Inequitable access to cannabis vaping products across Canada: Examining consumer preferences

Jennifer Donnan, Karissa Johnson, Michael Coombs, Maisam Najafizada, Lisa Bishop
Memorial University of Newfoundland, School of Pharmacy, St. John's, Newfoundland and Labrador, Canada

Background

- Phase two of cannabis legalization in Canada, in October 2019, brought cannabis vaping products to the market.
- This decision was controversial as an outbreak of *vaping cannabis use-associated lung injury* (EVALI) appeared, resulting in three provinces opting out of the sale of cannabis vapes.
- Where vapes can be purchased, the package is limited to 1 g of THC
- This study sought to explore consumer preferences for cannabis vapes to inform cannabis policy.

Methods

- We explored consumer preferences for attributes of cannabis vape products using a discrete choice experiment.
- Attributes included: type of device, price, percent tetrahydrocannabinol (THC), vape liquid content, product recommendations and Health Canada regulation.
- Participants lived in Canada, were ≥19 years old, and purchased a cannabis vape in the last 12 months.
- A multinomial logit (MNL) model was used for the base model, and latent class analysis to assess preference sub-groups.
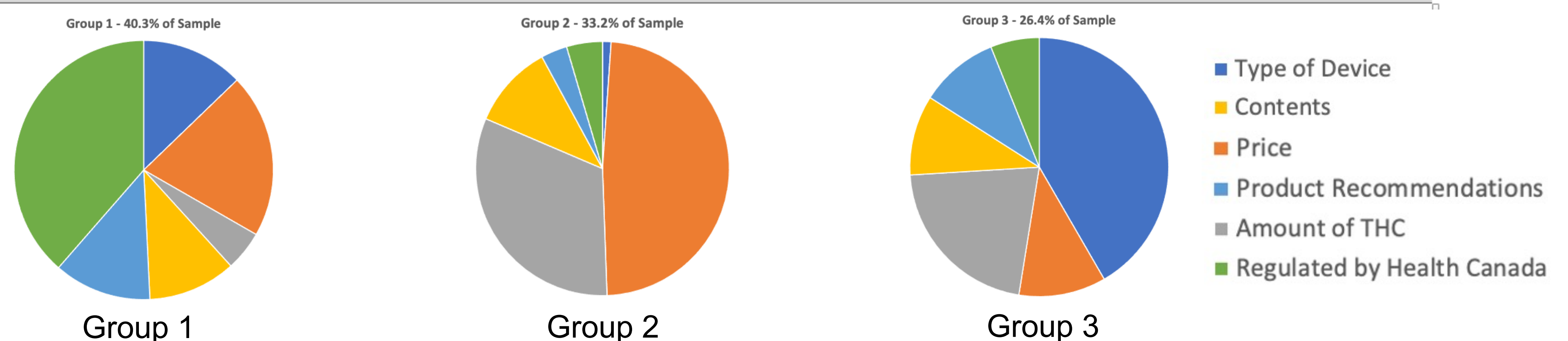
Results

- 384 participants completed the survey (Table 1)
- MNL model showed that price, followed by THC content, were the most important attributes.
- A three-group latent class model showed (Table 1, Figure 2):
- Group 1 (~40% of sample) was driven primarily by Health Canada Regulation, followed by price. This group was willing to pay $56 more for a regulated product compared to one that was not
- Group 2 (~33% of sample), was driven by price, followed by potency.
- Group 3 (~26% of sample) was driven by type of device, followed by potency.
- Neither group 2 or 3 prioritized purchasing regulated products.
- Individuals who purchased and consumed cannabis vapes more frequently (p-values 0.005 and <0.001 respectively), and who consumed greater quantities (p-value 0.003) were significantly more likely to be in Group 2, followed by Group 3.

Figure 1. Sample Choice Task

You are purchasing a **0.5g cannabis vape product with THC** of your preferred variety (sativa, indica, or hybrid). Which of the following products would you choose?

While some options may not seem possible, assume both are available as presented.

