

International Cannabis Policy Study

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WAVE 3 (2020)



UNIVERSITY OF
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INTRODUCTION

The primary objective of the International Cannabis Policy Study (ICPS) is to examine the impact of cannabis legalization. On October 17, 2018, Canada became the second country to legalize non-medical cannabis at the national level. An increasing number of US states have also legalized non-medical cannabis. The ICPS study seeks to evaluate the overall impact of legalization, as well as the effectiveness of specific regulatory measures, for the following outcomes:

- prevalence, consumption, and patterns of cannabis use;
- commercial retail environment, price and purchasing;
- risk behaviours, including driving after cannabis use and use in 'high risk' occupational settings;
- perceptions of risk and social norms; and
- effectiveness of specific regulatory policies, including advertising restrictions, product labelling and warnings, public education campaigns, and the use of cannabis in public spaces.

The ICPS study consists of annual repeat cross-sectional surveys conducted with participants aged 16–65 years living in Canada and the United States (US). This technical report describes the methods for the third wave of the ICPS study conducted from September to October 2020. The methodology of the ICPS is also described in the study's methodology paper.¹

STUDY PROTOCOL

OVERVIEW

Data were collected between September 3 and November 2, 2020. Respondents completed an online survey in English or French. Median survey time was 21.4 minutes, including 34.4 minutes among past 12-month cannabis users and 17.9 minutes among those who had never used cannabis or not used it in the past 12 months.

QUESTIONNAIRE DEVELOPMENT

Survey measures were drawn or adapted from national surveys, or selected based on previous research. Survey development included focus groups with youth and young adults aged 16–24, as well as an extensive pilot study conducted in October 2017 with 1,045 Canadians aged 16–30.² Cognitive interviewing was conducted with 10 cannabis users in January–February 2018³ and August 2019 to evaluate and improve survey items. Waves 1 and 2 of the ICPS Surveys were conducted in Fall 2018 and Fall 2019, respectively.

LANGUAGE

The survey was written in English and translated to French by *Sirois Translation Services*. Canadian respondents were able to complete the survey in French or English. Overall, 4.7% of the analytic sample completed the survey in French (n=2,176).

SURVEY CONTENT

The survey document is available at: <http://cannabisproject.ca/methods/>. The survey includes modules in the following content areas:

- prevalence and patterns of cannabis use;
- cannabis purchasing and price;
- cannabis consumption and modes of use;
- commercial retail environment;
- risk behaviours;
- cannabis knowledge, perceptions of risk and social norms;
- exposure to health warnings and public educational campaigns;
- exposure to cannabis marketing and branding;
- substance use and other risk behaviours; and
- socio-demographics, postal code, and socio-economic status.

SAMPLE RECRUITMENT

SAMPLE ELIGIBILITY

Individuals were eligible to participate if they resided in a Canadian province or US state, were 16–65 years of age at the time of recruitment, and had access to the internet.

RECRUITMENT AND CONSENT

The ICPS sample was recruited using non-probability sampling methods using the *Nielsen Consumer Insights Global Panel*, which maintains panels in Canada and the US (<http://www.nielsen.com/ca/en/about-us.html>). Email invitations (with a unique link) were sent to a random sample of panelists (after targeting for age and country criteria); panelists known to be ineligible were not invited. Respondents from previous waves were identified using their unique panel ID. The Nielsen panels are recruited using both probability and nonprobability sampling methods in each country. Comparisons between the sample profile and national estimates from benchmark population-based surveys are provided below.

ALASKA SAMPLE

Under a contract with Alaska Survey Research (ASR), Alaska Department of Health and Social Services (AKDHSS) recruited an independent panel of Alaskans for the purpose of increasing the sample size of the ICPS. All panel members, both existing and new, were recruited by telephone using a Random Digit Dial (RDD) selection methodology. Nearly all respondents (90%+) were recruited through calls to their cellphones, the only exceptions being certain remote communities where landline contacts are the only feasible method. Participants were previously recruited through RDD and asked if they would be interested in participating in health surveys from the AKDHSS and asked to provide their email address. ASR followed up with participants by email and sent them a unique URL (supplied by Nielsen) to the main ICPS survey. Participants were emailed \$10 e-gift cards for

remuneration. A total of 980 Alaskans aged 19+ years were recruited. Alaska respondents between the ages of 19 to 65 years of age were included in the 'main' ICPS analytical sample.

RESPONSE RATES

Table 1 shows outcomes for respondent recruitment for the 2020 ICPS survey. Overall, 4,580,680 individuals were sent an email invitation to the main survey, of whom 78,438 respondents accessed the survey link. A total of 17,135 respondents of respondents who accessed the link (21.8%) partially completed the survey and 48,633 (62.0%) completed the survey.

As shown in Table 1, 9,798 respondents were terminated. Reasons included 'forced' termination due to residence in countries other than Canada or the US (n=288), residence in the Canadian territories (n=42), ineligible age (<16 (n=309) or >65 (n=112)), and failure to provide consent (n=6,473). Participants were also excluded if they did not provide a valid response to mandatory survey questions, including sex at birth (n=78), province (n=11) or state (n=6), 'Have you ever tried marijuana?' (n=342), 'When was the last time you used marijuana?' (n=175), and 'How often do you use marijuana?' (n=50). In addition, participants were excluded due to duplicate entries (n=550) and other data quality issues flagged by Nielsen (n=781); or because the respondent opted out of the commercial panel after the invitation was sent.

