THE ROLE OF DRIVING RELATED COGNITIONS AND CANNABIS DEMAND IN DRIVING AFTER CANNABIS USE

H. Patel[1], V. Morris[1], K. Naish[1], L. Vedelago[1], D. McCarthy, J. MacKillop[1,2], & M. Amlung[1,2]

[1]Peter Boris Centre for Addictions Research, [2]Michael G. DeGroote Centre for Medicinal Cannabis Research

McMaster University

INTRODUCTION

➢ Driving after cannabis use (DACU) is almost as common as driving after use of alcohol.

➢ 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
  ➢ Normative beliefs (e.g., how many of your closest friends disapprove of DACU)
  ➢ Negative consequences (e.g., how likely are you to be stopped by police while DACU)

RESULTS

Table 1. Sample Characteristics by DACU History

Sample was categorized into 3 groups: No history of DACU (Non-DACU), self-reported DACU, and DACU + reporting using cannabis *while* driving.

	Group 1 Non DACU n = 354	Group 2 DACU n = 146	Group 3 Use While Driving n = 249
% Female	60%**	47%	41%
Age (M SD)	33.1 (10.1)	33.9 (9.9)	34.6 (10.3)
Income (Median)	$45-60,000	$45-60,000	$30-$45,000
CUDIT Total (M SD)	6.7 (5.6)	7.8 (5.4)*	11.2 (6.4)**
DACU Quantity Last 3mo	---	5.1 (14.7)	17.2 (31.3)**

**$p < .01$; *$p < .05$; DACU Quantity = # of times driven less than 2 hours after cannabis use in last 3 months

Table 2. Correlations between Driving Cognitions, Cannabis Demand, and Lifetime DACU Quantity

	DACU Qty. (Lifetime)	Perc. Danger	Norm. Beliefs	Neg. Cons.
Perceived Danger	-.49**			
Normative Beliefs	-.50**			
Negative Consequences	-.39*			
Intensity	.22**	-.20**	-.14**	-.01
Breakpoint	.25**	-.18**	-.10**	-.09*
O_{max}	.28**	-.21**	-.12**	-.06
P_{max}	.16**	-.12**	-.02	.08

**$p < .01$; *$p < .05$
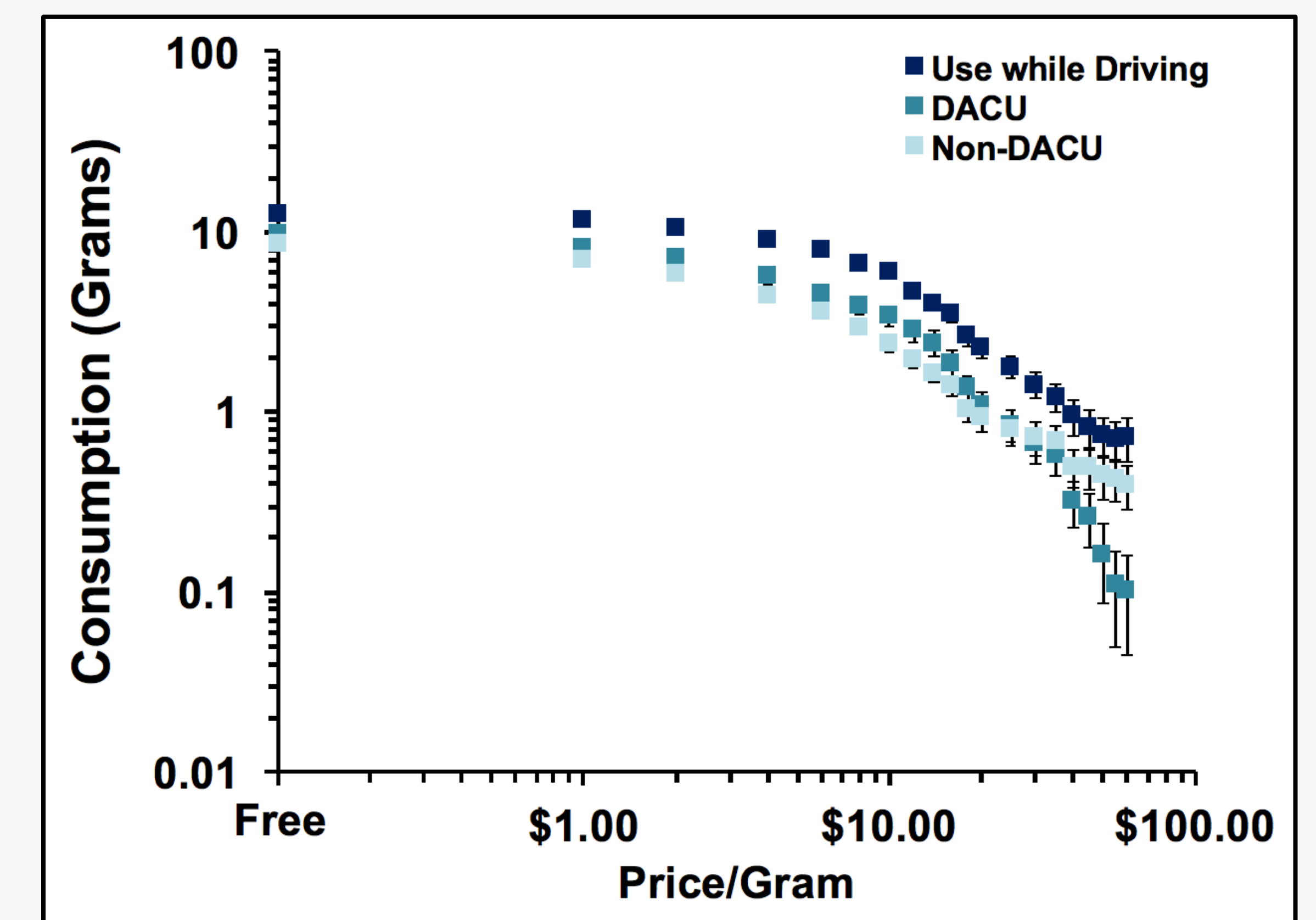
ANCOVA Models Comparing DACU Groups, Controlling for Sex and CUDIT Total Score

➢ **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 Intensity (free consumption).

➢ **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.

Figure 1. Marijuana Purchase Task

Validated measure of hypothetical consumption of cannabis at 20 escalating prices (Free - $60/gram).

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.

➢ 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.