Marijuana Trajectories and Associations with Driving Risk Behaviours in Canadian Youth

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Cannabis and Traffic Safety

- Can impair driving performance such as reduced lateral control, reaction time, and overall driving ability (Hartman et al., 2015, Lenné et al., 2010, Downey et al., 2013).

- Risk of motor vehicle accidents increases with use (Asbridge et al., 2012; Li et al., 2012)

- Also reported in studies with Canadian samples (Asbridge et al., 2014; Brubacher et al., 2016; Mann et al., 2010).

Youth, Cannabis, and Traffic Safety in Canada

- The prevalence of cannabis use among Canadian youth aged 15-24 is over two times higher than adults 25 and over.

- Young adults aged 20-24 report the highest rate of cannabis use and the highest drug and alcohol impaired driving rates.

- On average, marijuana use increases in adolescence and decreases in young adulthood, but there is variability in these patterns.

- Driving behaviours of youth with different patterns of marijuana use are not known.

(Brook, Zhang, Leukefeld, & Brook, 2016; Epstein et al., 2015; Terry-McElrath et al., 2017; Thompson et al., 2018; Perreault, 2016; Statistics Canada, 2015)

Current Study

EXAMINE THE ASSOCIATION BETWEEN LONGITUDINAL PATTERNS OF MARIJUANA USE DURING ADOLESCENCE AND RISKY DRIVING PRACTICES IN YOUNG ADULTHOOD AMONG A SAMPLE OF CANADIAN YOUTH FOLLOWED ACROSS 10 YEARS.

Victoria Healthy Youth Survey

- Representative sample of Greater Victoria region.

- Youth recruited in 2003 using random digit dialing of 9,500 private telephone listings.

- 1036 eligible households were identified (had youth aged 12-18 years old)

- 662 adolescents & their parents (64%) agreed to participate.

Interviews

- Data were collected bi-annually over ten years in individual face-to-face interviews in youths' homes by trained research assistants.

- Privacy was provided for sensitive questions (e.g. mental health, sexuality, substance use, aggression)

The Victoria Healthy Youth Survey

	Time 1 2003	Time 2 2005	Time 3 2007	Time 4 2009	Time 5 2011	Time 6 2013
Sample Size	662	578	539	459	464	478
Response Rate	64%	87%	81%	69%	70%	72%
Mean Age	15.5	17.1	19	22	24	26
Age Range	12-18	14-21	16-23	18-26	20-27	22-29
% Male	48%	47%	46%	44%	46%	45%

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Measures: Frequency of marijuana use

Marijuana use: "How often marijuana (pot, hash) was used in the past 12 months."

- 0 = *never*, 1 = *a few times a year*, 2 = *a few times a month,* 3 = *once a week*, and 4 = *more than once a week*.

Measures: Frequency of substance use

Heavy episodic drinking: "How often in the past 12 months have you had five or more drinks on one occasion?"

Illicit drug use: "How often in the past 12 months have you had used any of the illicit drugs (i.e., cocaine, hallucinogens, amphetamines, and club drugs)?"

Marijuana and simultaneous use with other substances: frequency that they used combinations of marijuana (or hashish) with alcohol and any of the illicit drugs (i.e., cocaine, hallucinogens, amphetamines, and club drugs).

Measures: Driving Risks

Marijuana
- "In the past 12 months, have you been high or intoxicated from marijuana more than once in any situation where you were physically at risk (for example, driving a car, riding a motorbike, using machinery, boating, etc.)?
- "In the past 30 days, how many times were you in a car or other vehicle when the driver (including yourself) had been using marijuana or other drugs?"