The total participation rate was 1.1%. As shown in Table 1, 4,580,680 invitations were sent to panelists; 78,438 potential respondents (1.7%) accessed the survey link; and 48,633 respondents (1.1%) completed the survey. For commercial panels that include non-probability based sample, the American Association for Public Opinion Research (AAPOR) recommends reporting the 'participation rate', also referred to a 'completion rate'. The participation rate is defined as "the number of respondents who have provided a usable response divided by the total number of initial personal invitations requesting participation".⁴ Participation rates are largely a product of sample management and the amount of sample that is 'released' prior to reaching target quotas. The cooperation rate represents the proportion of all cases interviewed of all eligible individuals ever contacted. Across Canada and the US, the cooperation rate was 62.0%, which was calculated based on AAPOR Cooperation Rate #2 as the percentage of respondents who completed the survey (48,633) of eligible respondents those who accessed the survey link (78,438).

DATA INTEGRITY

Among the respondents who completed the survey, a further 12 who identified as intersex and an unknown gender identity were excluded due to cell counts insufficient for weighting, and an additional 86 were excluded for speeding (n=84) or duplicate entries (n=2).

Due to the sensitive nature of the subject matter (cannabis was classified as an illegal substance federally in Canada and the USA at the time of the survey), at the end of the survey, respondents were asked whether they felt they were able to answer the questions honestly. The 893 respondents who selected 'no' were excluded from the analytic sample. Towards the end of the survey, respondents were also asked to select the current month from a list. The month selected by the respondent was compared to the month the respondent completed the survey. Respondents with discrepant responses were excluded from the analytic sample, unless the selected month was within 2 days of the date the survey was submitted (e.g., survey completed on Oct 1-2 but respondent selected

September). A total of 2,516 respondents were excluded from the analytic sample due to discrepancies with the month selected or poor data quality. The final analytic sample included 45,680 respondents.

RETURNING COHORT

A total of 3.4% of the sample comprised cohort members from the first two survey waves (1.0% from 2018 only, and 2.4% from either 2019 or both 2018 and 2019). These respondents were retained in the 2020 analytic sample because no efforts were made to recruit returning cohort members in 2020.

Table 1: Dispositions of potential respondents, by country, in the International Cannabis Policy Study (ICPS) 2020

Disposition	Total		Canada		USA	
	n	%	n	%	n	%
NIELSEN PANEL						
Total invitations	4,580,680	100%	1,116,479	100%	3,464,201	100%
Accessed survey ^a	78,438	1.7%	25,827	2.3%	49,513	1.4%
Terminated survey ^a	9,798	0.2%	1,855	0.2%	6,127	0.2%
Over quota, excluded ^b	2,872	0.1%	1,383	0.1%	1,489	<0.1%
Partially completed survey ^a	17,135	0.4%	5,588	0.5%	10,265	0.3%
Completed survey	48,633	1.1%	17,001	1.5%	31,632	0.9%
Excluded – dishonesty ^c	893	<0.1%	222	<0.1%	671	<0.1%
Excluded – data quality ^d	2,517	0.1%	974	0.1%	1,543	<0.1%
Excluded – unidentified sex ^e	12	<0.1%	4	<0.1%	8	<0.1%
Excluded – speeding ^f	84	<0.1%	20	<0.1%	64	<0.1%
Excluded – duplicates ^g	2	<0.1%	1	<0.1%	1	<0.1%
Nielsen analytic sample	45,125		15,780		29,345	
ALASKA SURVEY RESEARCH PANEL						
Total invitations	2,708	100%	--	100%	2,708	
Accessed survey	980	33.5%	--	--	980	33.5%
Terminated survey ^a	21	0.8%	--	--	21	0.8%
Partially completed survey	194	7.2%	--	--	194	7.2%
Completed survey	765	28.2%	--	--	765	28.2%
Excluded – data quality ^d	21	0.8%	--	--	21	0.8%
Excluded – age >65 years ^h	189	7.0%	--	--	189	7.0%
Alaska analytic sample	555		--	--	555	
TOTAL ANALYTIC SAMPLE	45,680		15,780		29,900	

^a Because 288 respondents who reported residing in ‘other’ countries were terminated and an additional 2,810 respondents who were terminated or partially completed the survey did not indicate their country of residence, frequencies for Canada and the US do not sum to ‘totals’ that accessed, terminated, and partially completed the survey. Terminated respondents also include those screened ineligible due to residence outside the 10 Canadian provinces (n=42) or with unstated province (n=11) or state (n=6). ^b Respondents screened ineligible for exceeding the designated quota for their sub-population (i.e., age group, sex, province/state). ^c Respondents who answered ‘no’ to the question, “Were you able to provide ‘honest’ answers about your marijuana use during the survey?” were excluded. ^d A total of 2,515 respondents from the Nielsen panel and 21 from the Alaska Survey Research panel who incorrectly answered the data quality check question, “What is the current month?” were excluded. Note that respondents who indicated a month ≤2 days of the correct month (i.e., respondents who completed the survey on October 1-2 but selected September or who completed the survey on Oct 30-31 but selected November) were retained. One additional respondent from the US was excluded who provided explicit responses to all open-ended questions. ^e For weighting and analytical purposes, individuals identifying as ‘intersex’ were assigned their gender identity if they selected woman/female or man/male. The remaining 12 respondents who identified their sex as ‘intersex’ and their gender identity as ‘other’/unstated were excluded due to insufficient cell counts for weighting. ^f Respondents were excluded if their total survey time was