Attribute	Option 1	Option 2
Type of Device	Disposable pen	Pre-filled Cartridge
Price	$50	$30
Amount of TCH	70%	80%
Contents	Full spectrum with cannabis taste and terpenes	Distillate with non-cannabis flavors (e.g., fruit)
Product Recommendation	Recommended by person selling	Self-selected without input from others
Regulated by Health Canada	Yes	Unknow
Choice	[ ]	[ ]

Table 1. Sample Characteristics

Characteristic		Number (%) N=385
Sex	Female	167 (43.4)
	Male	217 (56.4)
	Prefer not to say	1 (0.3)
Gender	Woman	165 (42.9)
	Man	211 (54.8)
	Gender Diverse	4 (1.0)
	Other	4 (1.0)
	Prefer not to say	1 (0.3)
Age	19-29	97 (25.2)
	30-39	139 (36.1)
	40-49	65 (16.9)
	50-59	44 (11.4)
	60 or above	40 (10.4)
Education	Did not complete high school	9 (2.3)
	High school diploma	40 (10.4)
	Some post-secondary	59 (15.3)
	College/trade school	134 (34.8)
	Undergraduate degree	104 (27.0)
	Graduate degree	39 (10.1)
Income	<$25,000	28 (7.3)
	$25,000 to $49,999	61 (15.8)
	$50,000 to $74,000	66 (17.1)
	$75,000 to $99,999	68 (17.7)
	$100,000 or more	137 (35.6)
	Prefer not to say	25 (6.5)

Table 2. Latent Class Model

	Segment Sizes	Effect Estimate	OR	WTP	Effect Estimate	OR	WTP	Effect Estimate	OR	WTP
		Group 1 - 40.3%			Group 2 - 33.2%			Group 3 - 26.4%		
Price	Price	-0.17	N/A	N/A	-1.13	N/A	N/A	-0.18	N/A	N/A
Type of Device	Pre-filled cartridge	-0.16	0.73	18.70	0.04	1.08	-0.68	1.06	8.25	-114.68
	Disposable pen	0.16	Ref	Ref	-0.04	Ref	Ref	-1.06	Ref	Ref
Amount of THC	70%	-0.03	Ref	Ref	-1.15	Ref	Ref	-0.46	Ref	Ref
	80%	0.08	1.12	-6.49	0.05	3.33	-10.60	-0.18	1.32	-15.29
	90%	-0.05	0.99	0.79	1.10	9.49	-19.85	0.63	2.97	-59.21
Contents	Full Spectrum	0.17	1.31	-16.03	0.49	2.12	-6.62	-0.34	0.60	27.51
	No Cannabis Taste	-0.07	1.03	-1.91	-0.23	1.03	-0.25	0.17	1.00	0.08
	Non-Cannabis Flavor	-0.10	Ref	Ref	-0.26	Ref	Ref	0.17	Ref	Ref
Product Recommendations	Seller	-0.15	0.97	1.83	-0.03	0.98	0.16	0.07	1.49	-21.61
	Family/Friend	0.15	1.31	-15.98	0.13	1.15	-1.26	0.17	1.65	-27.23
	Online	0.13	1.29	-15.08	-0.10	0.91	4.91	0.10	1.54	-23.45
	None	-0.12	Ref	Ref	-0.01	Ref	Ref	-0.33	Ref	Ref
Regulated by Health Canada	Yes	0.55	2.59	-56.44	0.12	1.38	-2.84	0.01	1.18	-8.82
	No	-0.40	Ref	Ref	-0.20	Ref	Ref	-0.16	Ref	Ref
	Unknown	-0.15	1.29	-15.07	0.08	1.32	-2.44	0.15	1.36	-16.78

Figure 2. Relative Attribute Importance from Latent Class Model

Group 1 - 40.3% of Sample — Group 1

Group 2 - 33.2% of Sample — Group 2

Group 3 - 26.4% of Sample — Group 3

Legend:
- Type of Device
- Contents
- Price
- Product Recommendations
- Amount of THC
- Regulated by Health Canada

Discussion

- This study found that access to vape products that are regulated by Health Canada is important to some consumers, ranking as most important for ~40% of participants.
- While the needs of these customers could be met through the regulated market, consumers in three provinces do not have access to regulated vape products.
- About 60% of the sample were very willing to purchase unregulated products. Shifting their purchases to the licensed market will likely require revising the 1 g THC limit per container, as these customers seemed to prefer bulk purchase options.
- With mounting evidence that EVALI is linked to additives in unlicensed vape products, further work needs to be done to explore the risks and benefits of offering cannabis vapes through licensed stores to provide safe access for all Canadians.

Connect with Us

@cherpCA   @cherpCA

caneval@mun.ca