THE ROLE OF DRIVING RELATED COGNITIONS AND CANNABIS DEMAND IN DRIVING AFTER CANNABIS USE **S**P euroscience



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INTRODUCTION

- > Driving after cannabis use (DACU) is almost as common as driving after use of alcohol.
- \succ DACU is influenced by a variety of risk factors, such as perceptions of danger, normative beliefs, and perceptions concerning the likelihood of negative consequences from DACU.
- > These associations were shown primarily in samples with college students and may not be representative of the population.
- > Furthermore, no studies have examined behavioural economic demand for cannabis in conjunction with DACU, despite significant differences in alcohol demand between drinking drivers and non-drinking drivers.
- > This study examined driving-related cognitions and cannabis demand in a large sample of participants from an online crowdsourcing site.

Hypothesis

People who report DACU will have more favourable cognitions and elevated cannabis demand compared to people who do not report DACU.

METHODS

- Participants from U.S. states with legalized recreational or medicinal cannabis were recruited through Amazon's Mechanical Turk (MTurk) online crowdsourcing website.
- > Participants who reported cannabis use in the past 6 months (N = 749) completed a survey on MTurk including measures of cannabis use, DACU, driving cognitions, and cannabis demand (Figure 1)
- > Driving cognitions included:
 - Perceived danger of driving after DACU
 - > <u>Normative beliefs (e.g., how many of your</u> closest friends disapprove of DACU)
 - > <u>Negative consequences</u> (e.g., how likely are you to be stopped by police while DACU)

Table 1.	Sample Cha	racteristics	by DACU	History	
Sample was categories of the self-reported DACI	Drized into 3 gr	oups: No hist - reporting usi	ory of DAC na cannabi	U (NON-DACU is <i>while</i> drivinc	
	Grou	Group 1		Group 3	
	Non D	ACU	DACU	Use While Driv	
	<i>n</i> = 3	354 n	e = 146	<i>n</i> = 249	
% Female	60%	/ ** 0	47%	41 %	
Age (M SD)	33.1 (⁻	10.1) 33	3.9 (9.9)	34.6 (10.3)	
Income (Median)	\$45-60	\$45-60,000 \$4		\$30-\$45,00	
CUDIT Total (M SD)	6.7 (6.7 (5.6) 7.8		(5.4)* 11.2 (6.4)**	
DACU Quantity Last	t 3mo	5.1 (14.7)		17.2 (31.3)*	
**p < .01; *p < .05; C cannabis use in las	ACU Quantity = t 3 months	# of times driv	en less thar	n 2 hours after	
<pre>**p < .01; *p < .05; D cannabis use in las Table 2. Corre Der</pre>	ACU Quantity = t 3 months lations betw nand, and Li	een Driving	en less thar Cognition U Quanti	n 2 hours after ns, Cannabis ty	
<pre>**p < .01; *p < .05; D cannabis use in las Table 2. Corre Der</pre>	ACU Quantity = t 3 months lations betw nand, and Li DACU Qty. (Lifetime)	een Driving fetime DAC Perc. Danger	en less thar Cognitio U Quanti Norm. Be	n 2 hours after ns, Cannabis ty	
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p < .01; *p < .05; D cannabis use in las Table 2. Corre Der Perceived Danger Normative Beliefs Negative Consequences Intensity Breakpoint O _{max}	ACU Quantity = t 3 months lations betw nand, and Li DACU Qty. (Lifetime) 49 50** 39* .22** .25** .25** .28**	* # of times driv een Driving ifetime DAC Perc. Danger 20** 18** 18** 21**	en less thar Cognition U Quanti Norm. Be 14** 10** 12**	a 2 hours after as, Cannabis ty liefs Neg. Co 01 09* 06	

Figure 1. Marijuana Purchase Task Validated measure of hypothetical consumption of cannabis at 20 escalating prices (Free - \$60/gram).

Given the previous conditions, how many **GRAMS** of marijuana would you **consume** during a **TYPICAL WEEK** at the following prices?

	1/8 ounce of marijuana = 3.5 GRAMS. The marijuana is of your typical quality and potency. The most you can choose is 28 GRAMS.							
	PRICE per GRAM		Number of grams:	Price per 8 th oz. at this rate:				
1.	How many GRAMS of marijuana would you consume if they were	FREE?		8 th oz.= \$0				
2.	How many GRAMS of marijuana would you consume if they were	\$1 each?		8 th oz.= \$3.50				
3.	How many GRAMS of marijuana would you consume if they were	\$2 each?		8 th oz.= \$7				
4.	How many GRAMS of marijuana would you consume if they were	\$4 each?		8 th oz.= \$14				
5.	How many GRAMS of marijuana would you consume if they were	\$6 each?		8 th oz.= \$21				
6.	How many GRAMS of marijuana would you consume if they were	\$8 each?		8 th oz.= \$28				

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ANCOVA Models Comparing DACU Groups, Controlling for Sex and CUDIT Total Score

- Intensity (free consumption).

DISCUSSION

- Individuals who report DACU showed elevated demand for cannabis (consumption) and expenditure) and more favourable driving related cognitions (lower perceived danger, lower normative beliefs, and lower perceptions of negative consequences) compared to non-DACU participants.
- \succ The results for cannabis demand are consistent with prior research showing elevations in alcohol demand among individuals who report driving after drinking.
- > These findings increase our understanding of the factors that contribute to DACU and are particularly important given ongoing changes in legalization of cannabis in the US and Canada.

> Cannabis Demand: Significant elevations in Group 3 compared to Group 1 for Breakpoint (price that suppressed consumption to zero), O_{max} (maximum) expenditure), and P_{max} (price sensitivity), but not

Driving Cognitions: Significant differences between all groups for perceived danger and normative beliefs. Significant differences between Groups 1 and 3 for negative consequences. More favorable cognitions in the DACU groups compared to the Non-DACU groups.