<25% of the median survey time; this median value was calculated separately for two groups: those who *had* and had *not* used cannabis in the past 12 months (the latter was expected to complete the survey more quickly due to skip logic). ^gFour duplicate cases who matched on 20 sociodemographic variables (including postal/zip code) were identified; the first entry for each was retained and the remaining two were excluded. ^hA total of 980 respondents aged 19+ were recruited separately to enhance the Alaskan sample size. After exclusions due to data quality, those aged >65 were excluded (n=189) from the main analytic sample, to align the age groups with the remaining ICPS respondents.

DEVICE USE

Data is collected on respondents' browser type. Overall, over half of respondents completed the survey on a smartphone (50.9%) or tablet (4.9%), and the remainder on a desktop/laptop computer (44.2%). Age, sex and past 12-month cannabis use differed significantly by device type ($p < 0.001$ for all). In general, more females used smartphones and tablets, whereas more males used a computer. Younger respondents tended to use smartphones, whereas older respondents tended to use tablets and computers. Use of smartphones was more common among past 12-month cannabis consumers, whereas more non-consumers used tablets and computers.

PARTICIPANT COMPENSATION

Monetary incentives have been shown to increase response rates and to decrease response bias among sub-groups commonly under-represented in surveys, including disadvantaged subgroups. Respondents from Canadian provinces and US states were provided with incentives according to Nielsen's regular remuneration structure.

ETHICS CLEARANCE

The project has been reviewed by and received ethics clearance through a University of Waterloo Research Ethics Committee (ORE#31330).

DATA MANAGEMENT

DATA CLEANING

The survey asked respondents about their current frequency of use in two ways: as a categorical variable (less than once per month, 1+ times per month, 1+ times per week, every day/almost every day) and also as an open-ended variable where the respondent entered the number of days they use cannabis per week/month/in the past 12 months. Where large discrepancies between responses to these two variables existed (e.g., respondent selected "less than once per month" but indicated that they used cannabis on 365 days in the past 12 months), the current frequency of cannabis use was reclassified in variable CURRENT_USE_DV. This affected 4.4% (n=612) of past 12-month cannabis users.

SURVEY WEIGHTS

Post-stratification sample weights were constructed based on the Canadian and US Census estimates. Respondents from Canada were classified into age-by-sex-by-province, education, and age-by-smoking status groups. Respondents from the US legal states were classified into age-by-sex-by-legal

state, education-by-legal state, region-by-race, and age-by-smoking status groups, while those from the illegal states were classified into age-by-sex, education, region-by-race, and age-by-smoking status groups, where for both the legal and illegal states the region refers to the US Census Division, which groups the states into nine groups (New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain or Pacific). Correspondingly grouped population count and proportion estimates were obtained from Statistics Canada^{5,6} and the U.S. Census Bureau.^{7,8} For Canada, the percent change in the smoking rate from the 2018 to 2019 Canadian Community Health Survey (CCHS)⁹ was used to determine the smoking rate for the ICPS 2020 survey weights. It was assumed that the rate of decline in smoking between ICPS 2019 and 2020 was the same as that between CCHS 2018 and 2019. For US legal states and US illegal states, ICPS 2020 was weighted to the smoking rate from ICPS 2019. For US legal states, the four smallest states (Alaska, Maine, Vermont, and the District of Columbia) were merged for the education-by-legal state variable. Separately for Canada, US legal states, and US illegal states, a raking algorithm was applied to the cross-sectional analytic sample (n=45,680) to compute weights that were calibrated to these groupings. Weights were rescaled to the sample size for Canada, US legal states and US illegal states.

SAMPLE SOCIODEMOGRAPHIC PROFILE

The demographic characteristics of the cross-sectional sample are shown in Table 2. Frequencies by state and province are shown in Table 3.

Table 2: International Cannabis Policy Study (ICPS) 2020 cross-sectional sample characteristics^a (n=45,680)

