5.49	NS
Q5. "I believe the only acceptable number of deaths and serious injuries on our roadways is zero." <sup>b</sup>	5.19	5.17	NS
Q6. "I believe the only acceptable number of deaths and serious injuries among my family and friends on our roadways is zero." <sup>b</sup>	5.98	5.89	NS

a. 1= Not at all Concerned; 7= Extremely Concerned b. 1= Strongly Disagree; 7= Strongly Agree.

\*p<0.01, \*\*p<0.001, \*\*\*p<0.000 001 NS= Not statistically significantly different