Alcohol
- "In the past 30 days, have you been in a car or other vehicle when the driver (including yourself) had been drinking alcohol?"
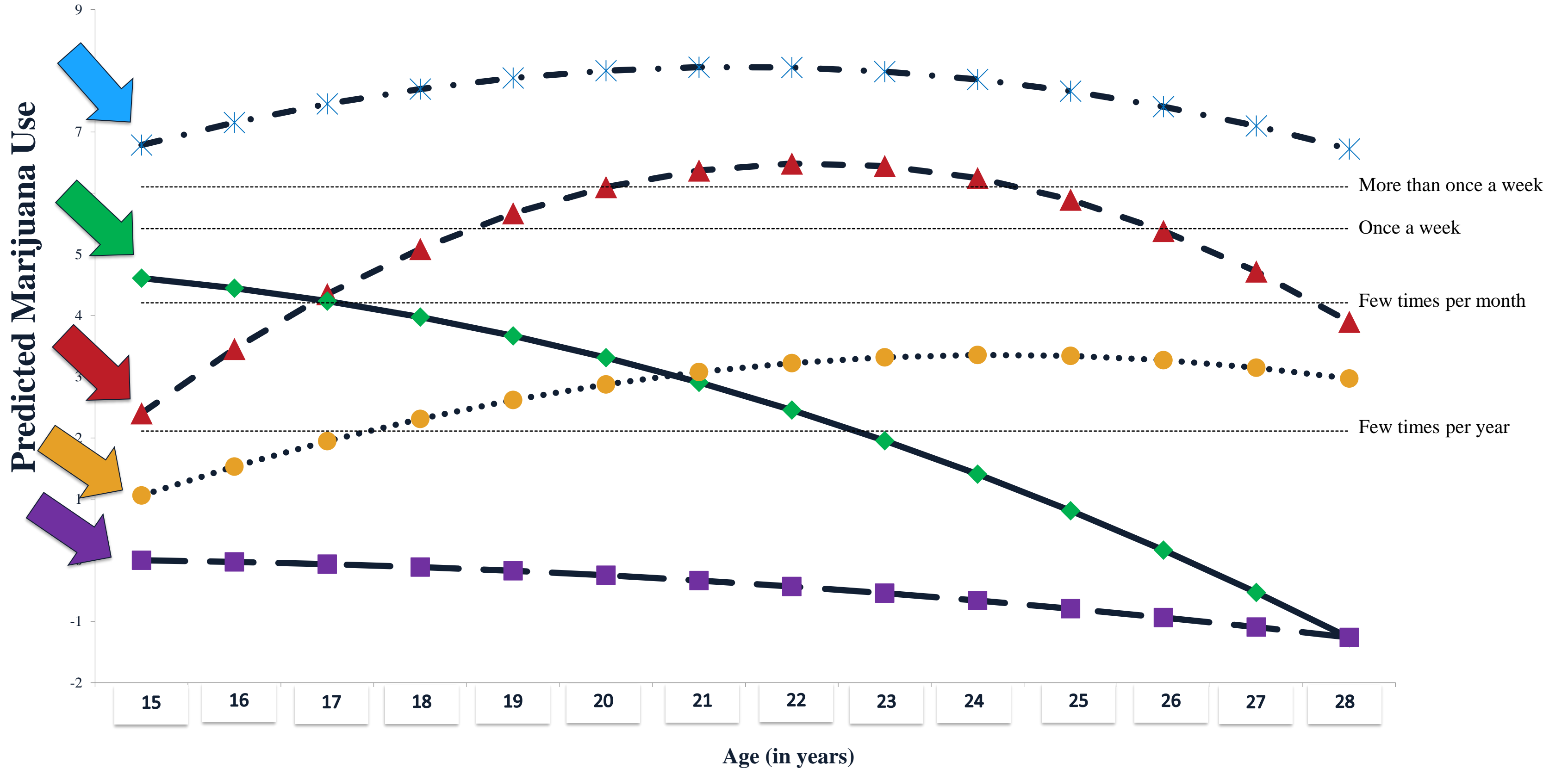
Data analytic strategy

Longitudinal patterns of marijuana use
◦ Latent class analyses: empirically derived groups of users based on longitudinal patterns of use across adolescence and young adulthood