Characteristic	Canada n=15,780		US 'illegal' states n=12,508		US 'legal' states n=17,392	
	Unweighted % (n)	Weighted ^b % (n)	Unweighted % (n)	Weighted ^b % (n)	Unweighted % (n)	Weighted ^b % (n)
Sex						
Female	62.0% (9782)	49.7% (7843)	68.3% (8538)	50.3% (6292)	66.7% (11604)	49.8% (8657)
Male	38.0% (5998)	50.3% (7937)	31.7% (3970)	49.7% (6216)	33.3% (5788)	50.2% (8735)
Age (years)						
mean (SD)	43.1 (15.0)	40.6 (14.9)	42.6 (16.5)	40.2 (15.0)	43.9 (14.5)	40.1 (14.4)
Age group						
16-25	16.5% (2607)	18.7% (2946)	22.4% (2800)	20.5% (2564)	14.0% (2427)	20.0% (3485)
26-35	16.5% (2608)	21.1% (3328)	13.2% (1651)	20.9% (2612)	17.7% (3076)	22.2% (3867)
36-45	18.8% (2972)	20.0% (3156)	15.7% (1964)	19.2% (2405)	19.8% (3446)	19.5% (3396)
46-55	20.3% (3197)	19.4% (3068)	16.7% (2091)	19.5% (2441)	19.1% (3322)	19.2% (3337)
56-65	27.9% (4396)	20.8% (3282)	32.0% (4002)	19.9% (2486)	29.4% (5121)	19.0% (3307)
Ethnicity						
White	74.1% (11700)	71.0% (11206)	79.3% (9923)	75.7% (9469)	78.3% (13626)	75.9% (13205)
Other/Mixed/ Unstated	25.9% (4080)	29.0% (4574)	20.7% (2585)	24.3% (3039)	21.7% (3766)	24.1% (4187)

SD, standard deviation. ^aThe 12 states + District of Columbia that had legalized non-medical cannabis as of September 2020 were considered 'legal' states. ^bData weighted using variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size of Canada and the sample size in the legal states as a group and separately in the illegal states as a group.

Table 3: Proportion of International Cannabis Policy Study (ICPS) 2020 cross-sectional respondents by province or state of residence^a (n=45,680)

Canadian Province (15,780)	Unweighted % (n)	Weighted^b % (n)
British Columbia	15.4% (2432)	13.8% (2173)
Alberta	15.1% (2378)	11.9% (1875)
Saskatchewan	5.9% (924)	3.0% (476)
Manitoba	5.9% (931)	3.6% (563)
Ontario	21.0% (3318)	39.3% (6205)
Quebec	18.1% (2864)	22.1% (3494)
New Brunswick	5.9% (934)	2.0% (316)
Nova Scotia	5.9% (931)	2.5% (401)
Prince Edward Island	1.4% (226)	0.4% (65)
Newfoundland & Labrador	5.3% (842)	1.3% (213)
US State (n=29,900)		
Alaska	2.5% (751)	0.5% (138)
California	8.0% (2396)	24.8% (7415)
Colorado	6.5% (1941)	3.7% (1094)
Illinois	7.3% (2176)	7.8% (2346)
Maine	1.8% (540)	0.8% (244)
Massachusetts	7.4% (2207)	4.4% (1307)
Michigan	7.0% (2104)	6.1% (1829)
Nevada	4.2% (1261)	1.9% (567)
Oregon	5.0% (1507)	2.6% (775)
Vermont	0.7% (210)	0.4% (115)
Washington State	6.6% (1976)	4.7% (1419)
District of Columbia	1.1% (323)	0.5% (143)
'Illegal' states	41.8% (12508)	41.8% (12508)

^aUS states were classified as 'legal' (12) or 'illegal' (39), based on the legal status of recreational cannabis at the time of the study (Sept 2020). The 12 US 'legal' states were oversampled compared to US 'illegal' states to ensure sufficient representation. ^bData are weighted to the national population using the variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size of Canada, US legal states as a group, and US illegal states as a group. Note that using the variable WEIGHT_RESC_REGION would provide identical sample sizes (% , n) for unweighted and weighted data.

COMPARISONS WITH NATIONAL BENCHMARKS

The weighted ICPS sample was compared with national Canadian and US estimates for socio-demographic factors and cannabis use (see Tables 4-10). The Canadian ICPS sample was similar to the national population in terms of education level, and fairly similar in terms of ethnicity. Compared to the national US population, the US sample had fewer respondents with less than a high school education, but a similar percentage with a bachelor's degree or higher. The US sample aligned fairly well with the national population in terms of ethnicity, with the exception that it had fewer Hispanic respondents. The ICPS sample had poorer self-reported general health compared to the national populations in both countries, which is a feature of many non-probability samples,¹⁰ and may be partly due to the use of web surveys, which provide greater perceived anonymity than the in-person or telephone-assisted interviews often used in national surveys.¹¹

Table 4: Comparison between 2020 ICPS sample and sociodemographic profile in Canada

	Census 2016 ^a , age 15-64 %	ICPS 2020, Canada, age 16-65 (n=15,601) Unweighted % (n)	ICPS 2020, Canada, age 16-65 (n=15,601) Weighted ^d % (n)
Education			
Less than high school	15.6%	10.4% (1624)	15.3% (2413)
High school diploma or equivalent	26.8%	15.5% (2425)	26.8% (4173)
Some college or technical training or diploma	32.7%	40.2% (6268)	32.8% (5103)
Bachelor's degree or higher	24.9%	33.9% (5284)	24.9% (3882)
	CCHS 2015 ^b , age ≥12 %	ICPS 2020, Canada, age 16-65 (n=15,780) Unweighted % (n)	ICPS 2020, Canada, age 16-65 (n=15,780) Weighted ^d % (n)
Ethnicity			
White	77.0%	75.9% (11983)	72.7% (11476)
Chinese (ICPS: East and Southeast Asian)	3.3%	8.9% (1410)	9.7% (1525)
Indigenous	4.7%	3.6% (567)	3.4% (529)
South Asian	3.4%	3.4% (539)	4.1% (648)
Black	2.0%	3.2% (502)	4.3% (672)
Other/Mixed/Unstated (ICPS: also includes Latino and Middle Eastern)	9.6%	6.1% (968)	7.0% (1096)
	CCHS 2019 ^c % (n)	ICPS 2020, Canada, age 16-65 (n=15,780) Unweighted % (n)	ICPS 2020, Canada, age 16-65 (n=15,780) Weighted ^d % (n)
Perceived health			
Excellent or Very good			
18-34	67.6%	51.0% (1931)	49.1% (2106)
35-49	65.1%	45.2% (2002)	42.8% (1993)
50-64	56.6%	43.3% (2605)	40.4% (1986)
Fair or Poor			
18-34	6.8%	14.9% (564)	17.0% (729)
35-49	8.0%	18.0% (797)	20.0% (933)
50-64	12.8%	19.5% (1171)	22.0% (1084)

^aData obtained from the Canada Census 2016; values from ICPS 2020 exclude Don't know/Refuse to answer (n=179, 1.1%); ^bdata obtained from the Canadian Community Health Survey 2015; ^cdata obtained from the 2018 Canadian Community Health Survey (CCHS); values from ICPS 2020 exclude Don't know/Refuse to answer (n=51, 1.3%). ^dData weighted using the variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size of Canada.

Table 5: Comparison between 2020 ICPS sample and census sociodemographic profile in the United States (US)

	ACS 2019 ^a , age 18-64	ICPS 2020 US total age 18-65, weighted ^d (n=27,637) ^e	ICPS 2020 'illegal' states age 18-65 (n=11428)		ICPS 2020 'legal states' age 18-65 (n=16535)	
Education	%	% (n)	Unweighted % (n)	Weighted ^g % (n)	Unweighted % (n)	Weighted % (n)
Less than high school	10.7%	4.2% (1154)	4.4% (491)	4.6% (522)	2.8% (467)	3.2% (536)
High school or more (but not Bachelor's)	58.1%	63.8% (17,627)	58.0% (6,541)	64.3% (7348)	52.1% (8,776)	62.5% (10,342)
Bachelor's degree or higher	31.1%	32.0% (8856)	37.7% (4248)	31.1% (3558)	45.1% (7597)	34.2% (5656)
	US Census 2019 ^b age 16-65	ICPS 2020 US total age 18-65, weighted (n=27,838)	ICPS 2020 'illegal' states age 18-65 (n=11493)		ICPS 2020 'legal states' age 18-65 (n=16717)	
Ethnicity (exclusive categories)	%	% (n)	Unweighted % (n)	Weighted % (n)	Unweighted % (n)	Weighted % (n)
White	75.8%	76.6% (21331)	80.8% (9173)	76.7% (8819)	78.7% (13384)	76.4% (12765)
Black or African American	13.9%	13.5% (3767)	9.4% (1064)	15.6% (1788)	6.1% (1043)	8.7% (1462)
Asian	6.4%	4.4% (1234)	4.0% (450)	3.2% (368)	6.5% (1099)	7.3% (1228)
American Indian or Alaskan Native	1.3%	1.0% (269)	1.0% (108)	0.9% (98)	1.3% (217)	1.2% (207)
Native Hawaiian or Pacific Islander	0.3%	0.4% (98)	0.3% (34)	0.3% (32)	0.5% (77)	0.5% (87)
Other/≥2 races/ un stated	2.4%	4.1% (1138)	4.5% (519)	3.3% (387)	7.0% (1182)	5.8% (968)
Hispanic origin	18.6%	10.7% (2986)	8.0% (909)	9.3% (1071)	9.1% (1545)	14.0% (2349)
	NHIS 2018 ^c age ≥18	ICPS 2020 US total age 18-65, weighted (n=27611) ^f	ICPS 2020 'illegal' states, age 18-65 (n=11408)		ICPS 2020 'legal states' age 18-65 (n=16549)	
Self-rated health	%	% (n)	Unweighted % (n)	Weighted % (n)	Unweighted % (n)	Weighted % (n)
Excellent	34.5%	15.6% (4312)	13.5% (1525)	15.7% (1786)	13.9% (2338)	15.5% (2570)
Very good	31.1%	30.2% (8342)	30.1% (3397)	29.2% (3332)	33.3% (5618)	32.6% (5395)
Good	23.9%	33.6% (9277)	34.5% (3889)	33.5% (3823)	35.0% (5904)	33.8% (5594)
Fair	8.0%	16.7% (4615)	17.5% (1970)	17.5% (1998)	14.5% (2451)	14.8% (2452)
Poor	2.4%	3.9% (1064)	4.3% (490)	4.1% (469)	3.3% (550)	3.2% (538)

^aData obtained from the American Community Survey (ACS) 2019. ^bData obtained from the US Census 2019. ^cData obtained from the National Health Interview Survey (NHIS) 2018.