Driving risks in young adulthood
◦ Examine differences in the frequencies of driving risks that each group takes as young adult drivers or passengers in motor

Patterns of Marijuana Use

	1. Abstainers (*n* = 183; 29%) Mean (SD) or n (%)	2. Occasional (*n* = 172; 27%) Mean (SD) or n (%)	3. Decreasers (*n* = 89; 14%) Mean (SD) or n (%)	4. Increasers (*n* = 127; 20%) Mean (SD) or n (%)	5. Chronic (*n* = 69; 11%) Mean (SD) or n (%)
Demographics					
Sex					
Male	74 (40%)	72 (42%)	42 (47%)	78 (61%)	41 (59%)
Age	15.09 (1.91)	14.97 (1.89)	15.12 (2.06)	15.28 (1.79)	15.10 (1.87)
Mothers education	6.66 (1.69)	6.75 (1.63)	6.64 (1.76)	6.56 (1.82)	6.00 (1.85)
Youth SES	5.38 (1.81)	5.03 (1.97)	5.14 (2.01)	4.33 (1.78)	3.93 (1.59)
Age of marijuana onset	17.07 (2.68)	16.56 (2.53)	14.37 (1.76)	15.11 (1.65)	13.28 (1.98)
Substance use at T6 (age 22-28)					
Frequency of use (average)	.09 (.06)	.35 (.65)	1.18 (1.21)	.98 (1.22)	2.48 (1.74)
Once a week	0 (0%)	5 (4%)	0 (0%)	13 (14%)	6 (13%)
More than once a week	0 (0%)	9 (7%)	0 (0%)	35 (38%)	32 (71%)
Quantity of use (average # joints)	0.04 (0.23)	0.55 (0.73)	0.17 (0.40)	1.27 (1.12)	2.60 (2.33)
Heavy episodic drinking	0.80 (.96)	1.46 (1.12)	1.45 (1.15)	1.99 (1.16)	2.09 (1.41)
Illicit drug use	0.09 (0.41)	0.39 (0.66)	0.42 (0.81)	0.80 (0.81)	0.78 (1.00)
Simultaneous marijuana and alcohol	3 (2%)	69 (51%)	7 (11%)	66 (71%)	36 (80%)
Simultaneous marijuana and illicit drugs	1 (0.7%)	13 (10%)	1 (2%)	29 (31%)	13 (29%)
Alcohol use disorder	24 (18%)	63 (47%)	25 (38%)	48 (52%)	29 (67%)
Marijuana use disorder	0 (0%)	17 (13%)	0 (0%)	30 (32%)	26 (59%)

Results: Trajectories and driving risks

Driving at T6 (age 22-28)	Abstainers ($n = 183$)	Occasional Users ($n = 172$)	Decreasers ($n = 89$)	Increasers ($n = 127$)	Chronic Users ($n = 69$)
Past 12 months: High or intoxicated from **marijuana** more than once while driving a car.	0[a,b]	11%[a]	0[a,b]	34%[c]	42%[c]
Past 30 days: been in a car or other vehicle (as a driver or passenger) after using **marijuana** or other drugs.	5%[b]	24%[a]	9%[a,b]	51%[c]	71%[c]
Past 30 days: been in a car or other vehicle (as a driver or passenger) after drinking **alcohol**.	18%[a]	30%[a,b]	24%[a,b]	35%[b,c]	56%[c]

Notes: Entries with different lettered superscripts are significantly different from each other ($p < .05$). Percentages may not equal 100% due to rounding.

Discussion

- Two at-risk groups of youth who chronically use marijuana over the course of adolescence and young adulthood.

- More likely to be at-risk of driving-related harms compared to youth who abstain, occasionally use, or are decreasing in their usage over time.

Implications

- Educational approaches that raise awareness of risks for marijuana dependence and risks of impaired driving may help to correct misperceptions of the safety of marijuana on driving capacity.

- Targeted interventions for frequent users.

QUESTIONS?