^dNational data weighted using WEIGHT_US_NATIONAL, which are the inflation weights scaled back to the US sample size as a whole. ^eICPS 2020 data exclude 'Don't know' and 'Refuse to answer' (n=201, 0.7%) ^fICPS 2020 data exclude 'Don't know' and 'Refuse to answer' (n=227, 0.8%), ^gIllegal and legal state data weighted using variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size in the legal states as a group and separately in the illegal states as a group.

CANNABIS USE – COMPARISONS WITH NATIONAL BENCHMARK SURVEYS

Tables 6 to 10 show estimates of cannabis use among ICPS respondents compared with population estimates from national benchmark surveys.

In the Canadian ICPS sample, cannabis prevalence was generally higher than national surveys for adults, and lower than national surveys for youth/young adults. Mean age of initiation of cannabis use was similar to national estimates. Prevalence of use of dried flower and other product types among past 12-month consumers was very similar to national estimates.

In the US ICPS sample, lifetime cannabis estimates were higher than national estimates among adults and lower among youth/young adults. ICPS estimates of past 12-month and 30-day use were slightly lower than national estimates for 16-25-year-olds, similar to national estimates for 18-25-year-olds, and higher among older age groups.

Of note, national 2020 data for Canada and the US were unavailable at the time of writing; comparisons to 2019 data may not reflect secular changes in cannabis use that occurred from 2019-2020.

Table 6: Indicators of cannabis use among International Cannabis Policy Study (ICPS) 2020 cross-sectional respondents, weighted^a

Indicator	All ICPS respondents n=45,680			Past 12-month cannabis users n=14,791		
	Canada n=15,780	US 'illegal' state n=12,508	US 'legal' state n=17,392	Canada n=5,378	US 'illegal' state n=3,403	US 'legal' state n=6,010
Ever tried cannabis						
Yes	60.7% (9572)	56.9% (7123)	63.3% (11014)	100%	100%	100%
Cannabis use status^b						
Never user	39.3% (6208)	43.1% (5385)	36.7% (6378)	--	--	--
Used >12 months ago	26.6% (4194)	29.7% (3720)	28.8% (5005)	--	--	--
Used in past 12 months	10.2% (1610)	6.7% (833)	8.1% (1405)	29.9% (1610)	24.5% (833)	23.4% (1405)
Monthly user	6.4% (1008)	5.2% (646)	6.7% (1160)	18.7% (1008)	19.0% (646)	19.3% (1160)
Weekly user	5.7% (896)	4.4% (544)	6.1% (1059)	16.7% (896)	16.0% (544)	17.6% (1059)
Daily/almost daily user	11.8% (1863)	11.0% (1380)	13.7% (2386)	34.7% (1863)	40.6% (1380)	39.7% (2386)

SD, standard deviation. ^aData are weighted to the national population using the variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size of Canada, US legal states as a group, and US illegal states as a group. ^bExclusive categories ('Used in past 12 months' does not include monthly, weekly, or daily/almost daily users).

Table 7: Cannabis use in Canada among ICPS 2020 cross-sectional respondents and national surveys

	CCS 2020 ^a , age ≥16 (n=12,023)	NCS 2019 ^b , age 15-64	NCS 2020 ^c , age ≥15	ICPS 2020, Canada, age 16-65 (n=15,780)	
	%	%	%	Unweighted %	Weighted ^d %
Lifetime (ever) use	59.6%	49.5%	--	61.3%	60.7%
16-19	52.2%	--	--	34.2%	33.8%
16-24 (NCS: 15-24)	--	40.7%	--	42.6%	40.3%
20-24	68.4%	--	--	58.2%	59.3%
25-44	--	57.4%	--	66.6%	67.4%
45-64	--	44.5%	--	63.4%	63.0%
Past 12-month use	26.9%	--	--	31.8%	34.1%
Age 16-19	43.5%	--	--	27.7%	27.7%
Age 20-24	52.5%	--	--	42.9%	44.5%
Past 30-day use	18.1%	--	--	21.3%	23.5%
Age 16-19	27.1%	--	--	15.9%	16.1%
Age 20-24	35.7%	--	--	27.9%	30.2%
Past 3-month use	--	17.1%	20.0%	25.1%	23.5%
Frequency of cannabis use (full sample)					
Monthly	--	--	--	--	--
16-24 (NCS: 15-24)	--	3.3%	--	5.8%	5.5%
25-44	--	3.8%	--	8.1%	8.4%
45-64	--	1.1%	--	4.6%	5.0%
Weekly	--	--	--	--	--
16-24 (NCS: 15-24)	--	5.0%	--	5.1%	4.9%
25-44	--	5.2%	--	6.5%	7.2%
45-64	--	2.0%	--	4.4%	4.7%
Daily/almost daily	--	--	--	--	--
15+	--	--	7.9%	10.0%	11.8%
16-24 (NCS: 15-24)	--	7.8%	--	9.2%	9.2%
25-44	--	9.2%	10.8%	12.7%	15.4%
45-64	--	4.2%	4.6%	8.6%	9.6%
Frequency of cannabis use (past 12-month users)					
Monthly	18.9%	13.9%	--	18.7%	18.7%
Weekly	21.3%	20.4%	--	16.2%	16.7%
Daily/almost daily	24.8%	36.4%	--	31.5%	34.7%

Initiation to cannabis use					
Mean age (years)	20.0	--	--	20.7	20.2
16-19	15.7	--	--	15.4	15.5
20-24	17.2	--	--	17.4	17.2
Products used (current users)					
Dried flower*	73.8%	--	70.9%	71.0%	73.0%
Edibles (foods)	48.8%	--	41.4%	52.9%	52.9%
Vaped*	21.7%	--	23.2%	23.8%	25.5%
Hash/kief	19.0%	--	15.9%	20.5%	24.0%
Oils for oral ingestion**	25.0%	--	18.9%	35.9%	33.6%
Solid concentrates	13.4%	--	12.1%	15.6%	17.7%
Topical ointments	6.9%	--	--	15.9%	16.1%
Beverages	6.0%	--	13.6%	13.6%	15.1%

^aData obtained from the 2020 Canadian Cannabis Survey (CCS) in which cannabis users may have been more likely to complete the study compared to other surveys such as CSTADS; ^bdata obtained from the National Cannabis Survey (NCS), third quarter 2018; ^cData obtained from the NCS, fourth quarter 2020; ^ddata weighted using the variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size of Canada Sources: Cannabis use and mode of use: Canadian Cannabis Survey 2020 Detailed Data Tables. Available at: https://epe.lac-bac.gc.ca/100/200/301/pwgsc-tpsgc/por-ef/health/2020/114-19-e/CCS2020_DetailedTables_ENG.pdf Frequency of cannabis use: Statistics Canada. National Cannabis Survey, 2019. Available at: Lifetime cannabis use: Statistics Canada. National Cannabis Survey, Table 1. Number and percentage of people reporting never having used, formerly using, currently using cannabis by frequency, by age group, household population aged 15 or older, Canada (provinces only), second and third quarters combined 2019. Available at: <https://www150.statcan.gc.ca/n1/daily-quotidien/191030/t001a-eng.htm>. Past 3-month use, daily use and product use in 2020 (age 15+): Statistics Canada. National Cannabis Survey. Looking back from 2020, how cannabis use and related behaviours changed in Canada. Available at: <https://www150.statcan.gc.ca/n1/pub/82-003-x/2021004/article/00001-eng.htm>

*Note that ICPS asks about dried herb (smoked or vaped) separate from oils/liquids for vaping, whereas CCS asks about use of dried flower versus use of a vape pen or cartridge. Thus, CCS estimates for vaping include vaporizing dried flower, which is captured in the 'dried flower' estimate for ICPS. **Note that the NCS asks about "liquid concentrate" and "liquids (non-concentrate)" whereas the ICPS asks about "oil or liquids taken orally" and "drinks (e.g., cola, tea coffee)", respectively.

Table 8: International Cannabis Policy Study annual changes in cannabis estimates, Canada, weighted^a

Indicator of cannabis use	ICPS Canada 2018 n=10,057	ICPS Canada 2019 n=15,256	ICPS Canada 2020 n=15,780	ICPS Canada 2018-2019 relative change	ICPS Canada 2019-2020 relative change	CCS (age ≥16) 2019- 2020 relative change
Ever tried cannabis						
All respondents	56.5%	62.0%	60.7%	9.7%	-2.1%	1.9%
Age 16-19	32.0%	36.1%	33.8%	12.8%	-6.4%	-2.1%
Age 20-24	57.2%	61.6%	59.3%	7.7%	-3.7%	-1.3%
Age 25-44	61.8%	69.4%	67.4%	12.3%	-2.9%	--
Age 45-64	59.8%	61.7%	63.0%	3.2%	2.1%	--
Past 12-month use						
All respondents	27.5%	35.3%	34.1%	28.4%	-3.4%	9.3%
Age 16-19	25.9%	29.3%	27.7%	13.1%	-5.5%	-1.8%
Age 20-24	40.5%	46.1%	44.5%	13.8%	-3.5%	2.3%
Age 25-44	34.8%	43.6%	42.0%	25.3%	-3.7%	--
Age 45-64	20.5%	27.6%	28.0%	34.6%	1.4%	--
Past 30-day use						
All respondents	18.7%	23.6%	23.5%	26.2%	-0.4%	7.1%
Age 16-19	15.1%	15.5%	16.1%	2.6%	3.9%	-7.5%
Age 20-24	25.5%	28.5%	30.2%	11.8%	6.0%	2.0%
Age 25-44	24.1%	30.0%	30.0%	24.5%	0.0%	--
Age 45-64	14.5%	18.8%	19.3%	29.7%	2.7%	--
Daily/almost daily use						
All respondents	8.9%	11.3%	11.8%	27.0%	4.4%	1.1%
Age 16-19	5.4%	5.5%	6.3%	1.9%	14.5%	55.9%
Age 20-24	11.6%	14.3%	17.5%	23.3%	22.4%	11.6%
Age 25-44	11.5%	15.1%	15.4%	31.3%	2.0%	--
Age 45-64	7.5%	8.8%	9.6%	17.3%	9.1%	--

^aData are weighted to the national population using the variable WEIGHT_NATIONAL, which are the national inflation weights scaled back to the sample size of Canada.

Table 9: Cannabis use in the USA among ICPS 2020 cross-sectional respondents and national surveys

	NSDUH 2019^a age 12+ n=67,625	ICPS 2020 US total age 16-65 n=29,900	ICPS 2020 'illegal' states age 16-65 n=12,508		ICPS 2020 'legal states' age 16-65 n=17,392	
Cannabis use	%	Weighted^b %	Unweighted %	Weighted^d %	Unweighted %	Weighted^d %
Ever (lifetime) use						
Age 16-25	47.6%	40.8%	37.7%	39.1%	50.8%	45.2%
Age 18-25	51.7%	48.4%	46.0%	52.2%	55.1%	50.1%
Age 26-49	54.6%	62.7%	60.8%	60.7%	67.3%	67.5%
Age 50-54	51.9%	62.1%	59.6%	61.2%	65.5%	64.3%
Age 55-59	53.6%	65.2%	60.6%	63.2%	69.8%	70.2%
Age 60-64	56.7%	65.9%	61.0%	64.2%	69.4%	70.7%
Past 12-month use						
Age 16-25	33.4%	29.2%	26.9%	28.6%	34.9%	30.8%
Age 18-25	35.4%	34.6%	33.0%	35.0%	38.0%	34.0%
Age 26-49	21.7%	34.3%	30.2%	31.6%	39.2%	40.8%
Age 50-54	12.4%	25.5%	21.6%	23.5%	28.2%	30.3%
Age 55-59	13.5%	23.5%	19.1%	21.7%	25.6%	28.0%
Age 60-64	14.0%	19.0%	14.4%	16.9%	23.7%	24.6%
Past 30-day use						
Age 16-25	21.4%	18.2%	15.9%	17.2%	22.7%	20.6%
Age 18-25	23.0%	22.4%	20.5%	21.9%	25.1%	23.3%
Age 26-49	14.4%	22.9%	19.3%	20.5%	27.5%	28.7%
Age 50-54	8.2%	17.8%	15.6%	16.6%	18.7%	20.7%
Age 55-59	9.0%	16.2%	12.7%	14.7%	17.0%	19.9%
Age 60-64	9.8%	13.0%	9.6%	11.5%	15.9%	16.9%

^aData obtained from the 2019 National Survey on Drug Use and Health (NSDUH); ^bNational data weighted using WEIGHT_US_NATIONAL, which are the inflation weights scaled back to the US sample size as a whole. ^dIllegal and legal state data weighted using variable WEIGHT_RESC, which are the inflation weights scaled back to the sample size in the legal states as a group and separately in the illegal states as a group. Source: Substance abuse and Mental Health Services Administration (SAMHSA). Key Substance Use and Mental Health Indicators in the United States: Results from the 2019 National Survey on Drug Use and Health. 2020. <https://www.samhsa.gov/data/sites/default/files/reports/rpt29393/2019NSDUHFFR1PDFWHTML/2019NSDUHFFR1PDFW090120.pdf>

Table 10: International Cannabis Policy Study cross-sectional sample comparison, United States, weighted^a

Indicator of cannabis use	ICPS US 2018 n=17,112	ICPS US 2019 n=30,479	ICPS US 2020 n=29,900	ICPS US 2018-2019 relative change	ICPS US 2019-2020 relative change	NSDUH (≥12 years) 2019-2020 relative change not yet available
Ever tried cannabis						
All respondents	56.1%	64.0%	58.8%	14.1%	-8.1%	
Age 16-19	31.9%	41.3%	32.5%	29.5%	-21.3%	
Age 20-25	52.7%	60.6%	52.4%	15.0%	-13.5%	
Age 26-49	57.4%	68.2%	62.7%	18.8%	-8.1%	
Age 50-64	66.1%	67.1%	64.5%	1.5%	-3.9%	
Past 12-month use						
All respondents	26.0%	32.7%	29.3%	25.8%	-10.4%	
Age 16-19	26.0%	31.6%	23.9%	21.5%	-24.4%	
Age 20-25	38.5%	40.0%	36.7%	3.9%	-8.3%	
Age 26-49	28.6%	37.1%	34.3%	29.7%	-7.5%	
Age 50-64	21.1%	24.6%	22.6%	16.6%	-8.1%	
Past 30-day use						
All respondents	16.2%	21.8%	19.5%	34.6%	-10.6%	
Age 16-19	12.7%	16.4%	13.9%	29.1%	-15.2%	
Age 20-25	22.4%	25.3%	24.2%	12.9%	-4.3%	
Age 26-49	18.0%	25.7%	22.9%	42.8%	-10.9%	
Age 50-64	14.7%	17.3%	15.6%	17.7%	-9.8%	
Daily/almost daily use						
All respondents	8.3%	12.8%	11.8%	54.2%	-7.8%	
Age 16-19	4.0%	7.4%	7.8%	85.0%	5.4%	
Age 20-25	10.0%	16.7%	15.3%	67.0%	-8.4%	
Age 26-49	9.7%	16.1%	14.5%	66.0%	-9.9%	
Age 50-64	8.10%	8.8%	8.5%	8.6%	-3.4%	

^aData are weighted to the national population using the variable WEIGHT_NATIONAL, which are the national inflation weights scaled back to the sample size of the USA.

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